Policies

- **Admin Record Guidance Fish and Wildlife Service**
- **Admin Record Guidance U.S. Department of Justice**
- **Environmental Review Memorandum ERM00-2**
- **Environmental Review Memorandum ERM99-2**
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- **RM93-23 Decommissioning Policy**
- **Section 18 Guidance - Directors Version May 2002**
- **Solicitors Opinion Memorandum Enhancement under the Electric Consumers Protection Act of 1986**
- **Solicitors Opinion Memorandum Whether Public Lands Withdrawn by Executive Orders 6910 and 6964 or established as Grazing Districts are "Reservations" within the Meaning of Section 4(e) of the Federal Power Act**

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Washington, D.C. 20240

IN REPLY REFER TO:
FWS/PDM

February 14, 2000

Memorandum

To: All Fish and Wildlife Service Employees

From: Director /s/ Jamie Rapport Clark

Subject: Compiling an Administrative Record

An administrative record is the paper trail that documents our decision-making process and the basis for our decisions. An incomplete record may affect our ability to defend our decisions if we are challenged in court.

All managers as well as any employee who could be involved in establishing an administrative record must read and follow the attached guidance from the Solicitor's Office and the Department of Justice. If you have questions about administrative record requirements, contact your Solicitor's Office.

We will incorporate the attached guidance into the Fish and Wildlife Service Manual.

Attachment

MEMORANDUM JAN 7, 2000

To: Director, U.S. Fish and Wildlife Service

From: Assistant Solicitor, Fish Wildlife and Environmental Protection Branch
/s/ Pete Raynor

Subject: Guidance on Compiling an Administrative Record

The first, and sometimes most difficult, part of a lawsuit is assembling the administrative record - the collection of documents that reflects the Service's decision-making process. These are the documents that a judge will review to determine whether that process and the Service's final decision were proper. This memo explains what the administrative record is, summarizes major points to consider when assembling the record, and explains why an accurate and thorough record is crucial. Attached is guidance provided by the Department of Justice, which gives more detailed advice on how to compile an administrative record.

The requirement to provide an administrative record in the course of litigation comes from the Administrative Procedure Act, which states that judges must review agency actions based on the "whole record." As explained further in the attached guidance, this has been interpreted to mean all documents and materials directly or indirectly considered by persons involved in the decision-making process. Thus, the record should include:

★ All documents and materials that were before or available to persons involved in the decision at the time the decision was made.

★ All documents that were considered or relied upon by persons involved in the decision.

★ Documents that relate to both the substance and procedure of making the decision.

★ All pertinent documents regardless of whether they favor the decision that was finally made, favor alternatives other than the final decision, or express criticism of the final decision. Documents should never be withheld just because they reflect negatively on the decision that was finally made.

★ Documents that may end up later being redacted or removed from the record on the basis of privilege.

The record should <u>not</u> include:

★ Documents associated with, but not part of, the decision-making process, such as fax cover sheets.

★ Various versions of a document where the differences among the drafts reflect minor editing changes. Include drafts, however, where hand-written notes or changes from one version to the next reflect the evolving process.

★ E-mails and other correspondence that discuss the agency action generally but do not reflect decision-making considerations by staff (for example, communications between biologists whose work may be affected by the outcome of the decision-making process but who are not involved in the decision itself).

Providing a thorough and accurate record to the court allows the Service to show a judge that it fully considered all relevant factors during the decision-making process. While a judge may allow the Service to later supplement a record with documents that were overlooked during the initial compilation, we lose credibility when we have to add documents that should have been included from the beginning. At worst, an incomplete record may affect the Service's ability to defend its final decision by signaling to the court that the agency's decision was not based on a reasoned consideration of all important information.

The importance of a complete and accurate record underscores the need not to wait until a lawsuit is filed before collecting all documents before the Service during the decision-making process. Any and all documents that are considered should be collected and organized as the decision-making process evolves. In the new world of e-mail and the Internet, correspondence that reflects the decision-making process should be printed out and stored with memos, research papers, and other documents. Where options are weighed or decisions made during meetings and conference calls, a document such as a memo to the file will memorialize how the decision was reached and show that the agency fully considered all aspects of the situation before making the decision. Finally, the person assigned the responsibility of compiling and organizing the administrative record should remember to check with all other persons and offices - including the Washington office - that may have documents that should be included in the record.

Putting together a good administrative record is complicated, and questions will always arise over whether or not a particular document belongs in the record. We strongly recommend that managers and anyone who could be involved in assembling an administrative record read this memo and the attached guidance from the Department of Justice. That guidance was put together specifically because of the importance of building a good administrative record when defending agencies such as the Service. It is imperative that Service staff understand and follow this guidance. Any Service staff that have questions about administrative record requirements in general or any document in particular should contact the Solicitor's Office for assistance.

cc: Regional Solicitors

Dated: January 1999

Guidance to Federal Agencies on Compiling

The Administrative Record

Introduction

Under the Administrative Procedure Act (APA), a court reviews an agency's action to determine if it was "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." 5 U. S.C. § 706(2) (A). In making this determination, a court evaluates the agency's whole administrative record. The administrative record is the paper trail that documents the agency's decision-making process and the basis for the agency's decision.

The APA governs judicial review of a challenged agency decision. However, several statutes specify what documents and materials constitute an administrative record, e.g., 42 U.S.C. § 7607(d)(7)(A) (provision states what materials will constitute the record for the purpose of judicial review of certain enumerated types of rulemaking issued under the Clean Air Act); 42 U.S. C. § 9613(j) and (k) (CERCLA). At the outset, be sure to determine whether a statute other than the APA applies in the case. In addition, regulations may govern how to assemble a record. See, e.g. , 40 C.F.R. 300.800 -300.825 (CERCLA); 40 C.F.R. Part 24 (RCRA Corrective Action). See also FRAP Rules 16 and 17 (record on review or enforcement and filing of the record).

The purpose of this memorandum is to provide guidance to agencies in compiling the administrative record of agency decisions other than a formal rulemaking or an administrative adjudication. Optimally, an agency will compile the administrative record as documents and materials are generated or received in the course of the agency decision-making process. The record may be a contemporaneous record of the action. However, the administrative record may be compiled by the agency after litigation has been initiated. An agency employee should be designated to be responsible for compiling the administrative record. That individual will be responsible for certifying the administrative record to the court. S/he may keep a record of where s/he searched for the documents and materials and who was consulted in the process of compiling the administrative record.

It is critical for the agency to take great care in compiling a complete administrative record. If the agency fails to compile the whole administrative record, it may significantly impact our ability to defend and the court's ability to review a challenged agency decision.

1. General Principles for Compiling the Administrative Record

The administrative record consists of all documents and materials directly or indirectly

considered by the agency decision maker in making the challenged decision. It is not limited to documents and materials relevant only to the merits of the agency's decision. It includes documents and materials relevant to the process of making the agency's decision.

- # Include documents and materials whether they support or do not support the final agency decision.

- # Include documents and materials which were before or available to the decision-making office at the time the decision was made.

- # Include documents and materials that were considered by or relied upon by the agency.

- # Include documents and materials that were before the agency at the time of the challenged decision, even if they were not specifically considered by the final agency decision-maker.

- # Include privileged and non-privileged documents and materials. (See section 4).

2. Where To Find The Documents and Materials That Comprise The Administrative Record

The agency should identify an agency employee to be responsible for compiling the administrative record. The identified agency person should be responsible, careful, and prepared to provide an affidavit. S/he should keep a record of where s/he searched for documents and who was consulted in the process. S/he should conduct a thorough search for the purpose of compiling the whole record, including the following:

- # Contact all agency people, including program personnel and attorneys, involved in the final agency action and ask them to search their files and agency files for documents and materials related to the final agency action. Include agency people in field offices.

- # Contact agency units other than program personnel, such as congressional and correspondence components.

- # Where personnel involved in the final agency action are no longer employed by the agency, search the archives for documents and materials related to the final agency action. A former employee may be contacted for guidance as to where to search.

- # Determine whether there are agency files relating to the final agency action. If there are such files, search those files.

- # If more than one agency was involved in the decision- making process, the lead agency should contact the other agencies to be sure the record contains all the documents and materials that were considered or relied on by the lead agency.

- # Search a public docket room to determine whether there are relevant documents or materials.

3 . What Documents and Materials To Include In The Administrative Record

a) Types of materials:

- # Documents that are to be included in the administrative record should not be limited to paper but should include other means of communication or ways of storing or presenting information, including e-mail, computer tapes and discs, microfilm and microfiche. See 36 C.F.R. Chapter XII, subchapter B (electronic records). The term should include data files, graphs, charts and handwritten notes. Do not include personal notes, meaning an individual's notes taken at a meeting or journals maintained by an individual, unless they are included in an agency file. An agency file is determined by agency control, possession and maintenance.

b) Kinds of Information:

- # Include all documents and materials prepared, reviewed, or received by agency personnel and used by or available to the decision-maker, even though the final decision-maker did not actually review or know about the documents and materials.

- # Include policies, guidelines, directives and manuals.

- # Include articles and books. Be sensitive to copyright laws governing duplication.

- # Include factual information or data.

- # Include communications the agency received from other agencies and from the public, and any responses to those communications. Be aware that documents concerning meetings between an agency and OMB should be

included but may qualify, either partially or fully, for the deliberative process privilege.

- # Include documents and materials that contain information that support or oppose the challenged agency decision.

- # Exclude documents and materials that were not inexistence at the time of the agency decision.

- # As a general rule, do not include internal “working” drafts of documents that were or were not superseded by a more complete, edited version of the same document. Generally, include all draft documents that were circulated for comment either outside the agency or outside the author's immediate office, if changes in these documents reflect significant input into the decision-making process. Drafts, excluding "working" drafts, should be flagged for advice from the DOJ attorney or the Assistant United States Attorney (AUSA) on whether: 1) the draft was not an internal “working” draft; and 2) the draft reflects significant input into the decision-making process.

- # Include technical information, sampling results, survey information, engineering reports or studies.

- # Include decision documents.

- # Include minutes of meetings or transcripts thereof.

- # Include memorializations of telephone conversations and meetings, such as a memorandum or handwritten notes, unless they are personal notes.

4. How To Handle Privileged Documents and Materials

Generally, the administrative record includes privileged documents and materials and documents and materials that contain protected information. However, once the record is compiled privileged or protected documents and materials are redacted or removed from the record.

The agency should consult with the agency counsel and the DOJ attorney or the AUSA as to the type and the extent of the privilege(s) asserted. Be sensitive to the relevant privileges and prohibitions against disclosure, including, but not limited to, attorney-client, attorney work product, Privacy Act, deliberative or mental processes, executive, and confidential business information.

If documents and materials are determined to be privileged or protected, the index of record must identify the documents and materials, reflect that they are being withheld, and state on what basis they are being withheld.

5. How to Organize the Administrative Record

- # Organize the documents and materials in a logical and accessible way.
- # Organize the documents and materials in chronological order and/or by topic.
- # Documents and materials that do not fit into a chronological order may be separated by category, e.g., internal policies, guidelines or manuals.
- # After a DOJ attorney or an AUSA has had the opportunity to review the administrative record for completeness and organization, it may be useful to bates stamp or to number each item. A DOJ attorney or an AUSA may review the documents and materials the agency decided were not contained in the administrative record.
- # Prepare an index to the administrative record.
- # Index should identify each document and material by the bates stamp number or document number and a brief description of the document or material, e.g., "memorandum dated June 5, 1997 from Mary Smith to EPA Administrator Jones regarding June 6, 1997 meeting agenda." If a document or material is being withheld based on a privilege or prohibition, state the privilege or prohibition.
- # The agency must certify the administrative record.[1] Certificate language should reflect how the agency person who was responsible for compiling the record has personal knowledge of the assembly of the administrative record. Attached are sample certificates. Neither a DOJ attorney nor an AUSA should certify the record to avoid having them be a possible witness in the case.
- # The DOJ attorney or the AUSA must consult the local rules of the court in which the matter is pending to determine how to file the administrative record with the court. If the local rules are silent on this issue, the DOJ attorney or the AUSA can address the issue with the parties and the court.

[1] If the agency fails to certify the record, the government may not be able to file a motion for summary judgment.

For example, it may be appropriate to file only the index with the court and to provide the parties with copies of the index and the opportunity to review the record or to file the parts of the record that the parties will rely on as grounds for their motions for summary judgment. The U.S. Attorney's Office in the jurisdiction in which the matter is pending should always be consulted.

6. Important For Court To Have The Whole Administrative Record

- # A court reviews the agency action based on the whole administrative record before the agency at the time the decision was made.

- # The whole administrative record allows the court to determine whether the agency's decision complied with the appropriate APA standard of review.

- # All agency findings and conclusion and the basis must appear in the record.

- # The administrative record is the agency's evidence that its decision and its decision-making comply with relevant statutory and regulatory requirements.

- # A court may remand the matter where the agency's reasoning for its decision is not contained in the administrative record,

7. Consequences of Incomplete Administrative Record

- # If record is incomplete, government may be permitted to complete the record but, by doing so, you also may raise questions about the completeness of the entire record.

- # If the court decides the record is not complete, it should remand the matter to the agency. However, it may allow extra-record discovery, including depositions of agency personnel, and may allow court testimony of agency personnel.

- # Generally, although it may vary from circuit to circuit, courts will allow discovery when a party has proffered sufficient evidence suggesting:

  - -- bad faith;

  - -- improprieties may have influenced the decision-maker; or

-- agency relied on substantial materials not included in the record.

A party must make a strong showing that one of these exceptions applies before a court will allow extra-record inquiry.

8. Supplementation of the record

When the administrative record fails to explain the agency's action, effectively frustrating judicial review, the court may allow the agency to supplement the record with affidavits or testimony.

Be aware once the government supplements with affidavits or testimony, opposing party might depose your witnesses and/or submit additional affidavits or testimony.

Be aware if agency counsel becomes a potential witness, it may be appropriate to screen the agency counsel from participation in the litigation. ABA Model Rule of Professional Responsibility 3.7.

Conclusion

When an agency must defend a final agency action before a court, it should take great care in preparing the administrative record for that decision. It is worth the effort and may avoid unnecessary and/or unfortunate litigation issues later on.

This memorandum provides only internal Department of Justice guidance. It does not create any rights, substantive or procedural, which are enforceable at law by any party. No limitations are hereby placed on otherwise lawful prerogatives of the Department of Justice or any other federal agency.

Attachments

March 27, 2000

PEP - Environmental Review Memorandum NO. ERM00-2

To: Heads of Bureaus and Offices

From: Director, Office of Environmental Policy and Compliance **/s/ Willie R. Taylor**

Subject: Review of Applications to the Federal Energy Regulatory Commission (FERC) for Hydroelectric Power Licenses

1. BACKGROUND AND PURPOSE

This memorandum supplements 516 DM 7. The Office of Environmental Policy and Compliance (OEPC) provides oversight, guidance, and process management of the Department's review of FERC applications and associated exhibits, studies, and environmental documents for hydroelectric projects covered by the Federal Power Act (FPA), as amended. Following an extensive Secretarial hydropower initiative (1997-2000) to improve bureau coordination, a number of existing Departmental policies and practices in this area were revised and a number of new policies and practices were introduced. In addition, measures are provided to coordinate legal and technical review and to assure the development of a sound administrative record in FERC licensing proceedings. Legal review for the Department is provided by the Office of the Solicitor (SOL).

The purpose of this memorandum is to provide additional information, policies, and procedures resulting from the Secretarial initiative and passed practices to be used by all bureaus in the review of FERC applications. It is not intended to replace any other bureau procedural guidance and such guidance is recommended where necessary. Handbooks and other less formal guidance may be prepared, published, and utilized by bureaus so long as they do not conflict with this memorandum.

2. REISSUE

This memorandum has been revised and reissued as ERM00-2. ERM00-2 replaces ERM94-5 which is no longer applicable to Interior’s hydropower review activity.

3. TYPES OF APPLICATIONS

This section outlines the types of applications commonly received from FERC during their conduct of a permitting, licensing or re-licensing action. Bureaus are cautioned to carefully track projects and comment at all appropriate times during the permitting and licensing processes. In

general, bureaus may rely on the distribution from OEPC of FERC notices and review documents to alert them of pending FERC developments. However, bureaus are also strongly urged to maintain local information on all hydroelectric projects at their field and regional offices so that they do not have to catch up on licensing actions further along in the process. In this regard, notices of intent to file for a new license which are issued by FERC approximately five years before license expiration are circulated by OEPC for information [see 5.D(2), below].

A. Preliminary Permit - An application for a preliminary permit is a voluntary action and is not a prerequisite to filing a license application. The permit grants a priority over other competing interests in applying for a project license during the permit period. The permit period may be up to three years. Permits are generally sought to study new projects or to add power to existing non-power projects (18 CFR 4.80-4.84). Because of the voluntary nature of the permit, any comments made by Interior on a permit do not automatically carry over to the licensing process. Preliminary permits carry standard consultation conditions set by FERC. FERC does not include any special conditions. Therefore, bureaus do not need to itemize conditions for the permit but should be ready to provide consultative advice regarding their programs, facilities, and missions. A preliminary permit does not grant the permittee unrestricted access to Federal lands and facilities or occupancy rights to disturb existing landscapes and natural resources. A bureau may independently contact a permittee for the purpose of advising that permission to enter Federal lands or facilities may be restricted or prohibited and may require a special use permit issued by the bureau and subject to the requirements of the National Environmental Policy Act (NEPA).

B. License - A license application is a request to construct, operate, and maintain a new hydroelectric project (original license) or to continue to operate a previously constructed hydroelectric project (new license or relicense) or to install and operate hydroelectric power facilities at an existing Federal or non-Federal dam or canal, including any directly associated transmission facilities. The type of license application depends on the size of the power installation with a major project license issued to any project with an installed capacity of more than 1.5 megawatts and a minor license issued for projects with installed capacity of 1.5 megawatts or less. FERC's licensing program also involves a number of other actions proposed by an applicant. These include: amendments to a project license, termination, surrender, transfer, or Federal capture of a project license and apply both to major and minor projects (18 CFR 4.40-4.71, 4.200-4.202, and 16.1-16.26).

Close attention must be given to licensing actions to ensure that the Department seeks the necessary terms and conditions in the license that will protect its program area of interest. We may oppose the issuance of a project license when the proposal would cause a serious and significant impact on our programs or projects, would conflict with an authorized project, or would conflict with a specific jurisdictional concern of the Department. If the license expires before a new license is issued and the United States does not exercise the right of take over, FERC issues annual licenses to the licensee under the terms and conditions of the existing license until the property is taken over or a new license is issued (18 CFR 16.18).

A license, like a preliminary permit, does not grant the permittee unrestricted access to Federal

lands and facilities or occupancy rights to disturb existing landscapes and natural resources. A bureau may independently contact a permittee for the purpose of advising that permission to enter Federal lands or facilities may be restricted or prohibited and may require a special use permit issued by the bureau and subject to the requirements of NEPA.

C. Exemptions from Licensing - The exemption process is less time consuming than the licensing process and leads to the construction and operation of the following types of projects which may be conditioned by FERC and the resource agencies. The exemption process is still considered a form of licensing and has strict fish and wildlife protection provisions. In both types of exemptions the Department has an opportunity to provide comments, recommended terms and conditions, and mandatory terms and conditions to protect resources managed by the Department. Exemptions do not have expiration dates.

(1) Small conduit hydroelectric facilities are projects with a total installed capacity of 15 megawatts or less on conduits located entirely on non-Federal lands (although it appears that the conduit itself may be federally owned) and not an integral part of a dam. FPA amendments raised this limit to 40 megawatts in the case of a facility constructed, operated, and maintained by an agency or instrumentality of a State or local government solely for municipal water supply. A standard article requires compliance with any terms and conditions determined appropriate to protect fish and wildlife resources by Federal or State fish and wildlife agencies identified within the comment period (18 CFR 4.90-4.96).

(2) Small hydroelectric projects are projects with a total installed capacity of 5 megawatts or less at existing, non-Federal dams or utilizing a natural water feature without the need for a dam or man-made impoundment. FPA amendments allow exemptions at new dams and diversions only if they do not have substantial adverse effects on the environment, are not located on protected river segments, and meet any mandatory terms and conditions set by Federal and State fish and wildlife agencies under the FPA. Standard articles require (a) compliance with any terms and conditions determined appropriate to protect fish and wildlife resources by Federal or State fish and wildlife agencies within the comment period and (b) any rights to use or occupy any Federal lands be obtained from the relevant land management agencies (18 CFR 4.101-4.108).

4. PROHIBITIONS, PRESCRIPTIONS, TERMS AND CONDITIONS, AND AGREEMENTS

A. Prohibitions - FERC is prohibited from issuing original licenses under Part I of the FPA (or exemptions from such Part) for any hydroelectric power project located within the boundaries of any unit of the National Park System that would have a direct adverse effect on Federal land within such unit or unless projects have been specifically authorized by Congress. The FERC is prohibited from issuing licenses for construction of hydroelectric projects on or having a direct and adverse effect on any river listed as a component of the National Wild and Scenic River System including potential additions to the system during such periods as the Wild and Scenic River Act provides. The FERC is also prohibited from licensing projects in wilderness areas under the jurisdiction of the Department of the Interior or in Federal reservations under Interior's

supervision where FERC finds that the project will interfere or be inconsistent with the purpose for which the reservation was created or acquired [16 U.S.C. 797(e)].

B. Mandatory Prescriptions

(1) Section 4(e) of the FPA requires FERC to accept any license terms and conditions, which the Secretary deems necessary for the protection and utilization of a reservation under the Department's supervision. The project must occupy land within the reservation. FERC will make a determination whether the project is consistent with the purpose(s) for which the reservation was created or acquired. Departmental reservations include such lands as Indian reservations, wildlife refuges, reclamation projects, acquired lands held for public purposes, and public lands withdrawn, reserved or withheld from private appropriation and disposal. The Department's comments will specifically identify any Section 4(e) conditions and be supported by substantial evidence in the record. It should be noted that Section 4(e) pertains to licenses, not permits; and the Department interprets it to pertain to those few unique circumstances where exemptible projects could occupy Departmental reservations. FERC states that Section 4(e) pertains only to licenses.

(2) Section 18 of the FPA requires FERC to accept any license terms and conditions for the construction, maintenance, and operation of such fishways as may be prescribed by the Secretary. Departmental comments will specifically identify any Section 18 prescriptions and be supported by appropriate fisheries information and substantial evidence in the record. Further, when the Department cannot establish the need for fishways at the time of licensing, it may exercise its Section 18 authority by reserving the authority to prescribe fishways in the future. In post-licensing situations, either a specific reservation of authority to prescribe or a standard FERC "L-Form" article (Article 15) provides our access for Section 18 prescriptions and can be supplemented by any case-specific, non-standard articles we provide during our review.

(3) Section 30(c) of the FPA pertains to exemptions from licensing and requires FERC to accept such terms and conditions as the FWS determines are appropriate to prevent loss of or damage to fish and wildlife resources and to otherwise carry out the purposes of the Fish and Wildlife Coordination Act. This is interpreted by the Department to include recreational fishing access. Departmental comments will specifically identify any Section 30(c) conditions provided by the FWS and the underlying bases for making them, along with substantial evidence in the record.

C. Recommended Terms and Conditions

(1) Section 10 of the FPA allows FERC to prescribe terms and conditions within any permit or license for a number of reasons. The FERC has established a number of standard articles that are included in all permits and licenses (the L-Forms). In addition, the Department has the right and responsibility under its various authorities to recommend to FERC other non-standard terms and conditions for its consideration. The FERC uses a number of typical articles which provide uniformity for non-standard terms and conditions recommended by Federal agencies. The Department's comments will transmit its recommended terms and conditions,

including the underlying bases for making them, along with substantial evidence in the record. FERC will consider our recommendations, but may or may not accept them or will accept them with modifications. The FERC order issuing a license discusses its disposition of any Departmental recommendations.

(2) Exemptions from licensing are also subject to standard and discretionary terms and conditions issued by FERC. The Department can and should, where appropriate, recommend non-standard terms and conditions for these exemptions in areas other than fish and wildlife resources which are mandatory under Section 30(c). The situation is similar to Section 10 and FERC will consider our recommendations, but may or may not accept them or will accept them with modifications.

(3) Section 10 also has a provision for the protection, mitigation, and enhancement of fish and wildlife resources. FERC is required to base such conditions on the recommendations of Federal and State fish and wildlife agencies. When disagreements arise, FERC is required to attempt to resolve the disagreements with these agencies. If resolution cannot be obtained and FERC does not adopt the agency recommendations, FERC must publish its findings that such conditions are inconsistent with the FPA and/or the conditions selected by FERC comply with Section 10(j)(1) of the FPA.

D. Agreement About Reclamation Facilities - The Department is agreeable, under certain conditions, to the development of hydropower by non-Federal entities at Reclamation projects provided that (1) it is compatible with the authorized purposes of the Reclamation project and (2) power generation is not an authorized purpose of the Reclamation project.

A Memorandum of Understanding (November 6, 1992) provides a process by which FERC and Reclamation resolve issues related to licensing authority at Reclamation facilities. Reclamation and FERC will attempt to resolve issues related to licensing authority in advance of the issuance of any notice by FERC. If FERC proceeds with issuance of a public notice and jurisdiction remains at issue, Reclamation may re-assert jurisdiction, with our without comments, recommendations, and Section 4(e) terms and conditions, under Departmental review procedures contained in this memorandum.

A Memorandum of Understanding (June 22, 1981) provides for the establishment of construction criteria and selected working relationships with FERC when non-Federal projects are licensed at Reclamation projects. However, it does not recognize the Secretary's authority to mandate conditions pursuant to Section 4(e) of the FPA. Departmental comments will specifically identify any such conditions provided by the Bureau of Reclamation.

5. CONSULTATION AND REVIEW PROCEDURES

A. Pre-Application Consultation - FERC requires all applicants for a license or exemption from licensing to consult with each appropriate Federal and State resource agency before submitting its application (18 CFR 4.38). Consultation consists of the following:

(1) First Stage - Applicant provides detailed maps, general engineering design, proposed operational mode, environmental setting and mitigation to the extent known, streamflow information, and detailed descriptions of any proposed studies. The first stage consultation ends when resource agencies and Indian Tribes have timely filed their comments and recommendations [18 CFR 4.38(b)(6)].

(2) Second Stage - Applicant conducts all reasonable studies and obtains all reasonable information requested by the resource agencies and Indian Tribes. The second stage consultation ends ninety days after the applicant supplies draft application documents to the resource agencies and Indian Tribes [18 CFR 4.38(c)(10)] or at the conclusion of the last joint meeting held in cases where a resource agency or Indian Tribe has responded with substantive disagreements.

(3) Third Stage - Applicant files the application documents with FERC [18 CFR 4.38(d)]. The applicant must also file copies of the application with the resource agencies. This is the only mailing bureaus will receive. Bureaus are strongly advised to save these copies because it may be some time before the application is ready for formal review and the OEPC review request is issued. Similar requirements for applicants for new licenses at existing facilities (relicense applications) are found at 18 CFR 16.8. In response to application filing, FERC will issue a tendering notice inviting comments on the application and the need for any further studies to be done. Following that FERC will issue a notice accepting the application for filing and inviting comments, protests, and motions to intervene.

B. Bureau Review - Bureaus will be involved in all three stages of consultation as necessary to protect their program interests and to develop the Department's complete position on a particular project.

C. Legal Review - In order to ensure the development of a strong, defensible administrative record for all FERC licensings, bureau responses to FERC requests need to be consistent with one another, and with Department policy. To achieve this, the Department must work to identify bureau interests, coordinate bureau comments where there are cross-Department issues, and routinely subject those comments to legal review. Since the FERC licensing process is quasi-judicial, the Department has adopted policies to insure that adequate legal review of its submissions to FERC is carried out.

(1) For every licensing project, the Solicitor's Office will designate an Attorney Point of Contact (also, Designated Attorney) at the beginning of the licensing process (i.e., during first stage consultation) for the provision of general legal advice throughout that process. The Attorney Point of Contact is likely to become the "Attorney of Record" for the project if the Department intervenes in FERC's process. At the client's request and within resource constraints, the Designated Attorney will provide legal representation and legal review of draft comments submitted to FERC or the applicant through the Departmental review process. SOL will keep OEPC informed of these Attorney Points of Contact and Attorneys of Record so that the attorney can be identified on all OEPC distribution memoranda.

(2) Bureaus will provide the Office of the Solicitor three business days for informal legal review of all bureau tendering and scoping comments before bureaus submit those comments to FERC. Bureaus will fax those draft comments to the appropriate Solicitor's Office at least one week before the FERC deadline in order to allow sufficient time for possible revisions.

D. Departmental Review

(1) The first and second stages of consultation will occur at regional and field offices of the Department's bureaus with assistance provided by the Regional Environmental Officers (REO) upon request. The third stage filing is the point where OEPC assumes process management of the Department's review in accordance with this section. The OEPC will initiate third stage review activities whenever it has an official notice from FERC announcing that:

- the application is accepted for filing and invites comments, protests, and interventions;
- the application is "not ready for environmental analysis" but invites intervention in the proceeding;
- and/or the application is "ready for environmental analysis".

Any bureau on the OEPC review request not in receipt of copies of the application should call the applicant's contact noted in the FERC notice and request those copies. It is not likely that OEPC will have any extra copies since OEPC will have already distributed those copies in its possession. Copies are often available electronically on CD-ROM and over the Internet at FERC's web site. The notices generally give an Internet address.

(2) All bureaus receive FERC's notices of intent to file for a new license, which is required five years before license expiration, via the environmental review system. This action gives bureaus notice that they may need to determine the importance of a project, develop a bureau position, and track its progress through the FERC process. It is recommended that bureaus begin working with applicants as early as possible after this notice of intent to insure full consideration of their resource concerns.

(3) Bureaus should recommend that any studies needed to define and mitigate impacts to our properties and resources be completed prior to issuance of a license unless such studies are dependent on post construction operations. Bureaus are also encouraged to make study requests during pre-filing consultation and whenever a tendering notice is issued so studies are completed and available for use in developing terms and conditions and recommendations.

(4) OEPC is the focal point for Departmental receipt, review, and comment on policies, regulations, and project applications of FERC. OEPC maintains all necessary databases to assist bureaus in tracking and reviewing critical FERC projects.

(a) All applications and other matters that may affect more than one bureau or the policy interests of the Secretary will be controlled by OEPC. In this regard OEPC may designate reviewing and lead bureaus, review schedules, and the responsible office for

forwarding comments to FERC. Upon request OEPC also revises these designations as necessary when brought to its attention by bureau personnel or others.

(b) Post-review process issues of interest to a single bureau are usually assigned to that bureau with only a requirement to keep OEPC informed of the results. Examples include Section 10(j) fish and wildlife consultation where recommendations previously transmitted to FERC via the Departmental comment letter are later resolved by FWS and FERC at the field level and any other single bureau issue occurring later than the date of the Department's comments. It is recommended that the REO be consulted if there is any doubt about a single bureau issue. The REO can assist in coordinating a reply if other bureaus are involved. For legal review, bureaus should maintain contact with and seek the advice of a Designated Attorney or the Attorney of Record.

(c) As a general rule OEPC will assign projects five megawatts or less in capacity to REOs for signature and projects larger than five megawatts to headquarters, with controversial issues referred as necessary to the Assistant Secretary-Policy, Management and Budget or other senior policy officials. Projects known or later found to occupy National Park System lands are assigned to headquarters. Projects known or later found to occupy Federal reservations may be assigned to headquarters depending on the policy nature of the issue.

(5) OEPC forwards to the bureaus, through the environmental review (ER) system, certain FERC notices it retrieves from the Internet. This provides a significant time saving over waiting for FERC's mailing of the notices. Bureaus receiving notices via the Internet or any other means must always check with their ER staff and/or OEPC to determine if a control number has been assigned and to receive review instructions if not previously made available.

(6) As soon as memoranda regarding FERC notices are ready for distribution, OEPC will forward, via fax, certain time-sensitive project notices directly to the appropriate bureau reviewers in the field. This is another time saving practice utilized for the following types of notices:

- Applications Tendered and Requesting Additional Studies
- Notice of Filing Accepted
- Notice of Scoping, Scoping Meetings, Scoping Documents, etc.
- Notice of Request to Intervene
- Applications Ready for Environmental Analysis
- Notices of Draft or Final Environmental Assessments or Statements

OEPC will maintain a current list of field office fax numbers for this purpose.

(7) In its licensing process FERC (rather than the applicant) must consult with the Department pursuant, but not limited, to the following statutes and subordinate regulations, directives, or procedures.

- Federal Power Act
- Water Resources Planning Act
- Wild and Scenic Rivers Act
- Fish and Wildlife Coordination Act
- Endangered Species Act

- National Historic Preservation Act
- National Environmental Policy Act

(3) In addition, the Department may have additional jurisdiction over all or portions of a FERC hydroelectric project pursuant, but not limited, to the following statutes:

- Reclamation Law
- Federal Land Policy and Management Act
- Alaska Native Claims Settlement Act
- Alaska National Interest Lands and Conservation Act
- National Park Service Organic Act
- National Wildlife Refuge System Administration Act
- Land and Water Conservation Fund Act
- Urban Park and Recreation Recovery Act
- Federal Property and Administrative Services Act
- Recreation Demonstration Project Act
- National Trails System Act
- Mining Law of 1872

E. Alternative Administrative Process

(1) This is a parallel process to the three stage consultation process (see 18 CFR 4.34 and related modifications to existing sections of FERC's rules). It is also known as the "collaborative process" and "alternative licensing process".

(2) OEPC notices will identify use of the collaborative process by an applicant through the ER system. Appropriate instructions will be outlined in the distribution memoranda.

(3) Bureaus must be aware of the requirements of this process so that they can use and participate in this process to its fullest extent and understand its larger demand on their field resources.

(4) REOs may facilitate Interior's participation in this process if requested and if time permits.

6. TIME PERIODS FOR DEPARTMENTAL REVIEW

A. Permits - The FERC rules do not specify a review period. The notice from FERC announcing the permit will indicate a review period, and it is usually 60 days. Time extensions are not routinely sought on permit applications because FERC issues all permits with a set of standard conditions requiring the permittee to consult with all agencies concerned with natural resources and environmental matters.

B. Licenses and Exemptions - FERC regulations state that all review comments and recommendations and mandatory terms and conditions and prescriptions are due to FERC no later than 60 days after FERC announces the application as being "ready for environmental analysis". Extensions may be granted by FERC for good cause or extraordinary circumstances. Therefore, the OEPC review request will specify a firm date for response by bureaus to the lead

bureau or OEPC. All comments and recommendations received by that date will be considered for the Departmental letter. Any comments and recommendations received after that date may be considered for a supplemental letter to FERC.

C. Time Extensions - OEPC will seek time extensions based upon a written request from an REO or any reviewing bureau. All such requests must provide the reason(s) for the extension. These requests may be electronically transmitted to OEPC.

7. INTERVENTION

A. Intervention is the legal process by which the Department becomes a formal party to FERC's quasi-judicial process and establishes its right to appeal permits, licenses, and exemptions and associated terms and conditions once they are issued. Petitions to intervene and subsequent proceedings are processed by the Solicitor's Office.

B. Procedures for requesting intervention in FERC's proceedings are found in 452 DM 2. Reviewers should follow the additional guidance found in ERM99-2.

8. NATIONAL HYDROPOWER MEETING

To assist in managing the Department’s activities relating to hydropower licensing, the Department will hold an annual hydropower meeting for appropriate Departmental bureaus and staff. The meeting’s main purposes are: (1) to foster discussions among bureaus and other Departmental offices on broad policy matters relating to FERC hydropower licensing and (2) to identify, discuss, and prepare for those hydropower projects of critical importance to the Department for the coming year. This meeting is subject to the availability of funding and a capable bureau sponsor.

PEP - ENVIRONMENTAL REVIEW MEMORANDUM NO. ERM99-2

To: Heads of Bureaus and Offices

From: Director, Office of Environmental Policy and Compliance

Subject: Interventions in Proceedings of the Federal Energy Regulatory Commission (FERC)

1. PURPOSE

This memorandum describes the procedures to be followed in the Department for intervention in the formal proceedings of FERC. These procedures are in accordance with 452 DM 2.3 A (1) and apply to hydroelectric power and natural gas projects under consideration by FERC.

2. POLICY

It is the Department's policy that FERC intervention actions are delegated to bureau Regional Directors and Regional Solicitors with only occasional elevations to headquarters as appropriate and as described in Part 4 below.

3. PROCESS

A. The Regional Director, or equivalent official, of a bureau requesting intervention will circulate a proposal to intervene (with supporting information) to the Regional Solicitor (RSOL), the Regional Environmental Officer (REO), and regional officials of other bureaus in the region. Bureau supporting information shall include the status of consultations with State, local, and other appropriate entities regarding their concerns with the project and their intervention intentions.

The initiating bureau usually arrives at a decision to seek intervention during the application review process conducted by the Office of Environmental Policy and Compliance (OEPC) under 516 DM 7. The initiating bureau should use the circulation list contained in the OEPC distribution memorandum. In some cases the initiating bureau may make a decision to seek intervention before or after the formal application review process. In these cases the initiating bureau is advised to consult with the REO to determine which other bureaus may have an interest in the matter.

B. The bureau circulation will request comments and recommendations from other bureaus within five working days. It is the responsibility of the initiating bureau to deliver the circulation documents as expeditiously as possible. It is strongly recommended that hand delivery and fax transmission be used to meet this requirement. Timing is important because late filings at FERC require preparation of additional documentation to make a case for our late intervention. Late filings also mean the decision must be made by the Commission. The decision is automatic if the Department is on time.

C. Other bureaus may provide "no comment" responses to the initiating bureau by telephone. All substantive comments and recommendations in support or opposition shall use either hand delivery or fax transmission to meet the

five working day requirement. If the initiating bureau receives no comment within the review period from a particular bureau, it may assume that there are no comments.

D. The RSOL will review the proposal for legal issues and advise the initiating bureau of these findings. This advice and the remainder of the regional record will form the basis of the later decision to (not to) intervene by the Office of the Solicitor.

E. The REO will review the proposal for intra-Departmental, Federal-State, or potential environmental policy issues and advise the initiating bureau of these findings. This advice and the remainder of the regional record will form the basis of the later decision to (not to) intervene by the Office of the Solicitor. The REO shall receive a copy of the record as supplied to the Office of the Solicitor whenever the REO has made substantive comments and/or recommendations.

F. Both sets of findings in "D." and "E.", along with other bureau comments, will serve to guide the initiating bureau regarding potential elevation within the Department. It is at this time that it should be clear whether or not elevation of the request within the Department is needed.

G. If no comments are received by the initiating bureau, that bureau will request the Office of the Solicitor to decide the issue and, if appropriate, file the intervention petition before the close of FERC's comment period.

H. If the initiating bureau and other bureaus determine that intervention is necessary and there are no inter-bureau conflicts, the initiating bureau will request, on behalf of other bureaus, the Office of the Solicitor to decide the issue and, if appropriate, file the intervention petition before the close of FERC's comment period.

I. If the initiating bureau and other bureaus determine that intervention is necessary and there are inter-bureau conflicts that cannot be resolved, the procedures in Part 4 below will be followed.

J. OEPC shall notify the Office of the Solicitor at the appropriate time of its concurrence (non-concurrence) with the intervention request in accordance with 452 DM 2.3 A (5). In most cases, this will likely occur under "E." above but may occur later in controversial cases where the record takes longer to develop.

K. The Office of the Solicitor shall keep track of all FERC intervention activities and include OEPC on the official service list for a copy of any intervention petition filed at FERC. This copy need only be furnished to OEPC headquarters for the central project file.

L. Post-licensing proceedings often involve compliance matters which provide limited time frames for Departmental responses. In such cases, the Office of the Solicitor is authorized to file intervention petitions as necessary to protect and advance the Department's interests in that project proceeding. Such interventions may be made on behalf of any bureau(s) for which the Department intervened in the underlying licensing proceeding, and are made with the concurrence of OEPC [452 DM 2.3A(5)]. Bureaus not seeking intervention in post-licensing matters may be removed from future intervention petitions by notice to the attorney of record.

4. ELEVATION AND CONFLICT RESOLUTION

A. Any intervention request may be elevated to headquarters for Secretarial or other senior management approval upon the recommendation of the RSOL or the REO acting through their respective headquarters' offices whether or not inter-bureau conflict is involved.

B. If bureau conflicts cannot be resolved in the field, the initiating bureau shall forward a request for resolution to the bureau director who will seek resolution with other bureau directors.

C. If resolution cannot be achieved by the bureau directors, the initiating bureau will seek resolution with the assistant secretaries and the Assistant Secretary-Policy, Management and Budget serving as the Department's Dispute Resolution Specialist will apply alternative dispute resolution techniques.

D. If necessary, any assistant secretary seeking to resolve an intervention issue and not fully satisfied with the dispute resolution process may request that the Secretary review the issue.

E. The Secretary may address bureau conflicts at any stage in this process and resolve the matter as he or she may determine to be appropriate.

F. Upon completion of the dispute resolution process, the Office of the Solicitor will proceed with the filing of the intervention petition unless the decision was not to intervene.

5. REISSUE

This memorandum replaces ERM94-6.

THIS IS CERTIFIED TO BE A TRUE COPY OF THE PAPER ORIGINAL SIGNED BY WILLIE R. TAYLOR, DIRECTOR, OFFICE OF ENVIRONMENTAL POLICY AND COMPLIANCE ON MARCH 22, 1999. Terence N. Martin, Team Leader, Natural Resources Management, OEPC.

97 FERC ¶ 61, 315
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Pat Wood, III, Chairman;
William L. Massey, Linda Breathitt,
and Nora Mead Brownell.

Arizona Public Service Company Project No. 2069-006

DECLARATORY ORDER

(Issued December 20, 2001)

This order addresses a petition for declaratory order filed by Arizona Public Service Company (APS) regarding an Offer of Settlement and Settlement Agreement (settlement) that is currently pending before the Commission in the relicensing proceeding for APS's Childs Irving Project No. 2069. The petition requests that we address several issues pertaining to the processing of the settlement and to the relationship between the settlement and the relicense application.[1] Our disposition of these issues will serve the public interest not only by resolving uncertainty in this proceeding but by providing guidance in future relicense proceedings in which settlements are tendered.

BACKGROUND

The 7-megawatt Childs Irving Project is located on 344 acres of land managed by the U.S. Forest Service in Yavapai and Gila Counties, Arizona. The project consists of two developments on Fossil Creek, a tributary of the Verde River, and lies entirely in the Coconino and Tonto National Forests. The project diverts water from 14 miles of Fossil Creek and returns it directly to the Verde River. An original license for the project was issued in 1951 and expired on December 31, 1994. Since then, the project has been operated under annual licenses. APS filed an application for new license on December

[1]APS also filed, pursuant to 18 C.F.R. §§ 385.207 and 381.302(c), a petition for exemption from the fee established for filing a petition for declaratory order. Because its petition meets the requirements of 18 C.F.R. § 381.302(b) for such an exemption, we will grant it.

18, 1992, and a draft Environmental Assessment (EA) analyzing that application was issued on August 14, 1997. Subsequently, APS entered into settlement discussions with various participants in the proceeding, and on February 16, 2000, APS and other participants requested that the relicensing proceeding be held in abeyance pending their investigation of project decommissioning alternatives.

The settlement, which was reached by a collaborative process conducted by APS, was signed by APS, the intervenors in the relicensing proceeding, and several non-intervenors.[2] The settlement provides, among other things, that APS will cease generation at the project and restore full flows to Fossil Creek no later than December 31, 2004, will surrender the project license and decommission the project site, and will complete project decommissioning no later than December 31, 2009. The settlement also provides that, in the event of a Commission order that alters any of its essential terms, the settlement shall become null and void, and the proceeding shall be restored to its status prior to the February 16, 2000 joint motion for abeyance.

On January 10, 2001, Commission staff, at the request of APS, conducted a technical conference in Phoenix, Arizona, to discuss procedures for evaluating the settlement and the proposed surrender of the license. The conference was attended by APS, the other signatories to the settlement agreement, federal and state agencies, and other interested entities. At the conference, Commission staff discussed certain regulatory principles that might interfere with the accomplishment of the settlement's objectives, and it suggested that the signatories consider petitioning the Commission for a declaratory order to resolve these issues.[3]

In its petition, APS requests that we issue a declaratory order determining whether the process contemplated by the settlement is acceptable. Specifically, APS seeks confirmation that we would allow the parties to the settlement to return to the pre-settlement status quo if we modified the settlement or if the objectives of the settlement, including license surrender and project decommissioning, were not achieved. By this, APS means, in particular, that we would retain or reinstate its relicense application and process it without providing a new opportunity for the filing of competitive license applications. APS also seeks confirmation that, if we accept the surrender of the license, we would allow the surrender to be effective at a future date, so that generation may

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[2]Besides APS, the signatories are American Rivers, CBD, Yavapai-Apache Nation, Arizona Riparian Council, Northern Arizona Audubon Society, and The Nature Conservancy.

[3]Summary of Technical Conference, issued February 8, 2001.

continue until December 31, 2004. In this regard, APS requests us to confirm that we would exercise our authority to issue annual licenses during the pendency of the surrender application and until the deadline for the cessation of generation.

On September 4, 2001, we issued notice of the petition, and the notice was published in the Federal Register.[4] In our notice, we stated that, because the relief sought by the petition could have implications for other proceedings in which similar issues occur, we were encouraging comments from any interested entities, not just those involved in this particular proceeding. We also specified several issues on which we particularly wished to receive comments, as indicated in the discussion, below.

Timely motions to intervene were filed by the U.S. Department of Agriculture (Agriculture), American Rivers and the Center for Biological Diversity (American Rivers/CBD), the U.S. Department of the Interior (Interior), Southwest Alternative Generation Enterprises (SAGE), and Gila County, Arizona.[5] Comments were filed by American Rivers/CBD, Interior, SAGE, and the Shoshone-Bannock Tribes of the Fort Hall Indian Reservation (Tribes). We will discuss the responses to the extent they are pertinent to the issues before us.[6]

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[4]66 Fed. Reg. 47022 (September 10, 2001).

[5]Interior seeks intervention in the relicensing proceeding as well as in this declaratory order proceeding. APS objects to Interior's intervention in the relicensing proceeding, on the ground that Interior has not provided good cause for its failure to intervene by the October 29, 1993 deadline established for interventions in that proceeding. APS also points out that the Commission has already denied a motion filed by Agriculture to intervene in the relicense proceeding because its U.S. Forest Service has participated as a cooperating agency in the relicensing proceeding, and APS asks that we clarify that Agriculture's present intervention is limited to participation in the declaratory order proceeding.

The motions of Interior and Agriculture were timely filed, and those agencies are automatically intervenors in this declaratory order proceeding. The motions do not extend to the relicensing proceeding itself, and we will not act on Interior's motion to intervene in that proceeding in this order.

[6]Some of the responses addressed the issues raised in the petition and in the notice only generally, if at all. Agriculture does not comment on any of these issues. The Tribes support our encouragement of negotiated settlements that may include surrender

(continued...)

DISCUSSION

(A) Retention or Reinstatement of the Relicense Application Without Providing for Additional Competing Applications

1. APS's position

APS seeks confirmation that, if we modify the settlement, or if license surrender and project decommissioning are not achieved, we would retain or reinstate its relicense application and process it without providing a new opportunity for the filing of competitive license applications. In our notice of the petition, we requested, in respect to this question, comments on the following issues: (1) whether we should be willing to retain or reinstate relicense applications that are conditional upon the occurrence of other events, especially when those events are contemplated by settlements submitted during relicensing proceedings; and (2) whether, and under what conditions, we should provide additional opportunities for entities to seek licenses to operate a project if an incumbent licensee that has filed an application for a new license subsequently seeks, conditionally or unconditionally, to surrender its existing license before the new license has been issued.

At the technical conference, Commission staff noted that Commission regulations prohibit the filing of conditional applications. Staff suggested that, if a surrender application were filed, the relicense application might have to be dismissed, because, under the terms of the settlement, the Commission would be asked to process it only if license surrender and project decommissioning did not occur. Staff also stated that

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[6](...continued)
of project licenses and restoration of aquatic values, when project economic values are low and environmental injury is high. Gila County, which views Fossil Creek as a potential source of residential water supply, urges us to develop a flexible license surrender process that enhances the possibility for project decommissioning. American Rivers/CBD, as signatories to the settlement agreement, support the petition in seeking such guidance as would make it possible to achieve the settlement's objectives. Their comments relate particularly to the implications of possible issuance of a nonpower license, an approach they ask us to consider. They also argue that surrender and removal of project works will trigger a requirement to obtain water quality certification under Section 401 of the Clean Water Act, a need for consultation under the Endangered Species Act if the settlement is not approved, and other matters not relevant to the issues we are addressing here. Interior and SAGE, an energy development and consulting firm, address the issues before us in greater detail, as reflected in the text.

retention or reinstatement of APS's relicense application could be inconsistent with the Commission's policy on providing fair competition for relicensing of projects. Staff indicated that, if the surrender application were to be denied, another opportunity would probably be provided for the filing of relicense applications, but that potential competitors might be unfairly discouraged by the reinstatement of APS's relicense application, since Section 15(a)(2) of the Federal Power Act (FPA) provides an advantage to an incumbent licensee if differences between competing relicense applications are insignificant.[7]

APS offers several arguments in support of its position that we should allow the reinstatement or retention of its relicense application if we modify the terms of the settlement or if license surrender and decommissioning are not achieved. APS argues that this treatment of its relicense application would not conflict with any statutory or regulatory provisions, that to dismiss the relicense application as conditional would run contrary to the Commission's policy favoring settlements, and that there is Commission precedent for preserving pre-settlement applications pending disposition of settlement-based applications.

APS claims that holding its relicense application in abeyance or dismissing it without prejudice to reinstatement would conflict with no statutory requirement. As APS states, Section 15 of the FPA, as amended by the Electric Consumers Protection Act of 1986 (ECPA),[8] establishes the Commission's statutory duties as to relicensing proceedings. APS notes that, where, as here, all of the filing requirements of Section 15 are met, and no entity has filed a timely competing relicense application, there are no statutory provisions entitling potential competitors to file relicense applications at a later time, free of competition from the incumbent licensee.

Similarly, APS argues that the Commission's regulations contain no provision that would prohibit the retention of its relicense application. Commission staff, at the

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[7]Specifically, Section 15(a)(2) provides, as pertinent:

> Any new license issued under this section shall be issued to the applicant having the final proposal which the Commission determines is best adapted to serve the public interest, except that in making this determination the Commission shall ensure that insignificant differences . . . between competing applications shall not result in the transfer of a project.

[8]Pub.L. No. 99-495, 100 Stat. 1243 (Oct. 16, 1986).

technical conference, cited the Commission's prohibition of conditional applications. This prohibition is found at Section 4.32(j), which provides:

> Any application, the effectiveness of which is conditioned upon the future occurrence of any event or circumstance, will be rejected.

APS argues that this regulation does not apply to a pre-settlement application that is replaced with an application arising from a settlement. It states that, in fact, we have never suggested that the regulation would preclude parties in a proceeding from returning to a pre-settlement application if a modified application resulting from a settlement is not approved, we have never applied the regulation to dismiss a pre-settlement application, and we have never suggested that an application, valid and unconditional as filed, somehow becomes conditional because of an alternative application filed as part of a settlement. APS argues that, if Section 4.32(j) does apply to this kind of situation, it should be waived here, because the relicensing application and the settlement are not the product of a desire to eliminate meaningful competition.

At the technical conference, Commission staff suggested that, if another opportunity were provided for the filing of relicense applications, the Commission might look for guidance to Section 16.25(a) of the regulations. This section provides that, if an incumbent licensee declares its intention to file a relicense application but fails to file one by the statutory deadline, it is prohibited from filing an application when the Commission then provides a new opportunity for the filing of applications.[9] APS argues that Section 16.25(a) was intended to address situations where the existing licensee has been delinquent in some fashion or is intending to mislead potential applicants, neither of which is the case here. Therefore, APS argues, if we determine that its relicense application must be treated as a conditional application under Section 4.32(j), we should be willing to waive Section 16.25(a) and to allow the parties to return to the pre-

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[9]Section 16.25(a) provides, as pertinent:

> If an existing licensee that indicates in the notice filed pursuant to § 16.6 that it will file an application for new license . . . does not file its application . . . at least 24 months before its existing license expires . . . and no other applicant files an application within the appropriate time or all pending applications filed before the applicable filing deadline are subsequently rejected or dismissed pursuant to § 4.32 of this chapter, the Commission will publish . . . notice soliciting applications from potential applicants other than the existing licensee.

settlement position. APS emphasizes that Section 16.25(a) does not establish an absolute entitlement on the part of potential competitors to preference-free competition when an application is dismissed under Section 4.32(j), and that no potential competitors could have actually been misled or prejudiced by the process contemplated in the settlement.

APS claims that our policy of favoring settlements would be undermined if we did not allow settlement parties to return to the status quo. APS argues that most settlements submitted to the Commission contain provisions similar to the one in question here, that protecting the rights of parties to return to the status quo is a crucial element of settlements, and that Rule 602(i) of the Commission's Rules of Practice and Procedure explicitly codifies this right.[10] The loss of this right would undermine most settlements, in APS's opinion, because parties would not want to assume the risk that entering into a settlement could cause dismissal of their license applications.[11]

APS states that, in Northern California Power Agency,[12] we have already provided a mechanism for handling relicense applications that parties ask us to delay processing pending disposition of a settlement proposal. There, we dismissed without prejudice one set of relicense applications, so that they could be reinstated if we denied a competing set of relicense applications that all parties to a settlement agreement, including both applicants, had agreed to support. As APS notes, in taking this action, we cited our strong interest in promoting settlements and emphasized the efforts of the parties to reach an agreement. APS argues that we could follow the same approach in this proceeding, or, alternatively, simply hold its relicense application in abeyance.

2. Regulatory and policy considerations as to deferring consideration of applications

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[10]This rule, at 18 C.F.R. § 385.602(i) (2001), provides:

> (i) Reservation of rights. Any procedural right that a participant has in the absence of an offer of settlement is not affected by Commission disapproval, or approval subject to condition, of the uncontested portion of the settlement.

[11]Similarly, Interior asserts that an interpretation of our regulations that required the application process to be reopened when a licensee seeks surrender would, for most licensees, introduce an unacceptable level of uncertainty into the settlement process.

[12]87 FERC ¶ 61,349 (1999).

We see no statutory bar to deferring consideration of APS's relicense application as requested. Section 15 establishes the filing requirements for relicense applications. Section 15(b) requires the licensee, at least 5 years before the expiration of the existing license, to notify the Commission whether it intends to file an application for a new license and to make certain information available for public inspection; it also requires the Commission to provide public notice of the licensee's intention. Section 15(c) requires each application for a new license to be filed at least 24 months before expiration of the term of the existing license, and it requires the Commission to issue a notice establishing relicensing procedures and a deadline for final amendments to the applications. As APS notes, these filing procedures were complied with in the present proceeding. Section 15 imposes no limitations on our discretion to defer processing a timely-filed application while we consider an alternate proposal reached through settlement negotiations. Similarly, Section 15 establishes the only statutorily-based opportunity for relicensing competition. Where, as here, such an opportunity has been provided and no competing applications have been filed before the statutory deadline, Section 15 is silent as to the circumstances under which any further opportunities for relicensing competition would be appropriate. In any event, it does not specifically require a new opportunity for such competition upon our denial of a settlement proposal that we have been considering as a substitute for a timely-filed relicense application.

Our decision as to sanctioning the procedures requested by APS must, then, be based on the application of our regulations and policies. APS urges that we not apply our regulations in such a way as to make it difficult for parties to reach settlements. As APS states, it has been Commission policy to promote voluntary settlements as an important tool in the administration of our jurisdictional responsibilities. It is understandable that, where settlements alter proposals contained in relicense applications, licensees would not wish to abandon their original proposals unless they could be sure the settlements to which they agreed would be approved. The procedures we have adopted for processing relicense applications were not fashioned with these situations in mind. However, in the interest of respecting settlements when possible, we favor accommodating settlement parties on this issue in the absence of other considerations that would make such an accommodation contrary to the public interest.

To begin with, we must consider our policy on rejecting conditional applications. As noted, Section 4.32(j) of the regulations provides for the rejection of any application, the effectiveness of which is conditioned on the future occurrence of any event or circumstance. As part of our rules governing the filing of applications, Section 4.32(j), on its face, applies to applications that have been filed but not yet accepted. However, we have also applied it to allow the rejection of applications that have already been accepted for filing, on the basis that applicants do not have vested rights in the

acceptance of their applications.[13] In those situations, though, there has generally been a reason that the application ought not to have been accepted initially. We have not yet addressed application of the rule to applications that have been properly filed and accepted, only to become conditional through subsequent developments. In addressing that situation here, it is appropriate first to consider the policy underlying the rule.

The policy was codified in 1985 to reflect existing Commission practice. In the Notice of Proposed Rulemaking, we stated that the acceptance of only non-conditional applications was necessary for the orderly administration of the hydroelectric licensing program.[14] In adopting the regulation in the Final Rule, we stated[15] that we would not process conditional applications that:

> would obstruct the Commission's statutory responsibility to ensure that the relicensing process is open to competition by any qualified applicant. It is not in the public interest to institute a relicensing proceeding where no meaningful competition can exist and where the expenditure of staff resources to analyze the relicense application would be for naught if the conditional application were withdrawn.

This language was taken from Niagara Mohawk Power Corp.,[16] where the incumbent licensee requested that we accept an application to amend its license to accelerate the termination date, on condition that we grant its accompanying application for a new license for the project. Thus, our statement addressed a situation in which a proposal contemplated totally eliminating relicensing competition, and it applied to the

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[13]See Browns Valley Associates, 35 FERC ¶ 61,184 (1986). In addition, Section 16.25(a) of the regulations establishes procedures for soliciting new applications where "all pending applications filed before the applicable filing deadline are subsequently rejected or dismissed pursuant to § 4.32" (emphasis added).

[14]Application for License, Permit, and Exemption from Licensing for Water Power Projects, 49 Fed. Reg. 8009 (March 5, 1984), Proposed Regulations 1982-1987 ¶ 32,369 at p. 32,898 (1984).

[15]Application for License, Permit, and Exemption from Licensing for Water Power Projects, 50 Fed. Reg. 11658 (March 25, 1985); 50 Fed. Reg. 23947 (June 7, 1985); Regulations Preambles 1982-1985 ¶ 30,632 at p. 31,284 (1985).

[16]20 FERC ¶ 61,454 at p. 61,936 (1982).

amendment application rather than to the relicense application.[17] Since then, we have not often been called on to apply the regulation to particular situations. However, we have rejected a license application as conditional when the applicant's ability to use a reservoir owned by the Bureau of Reclamation was dependent on future decisions of the Bureau.[18]

Applying Section 4.32(j) to the situation here, we agree with APS that our traditional concerns are absent. First, the regulation is directed to applications that are conditional when filed, but APS did not submit a conditional application for which it sought processing despite future uncertainty. Moreover, our reluctance to expend staff resources analyzing a relicense application that might be withdrawn is not an issue here, because APS is not asking us to analyze the relicense application unless we first deny or substantially alter the settlement proposal and the surrender application. If the settlement proposal and license surrender do not take effect, APS's support for the relicense application would become unconditional, and Commission staff would not be confronted with processing a license application that might be withdrawn. Likewise, we would not be instituting a relicensing proceeding where no meaningful competition could exist, because the relicense application has already undergone initial processing under the relicensing regulations, and notice and opportunity for the filing of competing applications has already occurred. The licensing process would only be deferred by the intervening processing of the settlement proposal, not altered to the extent that we would be instituting a new proceeding.

More relevant to the present situation, however, may be our policies against lodging applications pending the occurrence of future events and against allowing applications to remain pending before us on inactive status for extended periods of time while awaiting the results of future determinations. These situations, like the one before us, do not involve the issue of wasting staff time in processing questionable applications, because the applicant is in fact seeking a delay in that processing. We have nevertheless found the retention of applications in these situations to be objectionable.

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[17]The statement in the Final Rule addressed a comment that urged the identical relief sought in Niagara Mohawk.

[18]City of Redding, California, 56 FERC ¶ 61,146 (1991). We have also implied that Section 4.32(j) could provide a basis for rejecting preliminary permits where the development of a project would depend on the outcome of a relicensing proceeding; but our rejection of the preliminary permit in that proceeding relied on other grounds. Skokomish Indian Tribe, 71 FERC ¶ 61,023, reh'g denied 72 FERC ¶ 61,268 (1995).

In the first category, we have ruled that an applicant may not obtain filing priority for an application barred by law or regulation by "lodging" the application with the Commission for automatic acceptance upon the occurrence of some future event that eliminates the bar. In Worumbo Hydro, Inc.,[19] we stated that a request to lodge an application for license amendment pending cancellation or expiration of another entity's preliminary permit to develop the same water resources was, in effect, a request that we waive our procedural regulations regarding competing applications so as to give the amendment applicant automatic assurance of filing priority. In Browns Valley Associates,[20] similarly, we refused to reinstate a preliminary permit application that had been filed before the surrender of an outstanding preliminary permit, since to do so would be to give the applicant a filing priority over entities that waited until the surrender was effective. In this line of cases, then, our concern generally has been allowing an entity to obtain an unfair advantage in priority of filing. In the present proceeding, APS has already obtained filing priority through the failure of any other entity to submit a competing application before the statutory deadline. The retention of its relicense application would thus give it no unfair advantage, unless we determine that denial of the surrender application should lead to a new opportunity for relicense competition, an issue that we will address shortly.

The policy against retaining applications for long periods of time is more problematic. In Nebraska Public Power District,[21] we dismissed a license application rather than hold it in abeyance for three years to let the applicant provide more information as to when the project would be needed and how it would be economically justified. We stated:

> Merely to suspend the processing for an indefinite time is not in the public interest. The data that is necessary to support an application cannot just be stored for a period of years and then simply reactivated as is.

We also stated that it would be "undesirable and inconsistent with the Federal Power Act" for the applicant to maintain priority of license application over others that might wish to develop the available water power resources. In other cases, we have dismissed an application rather than retain it pending a determination of whether the river on which it would be located would be designated a component of the National Wild and Scenic

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[19] 26 FERC ¶ 61,133 (1984).

[20] 35 FERC ¶ 61,184 (1986).

[21] 10 FERC ¶ 61,272 (1980).

Rivers System.[22] However, we have been willing to hold an application in abeyance when studies upon which processing depends would be completed within a few months.[23] Moreover, despite our statements in Nebraska Public Power District, it has not been uncommon for applications to remain before the Commission for an extended period of time while matters outside the Commission's control are resolved.[24]

APS contends that none of the considerations underlying our policy on conditional applications suggests that we ever intended to prevent the parties to a settlement from returning to the pre-settlement stage if we rejected or modified the settlement. In fact, we have not directly confronted this issue. As we explained in Northern California Power Agency, and as APS notes, in other proceedings in which we have analyzed a settlement proposal in place of the original proposal, we have not simply deferred consideration of the original proposal but rather treated it as superseded by the settlement proposal, leaving only the one, amended, application, with no "conditional" application to dismiss.[25] We have not yet been confronted with a situation in which we have been asked to return to a relicense application as it was originally filed because we

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[22]Town of Summersville, West Virginia, 28 FERC ¶ 61,257 (1984), aff'd, Town of Summersville, W.Va. v. FERC, 780 F.2d 1034 (D.C. Cir. 1986); Carrasan Power Company, 32 FERC ¶ 61,150 (1985); City of Rome, New York, 35 FERC ¶ 61,175 (1986); Feldspar Energy Corporation, 38 FERC ¶ 61,296 (1987). As these orders note, the Commission is prohibited from issuing licenses for projects that would be located on a river in the National Wild and Scenic Rivers System.

[23]City of Redding, California, 43 FERC ¶ 61,303 (1988).

[24]For example, the processing of a number of applications is delayed pending resolution of water quality certification issues and Endangered Species Act consultations.

[25]87 FERC ¶ 61,349 at p. 62,346. The examples we cited in that order, at n.6, were Niagara Mohawk Power Corp., 76 FERC ¶ 61,152 (1996); and Niagara Mohawk Power Corp., 77 FERC ¶ 61,306 (1996). In the present proceeding, section 2.2 of the settlement provides that APS shall file with the Commission "a petition or motion to amend the application for a new license . . . to an application for surrender." However, converting a relicensing application to a surrender application does not constitute "amending" the relicense application, inasmuch as licensing and surrendering are mutually exclusive. In other words, a surrender proposal constitutes a separate application.

have denied, or approved with objectionable modifications, a substitute proposal tendered pursuant to a settlement.[26]

APS urges us to follow the approach we took in Northern California Power Agency of dismissing the relicense application without prejudice to its reinstatement if the settlement proposal were not approved as filed. Northern California Power Agency is the only proceeding in which we have taken such an action in response to a settlement proposal, and we did not indicate in that order that we intended to adopt such an approach in other similar situations. As Commission staff pointed out at the technical conference, that proceeding did not involve a proposal to surrender the licenses; nor was incumbent preference at issue, since Northern California Power Agency (NCPA), whose applications were dismissed without prejudice, was not the original licensee.[27] Nevertheless, by dismissing the applications without prejudice to their being reinstated, we preserved their filing priority in the event of future competition for the projects. In any event, Northern California Power Agency certainly provides a possible method for handling applications that parties request us to defer processing.

Although we have adopted policies against conditional applications, lodging applications, and delaying the processing of filed applications pending future events, those policies were not adopted with the prospect of settlement agreements in mind. Given our desire to encourage and promote settlements, we believe that there is nothing in those policies that would compel us to reject a relicense application or to dismiss it with prejudice rather than to retain it during the processing of a settlement proposal, as long as retaining the application would not give an existing licensee an unfair advantage over other potential applicants in possible future rounds of relicensing competition. Since, as we have noted, there is no statutory requirement for another opportunity for relicensing competition beyond that which occurs upon the expiration of a license, as provided for in Section 15 of the FPA, the issue becomes whether an opportunity for additional relicensing competition should be extended to situations in which a settlement

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[26]In the present proceeding, the settlement proposal seeks surrender of the license as a substitute for the original relicense application. Where a licensee instead amends its relicense application pursuant to a settlement proposal, and the settlement contemplates that our denial or objectionable modification of the settlement proposal would result in a return to the status quo, then upon such a denial or modification we would have to treat the relicense application as if it had never been amended.

[27]In addition, the settlement parties did not insist on the right to return to the license applications of the incumbent as they were originally filed; those applications had been amended in connection with the filing of the settlement agreement.

proposal has replaced an original relicensing proposal, and, if so, whether, an incumbent licensee should be precluded from participating in any such competition.

3. Reopening competition upon denial of a settlement/surrender proposal

At the technical conference, Commission staff suggested that Section 16.25(a) of the regulations might provide guidance for the present situation. Section 16.25(a) provides for the solicitation of other relicense applications if an existing licensee that has indicated its intention to file an application for new license does not file an application by the statutory deadline, and if no other entity files an application by that deadline. In arguing that Section 16.25(a) should not be extended to apply here, APS asserts that the regulation excludes the existing licensee from an additional round of competition because the licensee has misled potential applicants by not filing a relicensing application, and because it is prohibited from filing such an application after the statutory deadline. APS contends that, because it filed a timely, unconditional relicense application, which it pursued for many years before entering into the settlement, and because the settlement was not designed to mislead potential competitors or to improve APS's competitive position, the present situation does not involve the type of conduct that Section 16.25(a) was intended to address.

SAGE, which identifies itself as a potential future competitor for the project license, reasons that Section 16.25 applies to APS's request to have its relicense application retained for later consideration, because Section 16.25 bars an incumbent licensee from filing a relicense application after it declares its intent to file such an application and then changes its mind. SAGE asserts that APS "seeks to all but eliminate competition in this proceeding."

Section 16.25(a) serves several purposes. The failure of other entities to file an application by a statutory deadline might not reflect their lack of interest in operating a project, but rather that they may have been discouraged from filing by an existing licensee's incumbent preference. In addition, a licensee's failure to file its application as it had originally intended would require the incumbent licensee to surrender its license and cease generation. Reopening competition upon a licensee's failure to follow up on its notice of intention to seek relicensing promotes continued operation of a project and provides an opportunity for such entities to file an application now that the licensee is no longer a competitor. That the regulation also prohibits an existing licensee from filing a relicense application in that situation is appropriate, because the licensee would have already been provided such an opportunity, of which it failed to take advantage. There would be no purpose in instituting a new relicensing proceeding in which the possibility of a licensee's participation could again discourage other potential competitors.

Moreover, allowing a licensee to file an application in a later round of competition would be inconsistent with the requirement of Section 15 that an existing licensee must file its application for new license at least two years before expiration of the old one.[28]

Some of the considerations underlying Section 16.25(a) also apply to the present situation. Here, as well, potential competitors may have been discouraged by the incumbent preference from filing competing relicense applications. Similarly, the licensee's withdrawal of its decision to seek a license, coupled with its new intention to seek a surrender instead, creates a situation in which project operations might cease even though other entities might be willing to operate the project. This potential result weighs in favor of giving other entities a new opportunity to file relicense applications, free of the licensee's incumbent preference.

Nevertheless, we believe that we should not treat the retention or reinstatement of APS's relicense application as a Section 16.25 situation. To begin with, and contrary to SAGE's assertion, the regulation does not literally apply where an incumbent has actually filed its relicense application by the statutory deadline. Moreover, in the present situation, unlike in the situation addressed by Section 16.25, the licensee's relicense application remains available for processing in case the surrender is not approved. Therefore, the lack of a new opportunity for the submission of relicense applications would not result in cessation of project operations. Further, as APS asserts, its alteration of its original intention was not designed to mislead potential competitors or to improve its competitive position; indeed, APS seeks to surrender its license and cease project operations. Although SAGE contends that APS seeks to eliminate competition, an opportunity for the filing of competing relicense applications was already provided in this proceeding. SAGE does not explain why that opportunity was inadequate here, or why the opportunity provided by Section 15 for parties to file competing relicense applications would be insufficient protection for potential competitors in any proceeding in which the incumbent pursues a settlement proposal to surrender the project license after expiration of the deadline for filing relicense applications.

We are not unmindful of the fact that an incumbent licensee may, through a settlement, gain benefits that it might not have obtained in a competitive relicense proceeding in which its application was not approved. One element of the settlement here is that APS would be permitted to continue generating power through 2004, even though its original license has expired. In some situations, an existing licensee might file

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[28]Section 16.25 applications need not conform to the Section 15 statutory deadline, since, of necessity, they would be filed after the deadline has passed. See City of Oconto Falls, Wisconsin v. FERC, 41 F.3d 671, 675-76 (D.C. Cir. 1994).

an application for a new license with the intention of later seeking a settlement in which it agrees to surrender its license in exchange for the ability to generate power beyond the term of its original license. In such a situation, arguably the public interest would not be served by letting a licensee pursue a specified limited-term project operation when other entities might be willing to operate a project for a full license term. As APS points out, if settlements are proposed to circumvent fair competition, we can evaluate them on a case-by-case basis. Where, as here, it is evident that the licensee seriously intended to pursue a new license, there is no reason to treat a request to reinstate or retain the relicense application as an attempt to gain an unfair advantage over competitors.

We also do not think that to dismiss the licensee's relicense application without prejudice to its being reinstated as of its original filing date if the surrender application is denied is, in effect, to let the licensee avoid the Section 15 deadline for the filing of relicense applications. When a licensee legitimately applies for a new license by the Section 15(c) deadline and later enters into a settlement of which surrender is a component, reinstatement of its relicense application upon denial of the surrender application would not constitute circumvention of the statutory deadline.

We conclude that there is no compelling reason for allowing another round of relicensing competition if we deny the surrender application or approve the settlement proposal in a manner that would be unacceptable to the settlement parties. An opportunity for relicensing competition was already provided at the time the previous license was due to expire, through the provisions of Section 15 of the FPA, and no other entities filed an application for new license. Reinstating APS's relicense application, which would still have the incumbent tie-breaker preference, would not unfairly deny potential applicants the opportunity to compete for the project, because there is no reason such applicants should be entitled to an opportunity they never would have had if the settlement had not been proposed. Nor is there any public interest reason, in regard to continued operation of the project, for competition to be reopened, since denial of the settlement proposal would not render the project an orphan.[29]

[29]In the present situation, the settlement proposal contemplates license surrender and project decommissioning. While we are not called upon here to address reinstatement of a relicense application where a settlement proposal would modify the original relicense proposal but still contemplate the issuance of a new license, in that situation, as well, an opportunity for relicense competition would have already been provided by Section 15 of the FPA.

4. Reopening competition upon the filing of a surrender application

We have addressed the appropriateness of additional license competition, were the surrender application denied and the incumbent licensee's relicense application restored. We have, however, not yet touched on whether additional license applications should be solicited upon the filing of the surrender application. In the notice of APS's petition, we asked for comments on whether we should provide additional opportunities for entities to seek a license if an applicant for new license subsequently seeks to surrender its existing license before a new license is issued. This question was not posed in APS's petition.

Section 16.25(a) constitutes a final opportunity to solicit a possible licensee for a project before an existing licensee must file an application to surrender its license, which might entail decommissioning the project and removing some or all of the project facilities.[30] In contrast, if we were to process APS's surrender application, we would, in effect, be giving a preference to license surrender and project decommissioning over other potential applications that would enable project operations to continue.

In this regard, SAGE assserts that it is not in the public interest to entertain a settlement that involves the removal of an economically viable project if other entities would be interested in operating it. SAGE argues that potential competitors should be given a chance to seek a license for the project, and that only if no other relicense applications are filed should we then accept and process APS's surrender application.

A licensee is not compelled to continue to operate its project;[31] rather it is free to surrender its license. While we evaluate whether a surrender is in the public interest, we do not solicit license applications to be analyzed in conjunction with a surrender application. However, when a licensee seeks surrender of its existing license after a relicense proceeding has begun, the licensee may have discouraged competition with its incumbent preference, only to back away from its intention to obtain a license. The result could be that project operations would cease, even though another entity may have been willing to seek a license for the project. There is thus a similarity between this

[30]Section 16.25(c) of the regulations provides that, if no other entity applies for a new license in response to the Commission's notice initiating the further round of license competition, an existing licensee must file a schedule for the filing of a surrender application. Section 16.25(d) states that any application for surrender must provide for the disposition of project facilities.

[31]See, e.g., Niagara Mohawk Power Corp., 83 FERC ¶ 61,226 at p. 62,007 (1998).

situation and the "orphaning" of projects that results from a licensee's failure to follow up its notice of intention to seek a new license.

Although we have some concerns with the filing of a surrender application once a relicense application has been filed, we are not convinced that reopening license competition would be warranted simply because a licensee seeks surrender. First, we do not believe that it would be in the public interest to initiate a new relicensing proceeding when the existing licensee has attempted to resolve matters relating to its own relicensing application by seeking a settlement, even if that settlement might lead to a surrender of the license and removal of project works, including any associated dams. In some instances, surrender might be the appropriate disposition of a license, and a policy of considering a proposal to surrender the license as grounds for soliciting new license applications, which would be considered as an alternative to the surrender, would discourage parties from ever pursuing license surrender as part of a settlement. Moreover, the filing of a surrender application is no guarantee that surrender would be approved, or, even if surrender were approved, that a project would be removed in whole or in part, even if the application so proposed. License surrender and project removal are two distinct matters. The alternative of continued project operation would be considered in the analysis of the surrender application, as would the alternative of no hydroelectric project but retention of, for example, the project dam and reservoir for other public purposes.[32] Finally, surrender of the license pursuant to a settlement does not preclude the filing of applications for a new license after the surrender is effective.[33]

5. Other matters

In Northern California Power Agency, we dismissed the relicense applications without prejudice to their being reinstated if we fail to grant the set of applications that the settlement parties agreed to support. APS suggests that, as an alternative to that approach, we could simply hold its relicense application in abeyance. As discussed above, we have been reluctant to retain applications on file if they are conditional or dependent on the occurrence of some future event. On the other hand, there is perhaps no practical distinction between retaining applications pending the disposition of another

[32]Project dams and reservoirs have many public interest uses, including water supply, flood control, navigation, recreation, and preservation of habitat for fish and wildlife.

[33]Such applications would be for an original license. See City of Oconto Falls, supra, 41 F.3d at 677. Any such applicants would, of course, likely be discouraged from filing license applications if surrender were accompanied by project removal.

application and agreeing to reinstate them on the same condition. Since we are determining here that we are willing to consider APS's relicense application, without soliciting additional relicense competition, upon denial of the surrender application or unacceptable alteration of the settlement terms, it is not necessary to determine at this time the precise method we will use to accomplish this. We will therefore defer such a decision until a surrender application is filed.

Finally, we add one qualification to our previous discussion. The settlement provides that the proceeding will be restored to the status quo if the agreement is terminated, and it provides that the agreement shall become null and void if the Commission "chooses to alter or prohibit execution of any term or condition contained in this Agreement that is considered essential by any affected Participant," unless all participants agree to amend the agreement. APS requests that we reinstate its relicense application "if the objectives of the Settlement, including license surrender and decommissioning, are not achieved."

It is unclear how long APS expects that its relicense application could be subject to reinstatement under these provisions. We would be willing to reinstate the relicense application if we failed to approve the settlement, including the license surrender and project removal proposals. However, once those orders become final, we would not anticipate that future issues concerning project removal could trigger reinstatement of the relicense application. The submission and processing of a surrender application is a finite process during which it is not unreasonable to respect the filing priority of the relicense application. It would not be reasonable to maintain that priority over the entire term of project decommissioning, which may extend through 2009.

(B) Surrender of License with Future Effective Date

Under the settlement, APS would continue generating at the project through December 31, 2004, by which time it would be required to restore full flows to Fossil Creek. Project removal would begin some time thereafter and would be completed by December 31, 2009. APS asks us to confirm that, if the surrender application is granted, we would establish a future effective date for the surrender such that it could be allowed to continue generating through 2004. APS argues that we could, and should, issue annual licenses under Section 16.18(b) of our regulations during the pendency of the surrender application, as well as during the period between our approval of surrender and the December 31, 2004 deadline for ceasing generation. Although APS does not appear to be asking us to delay the effectiveness of the surrender or to issue annual licenses beyond 2004, it emphasizes that we have the authority to delay the effectiveness of a license surrender until decommissioning is complete, and that our jurisdiction will not

terminate until all conditions specified in the surrender order have been satisfied by the licensee.

In our notice of the petition, we asked for comments on the extent to which we should allow the effectiveness of a license surrender to be postponed, and on whether we should be willing to issue annual licenses for an extended period of time until project generation ceases or until the project is decommissioned or removed as provided in the surrender order.

No statutory or regulatory provision would preclude us from making a surrender effective at a later date. Part I of the FPA contains only one reference to license surrender, in Section 6, which provides:

> Licenses . . . may be altered or surrendered only upon mutual agreement between the licensee and the Commission after thirty days' public notice.

Section 6.2 of the regulations states that licenses:

> may be surrendered only upon the fulfillment by the licensee of such obligations under the license as the Commission may prescribe, and, if the project works authorized under the license have been constructed in whole or in part, upon such conditions with respect to the disposition of such works as may be determined by the Commission.

Thus, a license surrender is not effective upon the issuance of a surrender order but rather when all of the conditions of the surrender are fulfilled. In addition, Section 16.18(b) of the regulations provides, as pertinent, that the Commission:

> will issue an annual license to an existing licensee under the terms and conditions of the existing license upon expiration of its existing license to allow:
>
> (1) The licensee to continue to operate the project while the Commission reviews any applications for a new license, a nonpower license, an exemption, or a surrender;
>
> (2) The orderly removal of a project, if the United States does not take over a project and no new power or nonpower license or exemption will be issued; or

(3) the orderly transfer of a project . . . .

Delay of a license surrender, rather than being precluded by our regulations, is actually required by them, to the extent that a license must remain in place to ensure Commission jurisdiction over a project until all surrender conditions have been satisfied. If a license has already expired, this continuation of the Commission's jurisdiction is normally accomplished through the issuance of annual licenses.

The conditions of a surrender, including the disposition of project works, often entail relatively modest measures that do not require a long time to complete. However, if the Commission approves a surrender that involves removing a project over several years, the license would have to remain in effect until the process is complete. In those circumstances, delaying the effectiveness of a license surrender for several years is appropriate. Consequently, if we were to approve APS's surrender and project removal proposals, the effective date of the surrender could be deferred not only through 2004, as APS requests, but would in fact have to be deferred until project removal is complete, and the Commission, through its licensing authority, would have to retain authority over the project until that time.

APS's real concern here is more specific: whether we would allow it to generate beyond the date of an order approving license surrender. There is nothing in the FPA or our regulations prohibiting continued generation beyond the time at which we issue a surrender order.[34] The fact that we might determine that a license ought to be surrendered, and even that a project ought to be removed, does not per se mean that the public interest requires immediate cessation of project operations. It may, in some instances, be in the public interest for generation to continue for some period before project removal begins.[35]

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[34]Since Section 16.18(b) of the regulations provides for issuing annual licenses under the terms and conditions of the existing license pending the orderly removal of a project, then absent a Commission directive to the contrary, those terms and conditions would permit continuation of power generation, at least until project removal reached a point at which generation would no longer be possible.

[35]For example, although we take no position here on the validity of its claims, APS asserts that continued generation in this instance will allow it time to replace the generation lost by the project with generation scheduled to come on line before the end of 2004.

(continued...)

The issue is not so much allowing generation to continue after the issuance of a surrender order as it is that commencement of project removal is thereby delayed. If the Commission were to find that removing a project is in the public interest, delaying removal for a substantial period of time would entail the risk that the public interest factors might change by the time removal begins. In such a case, the Commission would likely deny surrender now, without prejudice to a surrender application being filed closer to the proposed date of project removal.[36] There is a basic problem facing a licensee that, in a relicensing proceeding, joins in a settlement agreement that allows it to continue generating for some years past expiration of the prior license and then to remove the project. If the Commission concludes that the proposed license surrender and project removal would occur too far in the future to be approved now, then continued project generation can occur under only one of three scenarios: (1) if the term of prior license was less than the statutory maximum of 50 years,[37] the licensee can apply to extend the prior license's term to cover the gap;[38] (2) if the term of the prior license was 50 years, the licensee can pursue its relicense appliction (assuming it filed one) and, if it obtains a new license, apply to surrender the new license once the gap has been covered; or (3) if the term of the prior license was 50 years, the licensee can ask the Commission to issue annual licenses for long enough to cover the gap.

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[35](...continued)

As precedent for the Commission's allowance of continued generation, APS states that, in Edwards Manufacturing Co, Inc., 81 FERC ¶ 61,226 (1998), we allowed a project to continue operating under annual licenses after we determined that it should be removed rather than relicensed. However, in that proceeding, in which allowing continued generation was not actually discussed, project removal could not begin until the licensee filed a plan for retiring the project and removing the dam and generation facilities. No such rationale for continuing generation would apply if the Commission were to be presented with, and were to approve, a removal plan as part of a surrender application.

[36]See, County of Antrim, Michigan, 88 FERC ¶ 62,158 (1999).

[37]Section 6 of the FPA provides that licenses shall be issued for a period not exceeding 50 years. Section 15(e) of the FPA provides that new licenses shall be issued for a term which the Commission determines to be in the public interest, but not less than 30 years or more than 50 years.

[38]See County of Antrim, supra.

In the present proceeding, if we were to approve the surrender application contemplated by the settlement, generation would cease at the end of 2004, and project removal would begin shortly thereafter. APS has yet to file a surrender application, and such an application would have to undergo public notice and comment, as well as environmental analysis, before we could reach any decision as to its disposition. Under the circumstances presented here, it seems unlikely that allowing continued power generation from the time a license surrender could be approved until the time scheduled for cessation of generation would delay the commencement of project removal to the extent that the public interest could not support the proposal.[39]

APS asks us to confirm that, if we determine surrender and decommissioning are in the public interest, not only could we permit continued generation through 2004 under annual licenses, but we would actually do so. A determination of the appropriate action to take is not properly accomplished through a declaratory order but must await analysis of the surrender application. Such an analysis would have to include an evaluation of the support for continued generation, and a balancing of the benefits of continued generation and the impacts of the consequent delay in the commencement of decommissioning and project removal.[40] We are determining here only that there is no regulatory obstacle or apparent policy reason that would preclude our authorization of an additional generation period beyond the granting of a surrender application.

(C) Other Issues

At the technical conference, participants raised the possibility that a nonpower license could be issued to accomplish project decommissioning and removal. APS and other commenters request that we provide guidance here as to the ability of a nonpower

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[39]Compare County of Antrim, supra, where the Director, Division of Licensing and Compliance, concluded that no substantial evidence had been presented to support a finding that it would be in the public interest to decommission the project generating works in 2014, as contemplated by a settlement agreement entered into by the licensee and other entities. In other cases, sufficient evidence might be presented in a surrender application to support future decommissioning and partial or total removal of project works, but we would expect that, the more distant the commencement of the proposed decommissioning, the less reliable such evidence would be.

[40]APS emphasizes that among the purposes specified by Section 16.18 of the regulations for issuing annual licenses are allowing Commission review of a surrender application and allowing orderly removal of a project. But neither of these purposes requires continued project generation for its accomplishment.

license to accomplish the goals of the settlement. A nonpower license, which is provided for by Section 15(f) of the FPA, is a temporary license intended to serve as a bridge between a power license and the conclusion of Commission involvement with the site.[41]

APS asks us to determine whether, if it applied for a nonpower license, its relicense application would be dismissed with prejudice, or whether the parties to the settlement could return to the pre-settlement status quo if the nonpower license were denied. It also asks us to clarify whether conditioning authority granted to other agencies pursuant to Sections 4(e), 10(j), and 18 of the FPA in respect to an original or new license would also apply to the issuance of a nonpower license.[42] Finally, it asks us to determine whether generation would be permitted under a nonpower license. Interior expresses no preference regarding issuance of a nonpower license as opposed to issuance of annual licenses, but it asserts that, under a nonpower license, a licensee could continue to scale back power generation over a period of several years, while the Commission and resource agencies could impose needed safety and environmental mitigation.

As APS notes, since the technical conference we issued two orders relating to nonpower licenses in Wisconsin Electric Power Company.[43] In the first order, we found that a nonpower license was an appropriate vehicle for partially or totally removing a project after the licensee ceased generation, and we gave notice that we intended to issue such a license and to grant surrender of it once the project removal terms were fulfilled.

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[41]Section 15(f) provides that, in issuing any license other than an annual license, the Commission, if it finds that all or part of a licensed project should no longer be used for power purposes, may license all or part of the project works for nonpower use. Any such license is to be a temporary license, which the Commission will terminate whenever it is satisfied that a State municipality, an interstate agency, or another Federal agency is authorized and willing to assume regulatory supervision of the lands and facilities included under the nonpower license.

[42]Section 4(e) requires licenses for projects on federal reservations to contain such conditions as the Secretary of the department having supervision over the reservation deems necessary for the adequate protection and utilization of the reservation. Section 10(j) provides for the adoption of license conditions based on recommendations of federal and state fish and wildlife agencies for the protection, mitigation of damages to, and enhancement of fish and wildlife. Section 18 requires the Commission to direct a licensee to construct and operate such fishways as the Secretaries of Commerce and of the Interior prescribe.

[43]94 FERC ¶ 61,175 (2001); 96 FERC ¶ 61,009 (2001).

In the second order, we issued a nonpower license -- the first such license ever issued -- with its surrender to be effective when the licensee notified us that all of the surrender conditions had been satisfied. However, we concluded that the nonpower license would also cover a five-year period in which the licensee, in order to remove the project dam, would draw down the project reservoir, while continuing generation. We stated that Section 15(f) did not prohibit us from issuing a nonpower license that permits some degree of generation, whether to help finance project removal or, as in that case, to facilitate project removal.[44]

Our actions in Wisconsin Electric Power Company suggest that issuance of a nonpower license could address the situation in the present proceeding. The second order clarifies that generation may be permitted under a nonpower license, although whether we would authorize generation under any particular nonpower license would depend on the circumstances of that proceeding. On the other hand, those orders did not address the applicability of agencies' mandatory conditioning authority to the issuance of nonpower licenses or the possibility of reopened license competition if an application for nonpower license is denied. Neither the petition nor the comments we received in response to it address these issues in any detail. Since we are clarifying here that we would have to retain our jurisdiction over the project until decommissioning is accomplished, that we may do so through the issuance of annual licenses, and that we would not reopen competition upon denial of an application for surrender and project decommissioning, we believe we have provided APS with the fundamental guidance it has sought. Therefore we will not attempt to resolve these nonpower license issues here, in light of their complexity and the propect that their resolution will not be necessary to accomplish the purposes of the settlement.

APS also requests that we provide guidance on the nature of a second round of competition for the project license, with particular emphasis on the issue of its participation in such a proceeding with retention of a marginal incumbent or first-to-file preference. Since we have determined that, under the circumstances presented, a new round of license competition would not be necessary, we will not address the nature of such a hypothetical proceeding here.

The Commission orders:

(A) The petition for exemption from the filing fee prescribed in Section 381.302 of the Commission's regulations, 18 C.F.R. § 381.302 (2001), is granted, for the reasons noted in n.1 of this order.

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[44]96 FERC ¶ 61,009 at n.16.

(B) The petition for issuance of a declaratory order is granted, consistent with the discussion in the text of this order.

By the Commission.

(S E A L)

Linwood A. Watson, Jr.,
Acting Secretary.

88 FERC ¶ 61,176

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: James J. Hoecker, Chairman;
Vicky A. Bailey, William L. Massey,
Linda Breathitt, and Curt Hébert, Jr.

Erie Boulevard Hydropower, L.P.) Project No. 2569-044

ORDER DENYING REHEARING

(Issued August 13, 1999)

In this order we deny the request of the U.S. Department of the Interior (Interior) for rehearing of a June 21, 1999 order amending the license for the Black River Project No. 2569 to permit the licensee 1/ to replace wooden flashboards on the crest of the dam at the project's Deferiet development with a pneumatic crest control device.

BACKGROUND

As explained in the June 21 order, the project was issued a new license in 1996, in association with the approval of a Settlement Offer resolving a range of issues negotiated by Niagara Mohawk and other parties to the license proceeding. 2/

Niagara Mohawk subsequently filed an application to amend the license by replacing the existing wooden flashboards on the crest of one of the project developments with a pneumatic system of the same height. 3/ Interior intervened in opposition,

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1/ Niagara Mohawk Power Corp., 87 FERC ¶ 61,338 (1999) (Order Approving Settlement Offer and Issuing New License). Niagara Mohawk was the licensee when the underlying order was issued on June 21, 1999. On July 26, 1999, the Commission issued an order which approved the transfer of numerous Niagara Mohawk licenses, including the license for Project No. 2569, to Erie Boulevard Hydropower, L.P. (Erie). See Niagara Mohawk Power Corp. and Erie Boulevard Hydropower, L.P., et al., 88 FERC ¶ 62,082 (1999). That order noted that the license transfer proceeding was not the appropriate forum to decide the merits of the instant license amendment proceeding.

2/ Niagara Mohawk Power Corp., 77 FERC ¶ 61,306.

3/ Niagara Mohawk had considered agreeing to install the pneumatic system during the settlement discussions, but decided not to do so based on cost constraints and concerns

(continued...)

asserting that the application violated dispute resolution procedures set forth in the approved Settlement. 4/ The June 21 order found that the dispute resolution provision relied on by Interior is not a license condition, and that therefore the provision's requirement for negotiations before a signatory seeks to reopen the license does not apply to license amendment applications. 5/ Interior's rehearing request followed.

DISCUSSION

Interior asserts on rehearing that the order approving the Settlement accepted and included in the project license the dispute resolution provision in the Offer of Settlement, 6/ and that the June 21 order, in concluding that this provision is not a part of the license, amended the license without requisite public notice and due process.

3/ (...continued)
about the timing of installation. Apparently, when those concerns were subsequently alleviated, Niagara Mohawk reintroduced the proposal. See letter to J. Mark Robinson, Director, Division of Licensing and Compliance, from Sam S. Hirschey (Niagara Mohawk) at 1 and Attachment 3 (filed January 6, 1999).

4/ Interior had no substantive objections to the flashboard replacement, which it supported in the relicense proceeding, and which we found would have beneficial effects on the environment. Rather, Interior opposed the amendment unless Niagara Mohawk agreed to accelerate the schedule for certain environmental improvements from the dates agreed upon in the Settlement.

5/ 87 FERC at p. 62,303.

6/ Part IX, Section J of the Settlement states:

> In the event that any dispute arises with the terms and conditions of this Settlement Offer, the signatories agree to engage in good faith negotiations for a period of at least 90 days, if necessary, in an effort to resolve the dispute, said negotiations to be initiated by the aggrieved party. A minimum of two meetings shall be held to attempt to resolve the dispute during the 90-day negotiating period, if necessary. In the event that resolution cannot be reached within the 90-day negotiating period, the dispute may be referred to FERC pursuant to FERC's Rules of Practice and Procedure (18 C.F.R. 385, et seq.).

Interior bases much of its argument on a selective quote from the 1996 license order for the Black River Project. Interior quotes the language: "We will include in the license those terms of the Settlement Offer that pertain to the Black River Project . . ." (footnote excluded) for the proposition that the Commission included in the license all of the terms of the settlement that it did not expressly reject. 7/ However, the remainder of that sentence reads:

> , modified to accord with our policies, together with provisions enabling us to ensure compliance with all license conditions. *23*"

23 See order approving settlement agreement and issuing new license in Niagara Mohawk Power Corporation, supra, 76 FERC [¶ 61,152 (1996)] at p. 61,633, citing Consumers Power Co., 68 FERC ¶ 61,077 (1994). [Interior's Fish and Wildlife Service participated in the two cited cases, and signed the settlement offers therein.]

In Consumers Power Co. the Commission clearly articulated its policy with respect to "off-license" agreements:

> Certain sections of the Settlement, or portions of sections, set forth undertakings by resource agencies and may also include closely related undertakings by the licensee. These matters relate primarily to questions of procedure for consultation and dispute resolution among the parties. The Commission cannot incorporate these undertakings into license articles, which by definition bind the licensee only. We accept such undertakings, however, insofar as they do not conflict with the license articles adopted for projects in this proceeding or interfere with the exercise of the Commission's statutory authority. *26*

26 See, e.g., Settlement sections 12 (procedures for coordination and implementation of the Settlement by the parties) and 14 (resolution of disputes between the parties).

Consistent with this statement of policy, the Commission has been careful to distinguish between "approving" or "accepting" an entire settlement and "adopting" or "incorporating" specific

7/ Rehearing request at 4, 8, and 9. The quoted sentence segment appears in the license order, 77 FERC at pp. 62,384-85.

terms thereof. 8/ If a settlement term is not specifically adopted in the license order, then that term is not a part of the license for purposes of Commission administration and enforcement. 9/ For example, in City of Seattle, Washington, 10/ the Commission stated:

> In our [relicense] order, we . . . approved [the Settlement] in its entirety. We then adapted and incorporated into the license those portions of the supporting Agreements that were appropriate for inclusion as license articles. We explained why some Agreement provisions were not appropriate for inclusion in a license, but noted that, as agreements among the parties, those provisions could be carried out and enforced without our involvement. [11/]

8/ Indeed, the Commission is in no position even to approve or accept settlement provisions that deal with matters beyond its jurisdiction; at most, the Commission can "approve of" such provisions. However, the Commission has used the terms "approve" or "accept" in such contexts as an accommodation to requests from settlement parties.

9/ See, e.g., Consumers Power (Order Issuing New License), 68 FERC ¶ 61,076 (1994) at pp. 61,349-62 (ordering paragraphs and license articles); Niagara Mohawk, supra (Order Approving Settlement Agreement and Issuing New License), 76 FERC at pp. 61,828, 61,836-50.

10/ 71 FERC ¶ 61,159 (1995) ("Order Accepting Settlement Agreement, Issuing New License, and Terminating Proceeding"), reh'g, 75 ¶ 61,319 (1996). Interior was a party to this proceeding.

11/ 75 FERC at p. 62,014. The Commission observed further (id., n. 6):

> The rehearing requests do not explain why the measures not included in the license cannot be a matter of separate agreement among the parties, since the Commission did not disapprove them. . . . The lack of a provision for private enforcement of the terms of an agreement can be remedied by the parties to the agreement, and is not a per se justification for including a settlement provision in the license. . . .

See also n.8, supra.

We emphasized the same point in accepting a settlement in Southern California Edison Co. 12/:

> We accept the [parties'] settlement, but certain aspects of the agreement are beyond the Commission's jurisdiction to enforce. Procedural provisions requiring the participation of parties not subject to Commission jurisdiction, such as those regarding meetings between the signatory parties, are not incorporated into the license. The license incorporates all of the provisions of the Settlement requiring specific licensee action to provide mitigation and enhancement for project impacts . . . [footnote excluded].

In light of the Commission's clearly stated policy on this subject, a settlement signatory is not justified in assuming that the Commission will adopt settlement terms governing dispute resolution among the signatories. Moreover, the only terms, settlement or otherwise, that become license conditions are those terms that are affirmatively adopted in the license order (nearly always in the ordering paragraphs). Indeed, terms not affirmatively adopted in the license order cannot be considered conditions of the license. 13/

Interior next disputes our interpretation of Part IX, Section L of the Settlement, which states:

> This Settlement Offer is not intended to limit or restrict any signatory's authority, if any, to seek different or modified license conditions through a license reopener. Before any signatory proceeds to seek a reopener, the signatory shall request all signatories to commence negotiations for a period of at least 90 days to resolve the issue, and to agree to modify this Settlement Offer accordingly, if necessary.

Interior argues that this provision requires the licensee to employ the dispute resolution provision before "reopening" the license with the filing of an amendment application. It therefore asserts that the Commission should have rejected the licensee's flashboard replacement amendment application for

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12/ 77 FERC ¶ 61,313 at pp. 62,428-29 (1997) (order issuing new license).

13/ See Clifton Power Corp. v. FERC, 88 F.3d 1258 (D.C. Cir. 1996). In light of this requirement, the cases Interior cites as allegedly in conflict with the Commission's position in the instant case are in fact perfectly consistent with our orders herein.

failure to document compliance with Part IX, Section L. However, as described above, Section L is precisely the type of settlement provision that we do not incorporate in a license, since it concerns dealings with parties that, other than the licensee, are not subject to the Commission's jurisdiction. Consequently, as we pointed out in our June 21 order, 14/ if the settlement signatories were in disagreement over the meaning of a part of the settlement that was not included in the license, the remedy was to follow the procedure in the agreement's dispute resolution section, Part IX, Section J (set out in n.6, supra), under which one option is referral of the dispute to the Commission.

Finally, we noted that, for FPA Part I purposes, a "reopener provision" is a specific license article reserving the Commission's authority, on its own motion or at the request of another entity, to initiate a license amendment proceeding for specified purposes, and that reopener provisions have never applied to applications by the licensee to amend the license. 15/ In whatever forum Interior was to press its definition of "reopener," it would have to argue that the settlement signatories did not mean to limit "reopener" to the longstanding definition thereof. However, since the settlement document does not include its own definition, one can only conclude that the signatories intended to use "reopener" consistently with its longstanding definition, instead of accepting post hoc assertions as to what the signatories actually meant. 16/ In any event, Interior's quarrel is with the licensee, not the Commission, since, for the reasons already explained, the license order did not make Part IX, Section L a term of the license for the Commission to enforce.

14/ 87 FERC at p. 62,303 & n.8.

15/ Id. at p. 62,303.

16/ In fact, Niagara Mohawk argues for its part that the signatories intended the term "reopener" in Section L to apply only to proceedings to reopen the license to include fishways that might be prescribed in the future by Interior. See Niagara Mohawk's reply in opposition to Interior's motion to intervene at pp. 6-7 (filed March 10, 1999).

In sum, Interior advances no tenable arguments on behalf of its position, and we deny its rehearing request.

The Commission orders:

The Department of the Interior's July 20, 1999 request for rehearing in this proceeding is denied.

By the Commission.

(S E A L)

Linwood A. Watson, Jr.,
Acting Secretary.

88 FERC ¶ 61,176
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: James J. Hoecker, Chairman;
Vicky A. Bailey, William L. Massey,
Linda Breathitt, and Curt Hébert, Jr.

Erie Boulevard Hydropower, L.P.) Project No. 2569-044

ORDER DENYING REHEARING

(Issued August 13, 1999)

In this order we deny the request of the U.S. Department of the Interior (Interior) for rehearing of a June 21, 1999 order amending the license for the Black River Project No. 2569 to permit the licensee [1] to replace wooden flashboards on the crest of the dam at the project's Deferiet development with a pneumatic crest control device.

BACKGROUND

As explained in the June 21 order, the project was issued a new license in 1996, in association with the approval of a Settlement Offer resolving a range of issues negotiated by Niagara Mohawk and other parties to the license proceeding. [2]

Niagara Mohawk subsequently filed an application to amend the license by replacing the existing wooden flashboards on the crest of one of the project developments with a pneumatic system

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[1]Niagara Mohawk Power Corp., 87 FERC ¶ 61,338 (1999) (Order Approving Settlement Offer and Issuing New License). Niagara Mohawk was the licensee when the underlying order was issued on June 21, 1999. On July 26, 1999, the Commission issued an order which approved the transfer of numerous Niagara Mohawk licenses, including the license for Project No. 2569, to Erie Boulevard Hydropower, L.P. (Erie). See Niagara Mohawk Power Corp. and Erie Boulevard Hydropower, L.P., et al., 88 FERC ¶ 62,082 (1999). That order noted that the license transfer proceeding was not the appropriate forum to decide the merits of the instant license amendment proceeding.

[2]Niagara Mohawk Power Corp., 77 FERC ¶ 61,306.

97 FERC ¶ 61, 315
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Pat Wood, III, Chairman;
William L. Massey, Linda Breathitt,
and Nora Mead Brownell.

Arizona Public Service Company Project No. 2069-006

DECLARATORY ORDER

(Issued December 20, 2001)

This order addresses a petition for declaratory order filed by Arizona Public Service Company (APS) regarding an Offer of Settlement and Settlement Agreement (settlement) that is currently pending before the Commission in the relicensing proceeding for APS's Childs Irving Project No. 2069. The petition requests that we address several issues pertaining to the processing of the settlement and to the relationship between the settlement and the relicense application.[1] Our disposition of these issues will serve the public interest not only by resolving uncertainty in this proceeding but by providing guidance in future relicense proceedings in which settlements are tendered.

BACKGROUND

The 7-megawatt Childs Irving Project is located on 344 acres of land managed by the U.S. Forest Service in Yavapai and Gila Counties, Arizona. The project consists of two developments on Fossil Creek, a tributary of the Verde River, and lies entirely in the Coconino and Tonto National Forests. The project diverts water from 14 miles of Fossil Creek and returns it directly to the Verde River. An original license for the project was issued in 1951 and expired on December 31, 1994. Since then, the project has been

[1]APS also filed, pursuant to 18 C.F.R. §§ 385.207 and 381.302(c), a petition for exemption from the fee established for filing a petition for declaratory order. Because its petition meets the requirements of 18 C.F.R. § 381.302(b) for such an exemption, we will grant it.

97 FERC ¶ 61, 348
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Pat Wood, III, Chairman;
William L. Massey, Linda Breathitt,
and Nora Mead Brownell.

PacifiCorp Project No. 2342-012

DECLARATORY ORDER

(Issued December 21, 2001)

On June 1, 2001, PacifiCorp filed a petition for a declaratory order regarding an application for license amendment and an associated settlement agreement (amendment/settlement) that were filed on October 21, 1999, and are currently pending before the Commission.[1] The proposed amendment would extend the term of PacifiCorp's existing original license for the 14.7-megawatt Condit Hydroelectric Project No. 2342 to October 1, 2006, and would incorporate into that license the settlement agreement (Settlement), whose terms relate to project decommissioning and removal of project facilities at the expiration of the extended license term.[2] PacifiCorp requests that the Commission find it has jurisdiction to entertain the amendment/settlement application, to approve the Settlement, and to issue the amendment as submitted.

Our disposition of certain issues related to the amendment/settlement application serves the public interest by resolving uncertainty in this proceeding and by providing guidance for future relicense proceedings in which amendments involving such settlements are tendered.

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[1]PacifiCorp also filed, pursuant to 18 C.F.R. § 381.302(b) and (c) (2001), a petition for exemption from the fee established for filing a petition for declaratory order. Its petition meets the regulation's requirements for such exemption and is granted.

[2]Under Section 4.4 of the Settlement, PacifiCorp would cease generating power at the project by October 1, 2006, commence project removal in October 2006, and complete the removal by December 31, 2007.

UNITED STATES OF AMERICA 98 FERC ¶ 61,301
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Pat Wood, III, Chairman;
William L. Massey, Linda Breathitt,
and Nora Mead Brownell.

PacifiCorp Project No. 2342-013

ORDER ON MOTION FOR CLARIFICATION

(Issued March 15, 2002)

1. On January 22, 2002, PacifiCorp filed a motion for clarification[1] of two aspects of the Commission's declaratory order issued on December 21, 2001,[2] regarding the Condit Project No. 2342, located on the White Salmon River in Skamania and Klickitat Counties, Washington. We clarify these two matters as discussed below.

BACKGROUND

2. An original license for the Condit Project was issued on December 20, 1968,[3] with an effective date of May 1, 1965, and a termination date of December 31, 1993, for a license term of 28 years and eight months. PacifiCorp timely filed an application for new license for the project, and no competing applications were filed. Since expiration of the original license, project operations have continued pursuant to annual licenses, pending disposition of PacifiCorp's application for a new license.[4]

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[1]PacifiCorp styled its request as a "motion for clarification or request for rehearing." The content of its submission appears to be more in the nature of a request for clarification and is so treated.

[2]97 FERC ¶ 61,348.

[3]40 FPC 1485.

[4]Pursuant to Section 15(a)(1) of the Federal Power Act (FPA), 16 U.S.C. § 808(a)(1), the terms of an annual license are the terms of the prior license.

501 FW 2, Appendix 2
Checklist-Resource Category Documentation

FWM#: 069 (new)
Date: February 24, 1993
Series: Interagency Activities
Part 501: Interagency Activities - General
Originating Office: Division of Habitat Conservation

The following checklist encompasses the information to be provided in supporting technical documentation for resource category determinations:

1. Describe the boundary of the area(s) of habitat in a manner readily understood by developers and planning interests. Consider using maps, altitudes, river reaches, distinctive surface cover types, floodplains, drainages, landmarks, or any other geographic or topographic descriptors.

2. Identify those special biological features or the area(s) in question that are considered pertinent to the resource category determination (i.e., species, species life stages, species life requisites, species groups and species diversity considerations). Also identify any special vegetative and physical site conditions that enter into consideration.

3. In quantitative or qualitative terms, discuss the importance ascribed to the special features and conditions in number 2 above.

4. As appropriate, discuss considerations for scarcity, abundance, irreplaceability, and/or uniqueness. Also discuss the geographic area of consideration associated with these characteristics.

5. If an area is unique and irreplaceable, and is proposed as Resource Category 1, discuss why it is not possible, based on present day scientific and engineering skills, to offset the loss through managed improvement, restoration, or creation of like habitat.

U.S. FISH AND WILDLIFE SERVICE MITIGATION POLICY

I. PURPOSE

This document establishes policy for U.S. Fish and Wildlife Service recommendations on mitigating the adverse impacts of land and water developments on fish, wildlife, their habitats, and uses thereof. It will help to assure consistent and effective recommendations by outlining policy for the levels of mitigation needed and the various methods for accomplishing mitigation. It will allow Federal action agencies and private developers to anticipate Service recommendations and plan for mitigation measures early, thus avoiding delays and assuring equal consideration of fish and wildlife resources with other project features and purposes. This policy provides guidance for Service personnel but variations appropriate to individual circumstances are permitted.

This policy supersedes the December 18, 1974, policy statement entitled "Position Paper of the Fish and Wildlife Service Relative to Losses to Fish and Wildlife Habitat Caused by Federally Planned or Constructed Water Resource Developments" and the Service River Basin Studies Manual Release 2.350 entitled "General Bureau Policy on River Basin Studies."

II. AUTHORITY

This policy is established in accordance with the following major authorities: (See Appendix A for other authorities.)

Fish and Wildlife Act of 1956 (16 U.S.C. 742(a)–754). This Act authorizes the development and distribution of fish and wildlife information to the public, Congress, and the President, and the development of policies and procedures that are necessary and desirable to carry out the laws relating to fish and wildlife including: (1) ". . . take such steps as may be required for the development, advancement, management, conservation, and protection of the fisheries resources;" and (2) ". . . take such steps as may be required for the development, management, advancement, conservation, and protection of wildlife resources through research . . . and other means."

Fish and Wildlife Coordination Act (16 U.S.C. 661–667(e)). This Act authorizes the U.S. Fish and Wildlife Service, National Marine Fisheries Service (NMFS), and State agencies responsible for fish and wildlife resources to investigate all proposed Federal undertakings and non-Federal actions needing a Federal permit or license which would impound, divert, deepen, or otherwise control or modify a stream or other body of water and to make mitigation and enhancement recommendations to the involved Federal agency. "Recommendations . . . shall be as specific as practicable with respect to features recommended for wildlife conservation and development, lands to be utilized or acquired for such purposes, the results expected, and shall describe the damage to wildlife attributable to the project and the measures proposed for mitigating or compensating for these damages." In addition, the Act requires that wildlife conservation be coordinated with other features of water resource development programs.

Determinations under this authority for specific projects located in estuarine areas constitute compliance with the provisions of the Estuary Protection Act. (See Appendix A.)

Watershed Protection and Flood Prevention Act (16 U.S.C. 1001–1009). This Act allows the Secretary of the Interior to make surveys, investigations, and ". . . prepare a report with recommendations concerning the conservation and development of wildlife resources . . ." on small watershed projects.

National Environmental Policy Act of 1969 (42 U.S.C. 4321–4347). This Act and its implementing regulations (40 CFR Part 1500–1508) requires that the U.S. Fish and Wildlife Service be notified of all major Federal actions affecting fish and wildlife resources and their views and recommendations solicited. Upon completion of a draft Environmental Impact Statement, the Service is required to review it and make comments and recommendations, as appropriate. In addition, the Act provides that "the Congress authorizes and directs that, to the fullest extent possible . . . all agencies of the Federal Government shall . . . identify and develop methods and procedures . . . which will ensure that presently unquantified environmental amenities and values may be given appropriate consideration in decisionmaking along with economic and technical considerations."

III. SCOPE

A. Coverage

This policy applies to all activities of the Service related to the evaluation of impacts of land and water developments and the subsequent recommendations to mitigate those adverse impacts except as specifically excluded below. This includes: (1) investigations and recommendations for all actions requiring a federally issued permit or license that would impact waters of the U.S.; (2) all major Federal actions significantly affecting the quality of the human environment; and (3) other Federal actions for which the Service has legislative authority or executive direction for involvement including, but not limited to: coal, minerals, and outer continental shelf lease sales or Federal approval of State permit programs for the control of discharges of dredged or fill material.

B. Exclusions

This policy does not apply to threatened or endangered species. The requirements for threatened and endangered species are covered in the Endangered Species Act of 1973 and accompanying regulations at 50 CFR Parts 17, 402, and 424. Under Section 7 of the Endangered Species Act, as amended, all Federal agencies shall ensure that activities authorized, funded, or carried out by them are not likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat. Mitigating adverse impacts of a project would not in itself be viewed as satisfactory agency compliance with Section 7. Furthermore, it is clear to the Service that Congress considered the traditional concept of mitigation to be inappropriate for Federal activities impacting listed species or their critical habitat.

This policy does not apply to Service recommendations for Federal projects completed or other projects permitted or licensed prior to enactment of Service authorities (unless indicated otherwise in a specific statute) or specifically exempted by them and not subject to reauthorization or renewal. It also does not apply where mitigation plans have already been agreed to by the Service, except where new activities or changes in current activities would result in new impacts or where new authorities, new scientific information, or developer failure to implement agreed upon recommendations make it necessary. Service personnel involved in land and water development investigations will make a judgment as to the applicability of the policy for mitigation plans under development and not yet agreed upon as of the date of final publication of this policy.

Finally, this policy does not apply to Service recommendations related to the enhancement of fish and wildlife resources. Recommendations for measures which improve fish and wildlife resources beyond that which would exist without the project and which cannot be used to satisfy the

appropriate mitigation planning goal should be considered as enhancement measures. The Service strongly supports enhancement of fish and wildlife resources. The Service will recommend that all opportunities for fish and wildlife resource enhancement be thoroughly considered and included in project plans, to the extent practicable.

IV. DEFINITION OF MITIGATION

The President's Council on Environmental Quality defined the term "mitigation" in the National Environmental Policy Act regulations to include: "(a) avoiding the impact altogether by not taking a certain action or parts of an action; (b) minimizing impacts by limiting the degree or magnitude of the action and its implementation; (c) rectifying the impact by repairing, rehabilitating, or restoring the affected environment; (d) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and (e) compensating for the impact by replacing or providing substitute resources or environments." (40 CFR Part 1508.20(a–e)).

The Service supports and adopts this definition of mitigation and considers the specific elements to represent the desirable sequence of steps in the mitigation planning process. (See Appendix B for definitions of other important terms necessary to understand this policy.)

V. MITIGATION POLICY OF THE U.S. FISH AND WILDLIFE SERVICE

The overall goals and objectives of the Service are outlined in the Service Management Plan and an accompanying Important Resource Problems document which describes specific fish and wildlife problems of importance for planning purposes. Goals and objectives for Service activities related to land and water development are contained in the Habitat Preservation Program Management Document. The mitigation policy was designed to stand on its own; however, these documents will be consulted by Service personnel to provide the proper perspective for the Service mitigation policy. They are available upon request from the Director, U.S. Fish and Wildlife Service, Washington, D.C. 20240.

A. General Policy

The mission of the U.S. Fish and Wildlife Service is to:

PROVIDE THE FEDERAL LEADERSHIP TO CONSERVE, PROTECT AND ENHANCE FISH AND WILDLIFE AND THEIR HABITATS FOR THE CONTINUING BENEFIT OF THE PEOPLE.

The goal of Service activities oriented toward land and water development responds to Congressional direction that fish and wildlife resource conservation receive equal consideration and be coordinated with other features of Federal resource development and regulatory programs through effective and harmonious planning, development, maintenance and coordination of fish and wildlife resource conservation and rehabilitation in the United States, its territories and possessions. The goal is to:

CONSERVE, PROTECT AND ENHANCE FISH AND WILDLIFE AND THEIR HABITATS AND FACILITATE BALANCED DEVELOPMENT OF THIS NATION'S NATURAL RESOURCES BY TIMELY AND EFFECTIVE PROVISION OF FISH AND WILDLIFE INFORMATION AND RECOMMENDATIONS.

Fish and wildlife and their habitats are public resources with clear commercial, recreational, social, and ecological value to the Nation. They are conserved and managed for the people by State, Federal and Indian tribal Governments. If land or water developments are proposed which may reduce or eliminate the public benefits that are provided by such natural resources, then State and Federal resource agencies and Indian tribal agencies have a responsibility to recommend means and measures to mitigate such losses. Accordingly:

IN THE INTEREST OF SERVING THE PUBLIC, IT IS THE POLICY OF THE U.S. FISH AND WILDLIFE SERVICE TO SEEK TO MITIGATE LOSSES OF FISH, WILDLIFE, THEIR HABITATS, AND USES THEREOF FROM LAND AND WATER DEVELOPMENTS.

In administering this policy, the Service will strive to provide information and recommendations that fully support the Nation's need for fish and wildlife resource conservation as well as sound economic and social development through balanced multiple use of the Nation's natural resources. The Service will actively seek to facilitate needed development and avoid conflicts and delays through early involvement in land and water development planning activities in advance of proposals for specific projects or during the early planning and design stage of specific projects.

This should include early identification of resource areas containing high and low habitat values for important species and the development of ecological design information that outlines specific practicable means and measures for avoiding or minimizing impacts. The former can be used by developers to site projects in the least valuable areas. This could possibly lower total project costs to development interests. These actions are part of good planning and are in the best public interest.

The early provision of information to private and public agencies in a form which enables them to avoid or minimize fish and wildlife losses as a part of initial project design is the preferred form of fish and wildlife conservation.

B. U.S. Fish and Wildlife Service Mitigation Planning Goals by Resource Category

The planning goals and guidelines that follow will be used to guide Service recommendations on mitigation of project impacts. Four Resource Categories are used to indicate that the level of mitigation recommended will be consistent with the fish and wildlife resource values involved.

The policy covers impacts to fish and wildlife populations, their habitat and the human uses thereof. However, the primary focus in terms of specific guidance is on recommendations related to habitat value losses. In many cases, compensation of habitat value losses should result in replacement of fish and wildlife populations and human uses. But where it does not, the Service will recommend appropriate additional means and measures.

RESOURCE CATEGORY 1

a. Designation Criteria

Habitat to be impacted is of high value for evaluation species and is unique and irreplaceable on a national basis or in the ecoregion section.

b. Mitigation Goal

No Loss of Existing Habitat Value.

c. Guideline

The Service will recommend that all losses of existing habitat be prevented as these one-of-a-kind areas cannot be replaced. Insignificant changes that do not result in adverse impacts on habitat value may be acceptable provided they will have no significant cumulative impact.

RESOURCE CATEGORY 2

a. Designation Criteria

Habitat to be impacted is of high value for evaluation species and is relatively scarce or becoming scarce on a national basis or in the ecoregion section.

b. Mitigation Goal

No Net Loss of In-Kind Habitat Value.

c. Guideline

The Service will recommend ways to avoid or minimize losses. If losses are likely to occur, then the Service will recommend ways to immediately rectify them or reduce or eliminate them over time. If losses remain likely to occur, then the Service will recommend that those losses be compensated by replacement of the same kind of habitat value so that the total loss of such in-kind habitat value will be eliminated.

Specific ways to achieve this planning goal include: (1) physical modification of replacement habitat to convert it to the same type lost; (2) restoration or rehabilitation of previously altered habitat; (3) increased management of similar replacement habitat so that the in-kind value of the lost habitat is replaced, or (4) a combination of these measures. By replacing habitat value losses with similar habitat values, populations of species associated with that habitat may remain relatively stable in the area over time. This is generally referred to as in-kind replacement.

Exceptions: An exception can be made to this planning goal when: (1) different habitats and species available for replacement are determined to be of greater value than those lost, *or* (2) in-kind replacement is not physically or biologically attainable in the ecoregion section. In either case, replacement involving different habitat kinds may be recommended provided that the total value of the habitat lost is recommended for replacement (see the guideline for Category 3 mitigation below).

RESOURCE CATEGORY 3

a. Designation Criteria

Habitat to be impacted is of high to medium value for evaluation species and is relatively abundant on a national basis.

b. Mitigation Goal

No Net Loss of Habitat Value While Minimizing Loss of In-Kind Habitat Value.

c. Guideline

The Service will recommend ways to avoid or minimize losses. If losses are likely to occur, then the Service will recommend ways to immediately rectify them or reduce or eliminate them over time. If losses remain likely to occur, then the Service will recommend that those losses be compensated by replacement of habitat value so that the total loss of habitat value will be eliminated.

It is preferable, in most cases, to recommend ways to replace such habitat value losses in-kind. However, if the Service determines that in-kind replacement is not desirable or possible, then other specific ways to achieve this planning goal include: (1) substituting different kinds of habitats, or (2) increasing management of different replacement habitats so that the value of the lost habitat is replaced. By replacing habitat value losses with different habitats or increasing management of different habitats, populations of species will be different, depending on the ecological attributes of the replacement habitat. This will result in no net loss of total habitat value, but may result in significant differences in fish and wildlife populations. This is generally referred to as out-of-kind replacement.

RESOURCE CATEGORY 4

a. Designation Criteria

Habitat to be impacted is of medium to low value for evaluation species.

b. Mitigation Goal

Minimize Loss of Habitat Value.

c. Guideline

The Service will recommend ways to avoid or minimize losses. If losses are likely to occur, then the Service will recommend ways to immediately rectify them or reduce or eliminate them over time. If losses remain likely to occur, then the Service may make a recommendation for compensation, depending on the significance of the potential loss.

However, because these areas possess relatively low habitat values, they will likely exhibit the greatest potential for significant habitat value improvements. Service personnel will fully investigate these areas' potential for improvement, since they could be used to mitigate Resource Category 2 and 3 losses.

C. Mitigation Planning Policies

1. State-Federal Partnership

a. The U.S. Fish and Wildlife Service will fully coordinate activities with those State agencies responsible for fish and wildlife resources, the National Marine Fisheries Service (NMFS) and the Environmental Protection Agency (EPA) related to the investigation of project proposals and development of mitigation recommendations for resources of concern to the State, NMFS or EPA.

b. Service personnel will place special emphasis on working with State agencies responsible for fish and wildlife resources, NMFS and EPA to develop compatible approaches and to avoid duplication of efforts.

2. Resource Category Determinations

a. The Service will make Resource Category determinations as part of the mitigation planning process. Such determinations will be made early in the planning process and transmitted to the Federal action agency or private developer to aid them in their project planning, to the extent practicable.

b. Resource Category determinations will be made through consultation and coordination with State agencies responsible for fish and wildlife resources and other Federal resource agencies, particularly the National Marine Fisheries Service and the Environmental Protection Agency, whenever resources of concern to those groups are involved. Where other elements of the public, including development groups, have information that can assist in making such determinations, the Service will welcome such information.

c. All Resource Category determinations will contain a technical rationale consistent with the designation criteria. The rationale will: (1) outline the reasons why the evaluation species were selected; (2) discuss the value of the habitat to the evaluation species; and (3) discuss and contrast the relative scarcity of the fish and wildlife resource on a national and ecoregion section basis.

Note.—If the State agency responsible for fish and wildlife resources wishes to outline scarcity on a more local basis, U.S. Fish and Wildlife Service personnel should assist in developing such rationale, whenever practicable.

d. When funding, personnel, and available information make it practicable, specific geographic areas or, alternatively, specific habitat types that comprise a given Resource Category should be designated in advance of development. Priority for predesignation will be placed on those areas that are of high value for evaluation species and are subject to development pressure in the near future. Such predesignations can be used by developers or regulators to determine the least valuable areas for use in project planning and siting considerations.

e. The following examples should be given special consideration as either Resource Category 1 or 2:

(1) Certain habitats within Service-identified Important Resource Problem (IRP) areas. Those IRPs dealing with threatened or endangered species are not covered by this policy. (See Scope)

(2) Special aquatic and terrestrial sites including legally designated or set-aside

areas such as sanctuaries, fish and wildlife management areas, hatcheries, and refuges, and other aquatic sites such as floodplains, wetlands, mudflats, vegetated shallows, coral reefs, riffles and pools, and springs and seeps.

3. Impact Assessment Principles

a. Changes in fish and wildlife productivity or ecosystem structure and function may not result in a biologically adverse impact. The determination as to whether a biological change constitutes an adverse impact for which mitigation should be recommended is the responsibility of the Service and other involved Federal and State resource agencies.

b. The net biological impact of a development proposal (or alternatives) is the difference in predicted biological conditions between the future with the action and the future without the action. If the future without the action cannot be reasonably predicted and documented by the project sponsor, then the Service analysis should be based on biological conditions that would be expected to exist over the planning period due to natural species succession or implementation of approved restoration/improvement plans or conditions which currently exist in the planning area.

c. Service review of project impacts will consider, whenever practicable:

(1) The total long-term biological impact of the project, including any secondary or indirect impacts regardless of location; and (2) any cumulative effects when viewed in the context of existing or anticipated projects.

d. The *Habitat Evaluation Procedures* will be used by the Service as a basic tool for evaluating project impacts and as a basis for formulating subsequent recommendations for mitigation subject to the exemptions in the Ecological Services Manual (100 ESM 1). When the *Habitat Evaluation Procedures* do not apply, then other evaluation systems may be used provided such use conforms with policies provided herein.

e. In those cases where instream flows are an important determinant of habitat value, consideration should be given to the use of the Service's Instream Flow Incremental Methodology to develop instream flow mitigation recommendations, where appropriate.

f. Where specific impact evaluation methods or mitigation technologies are not available, Service employees shall continue to apply their best professional judgment to develop mitigation recommendations.

4. Mitigation Recommendations

a. The Service may recommend support of projects or other proposals when the following criteria are met:

(1) They are ecologically sound;

(2) The least environmentally damaging reasonable alternative is selected;

(3) Every reasonable effort is made to avoid or minimize damage or loss of fish and wildlife resources and uses;

(4) All important recommended means and measures have been adopted with guaranteed implementation to satisfactorily compensate for unavoidable damage or loss consistent with the appropriate mitigation goal; and

(5) For wetlands and shallow water habitats, the proposed activity is clearly water dependent and there is a demonstrated public need.

The Service may recommend the "no project" alternative for those projects or other proposals that do not meet all of the above criteria and where there is likely to be a significant fish and wildlife resource loss.

b. Recommendations will be presented by the Service at the earliest possible stage of project planning to assure maximum consideration. The Service will strive to provide mitigation recommendations that represent the best judgment of the Service, including consideration of cost, on the most effective means and measures of satisfactorily achieving the mitigation planning goal. Such recommendations will be developed in cooperation with the Federal action agency or private developer responsible for the project, whenever practicable, and will place heavy reliance on cost estimates provided by that Federal action agency or private developer.

c. The Service will recommend that the Federal action agency include designated funds for all fish and wildlife resource mitigation (including, but not limited to, Service investigation costs, initial development costs and continuing operation, maintenance, replacement, and administrative costs) as part of the initial and any alternative project plans and that mitigation funds (as authorized and appropriated by Congress for Federal projects) be spent concurrently and proportionately with overall project construction and operation funds throughout the life of the project.

Note.—Prevention of losses may necessitate expenditure of funds at an earlier stage of project planning. This is acceptable and preferred.

d. Service mitigation recommendations will be made under an explicit expectation that these means and measures: (1) would be the ultimate responsibility of the appropriate Federal action agency to implement or enforce; and (2) would provide for a duration of effectiveness for the life of the project plus such additional time required for the adverse effects of an abandoned project to cease to occur.

e. Land acquisition in fee title for the purpose of compensation will be recommended by the Service *only* under one or more of the following three conditions:

(1) When a change in ownership is necessary to guarantee the future conservation of the fish and wildlife resource consistent with the mitigation goal for the specific project area; *or*

(2) When other means and measures for mitigation (see Section 5 below) will not compensate habitat losses consistent with the mitigation goal for the specific project area; *or*

(3) When land acquisition in fee title is the most cost-effective means that may partially or completely achieve the mitigation goal for the specific project area.

Service recommendations for fee title land acquisition will seek to identify mitigation lands with marginal economic potential.

f. First priority will be given to recommendation of a mitigation site within the planning area. Second priority will be given to recommendation of a mitigation site in proximity to the planning area within the same ecoregion section. Third priority will be given to recommendation of a mitigation site elsewhere within the same ecoregion section.

g. Service personnel will fully support a variety of uses on mitigation lands where such uses are compatible with dominant fish and wildlife uses and, for Federal wildlife refuges, are consistent with the provisions of the Refuge Recreation Act and the National Wildlife Refuge Administration Act. However, it may be in the best public interest to recommend limiting certain uses that would significantly decrease habitat value for species of high public interest. In such cases, the Service may recommend against such incompatible uses.

h. Measures to increase recreation values will not be recommended by Service personnel to compensate for losses of habitat value. Recreation use losses not restored through habitat value mitigation will be addressed through separate and distinct recommended measures to offset those specific losses.

i. The guidelines contained in this policy do not apply to threatened or endangered species. However, where both habitat and endangered or threatened species impacts are involved,

Service personnel shall fully coordinate Environment efforts with Endangered Species efforts to provide timely, consistent, and unified recommendations for resolution of fish and wildlife impacts, to the extent possible. More specifically, Environment and Endangered Species personnel shall coordinate all related activities dealing with investigations of land and water developments. This includes full use of all provisions that can expedite Service achievement of "one-stop shopping," including coordinated early planning involvement, shared permit review activities, consolidated permit reporting, and consolidated flow of pre-project information to developers, consistent with legislative mandates and deadlines.

j. The Service will place high priority on and continue to develop and implement procedures for reducing delays and conflicts in permit related activities. Such procedures will include, but not be limited to:

(1) Joint processing of permits.

(2) Resource mapping.

(3) Early provision of ecological design information.

(4) Involvement in Special Area Management Planning.

k. The Service will encourage predevelopment compensation actions by Federal action agencies which can be used to offset future unavoidable losses for lands or waters not adequately protected by an existing law, policy, or program.

Banking of habitat value for the express purpose of compensation for unavoidable future losses will be considered to be a mitigation measure and not an enhancement measure. Withdrawals from the mitigation "bank" to offset future unavoidable losses will be based on habitat value replacement, not acreage or cost for land purchase and management.

5. Mitigation Means and Measures

Mitigation recommendations can include, but are not limited to, the types of actions presented below. These means and measures are presented in the general order and priority in which they should be recommended by Service personnel with the exception of the "no project" alternative. (See Section 4(a)).

a. Avoid the impact

(1) Design project to avoid damage or loss of fish and wildlife resources including management practices such as timing of activities or structural features such as multiple outlets, passage or avoidance structures and water pollution control facilities.

(2) Use of nonstructural alternative to proposed project.

(3) No project.

b. Minimize the impact

(1) Include conservation of fish and wildlife as an authorized purpose of Federal projects.

(2) Locate at the least environmentally damaging site.

(3) Reduce the size of the project.

(4) Schedule timing and control of initial construction operations and subsequent operation and maintenance to minimize disruption of biological community structure and function.

(5) Selective tree clearing or other habitat manipulation.

(6) Control water pollution through best management practices.

(7) Time and control flow diversions and releases.

(8) Maintain public access.

(9) Control public access for recreational or commercial purposes.

(10) Control domestic livestock use.

c. Rectify the impact

(1) Regrade disturbed areas to contours which provide optimal fish and wildlife habitat or approximate original contours.

(2) Seed, fertilize and treat areas as necessary to restore fish and wildlife resources.

(3) Plant shrubs and trees and other vegetation to speed recovery.

(4) Control polluted spoil areas.

(5) Restock fish and wildlife resources in repaired areas. Fish stocking or introductions will be consistent with the Service Fish Health Policy (January 3, 1978).

d. Reduce or eliminate the impact over time

(1) Provide periodic monitoring of mitigation features to assure continuous operation.

(2) Assure proper training of project personnel in the operations of the facility to preserve existing or restored fish and wildlife resources at project sites.

(3) Maintain or replace equipment or structures so that future loss of fish and wildlife resources due to equipment or structure failure does not occur.

e. Compensate for impacts

(1) Conduct wildlife management activities to increase habitat values of existing areas, with project lands and nearby public lands receiving priority.

(2) Conduct habitat construction activities to fully restore or rehabilitate previously altered habitat or modify existing habitat suited to evaluation species for the purpose of completely offsetting habitat value losses.

(3) Build fishery propagation facilities.

(4) Arrange legislative set-aside or protective designation for public lands.

(5) Provide buffer zones.

(6) Lease habitat.

(7) Acquire wildlife easements.

(8) Acquire water rights.

(9) Acquire land in fee title.

6. Follow-up

The Service encourages, supports, and will initiate, whenever practicable, post-project evaluations to determine the effectiveness of recommendations in achieving the mitigation planning goal. The Service will initiate additional follow-up studies when funds are provided by the Federal action agency.

In those instances where Service personnel determine that Federal agencies or private developers have not carried out those agreed upon mitigation means and measures, then the Service will request the responsible Federal action agency to initiate corrective action.

APPENDIX A—OTHER AUTHORITIES AND DIRECTION FOR SERVICE MITIGATION RECOMMENDATIONS

LEGISLATIVE

Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq.). The 1977 amendments require the Fish and Wildlife Service ". . . upon request of the Governor of a State, and without reimbursement, to provide technical assistance to such State in developing a Statewide (water quality planning) program and in implementing such program after its approval." In addition, this Act requires the Service to comment on proposed State permit programs for the control of discharges of dredged or fill material and to comment on all Federal permits within 90 days of receipt.

Federal Power Act of 1920, as amended (16 U.S.C. 791(a), 803, 811). This Act authorizes the Secretary of the Interior to impose conditions on licenses issued for hydroelectric projects within specific withdrawn public lands. The Secretary is given specific authority to prescribe fishways to be constructed, maintained, and operated at the licensee's expense.

Estuary Protection Act (16 U.S.C. 1221–1226). This Act requires the Secretary of the Interior to review all project plans and reports for land and water resource development affecting estuaries and to make recommendations for conservation, protection, and enhancement.

Coastal Zone Management Act of 1972 (16 U.S.C. 1451–1464). This Act

requires the Secretary of Commerce to obtain the views of Federal agencies affected by the program, including the Department of the Interior, and to ensure that these views have been given adequate consideration before approval of Coastal Zone Management Plans. The Service provides the Department's views about fish and wildlife resources. Pursuant to the Coastal Zone Management Act Amendments of 1980 (Pub. L. 96-464) the Department of Interior provides comments on Federal grants to help States protect and preserve coastal areas because of their ". . . conservational, recreational, ecological or aesthetic values." The 1980 Amendments also authorize the Department of Interior to enter into Special Area Management Planning to ". . . provide for increased specificity in protecting natural resources, reasonable coast dependent economic growth . . . and improved predictability in government decisionmaking."

Water Bank Act (16 U.S.C. 1301-1311). This Act requires that the Secretary of Agriculture ". . . shall consult with the Secretary of Interior and take appropriate measures to insure that the program carried out . . . is in harmony with wetlands programs administered by the Secretary of the Interior."

Wild and Scenic Rivers Act (16 U.S.C. 1271-1287). This Act requires the Secretary of the Interior to comment on such proposals. The Fish and Wildlife Service provides the Department's views with regard to fish and wildlife resources.

Geothermal Steam Act of 1970 (30 U.S.C. 1001-1025). This Act requires that the Fish and Wildlife Service recommend to the Secretary those lands that shall not be leased for geothermal development by reason of their status as ". . . a fish hatchery administered by the Secretary, wildlife refuge, wildlife range, game range, wildlife management area, waterfowl production area, or for lands acquired or reserved for the protection and conservation of fish and wildlife that are threatened with extinction."

Surface Mining Control and Reclamation Act of 1977 (30 U.S.C. 1201 et seq.). This Act requires the Department of the Interior to regulate surface mining and reclamation at existing and future mining areas. The Fish and Wildlife Service provides the Department with technical assistance regarding fish and wildlife aspects of Department programs on active and abandoned mine lands, including review of State regulatory submissions and mining plans, and comments on mining and reclamation plans.

Outer Continental Shelf Lands Act Amendments of 1978 (43 U.S.C. 1801). This Act requires the Secretary of the Interior to manage an environmentally sound oil and natural gas development program on the outer continental shelf. The Fish and Wildlife Service provides recommendations for the Department regarding potential ecological impacts before leasing in specific areas and contributes to environmental studies undertaken subsequent to leasing.

Mineral Leasing Act of 1920, as amended (30 U.S.C. 185). This Act authorizes the Secretary of the Interior to grant rights-of-way through Federal lands for pipelines transporting oil, natural gas, synthetic liquids or gaseous fuels, or any other refined liquid fuel. Prior to granting a right-of-way for a project which may have a significant impact on the environment, the Secretary is required by this Act to request and review the applicant's plan for construction, operation, and rehabilitation of the right-of-way. Also, the Secretary is authorized to issue guidelines and impose stipulations for such projects which shall include, but not be limited to, ". . . requirements for restoration, revegetation and curtailment or erosion of surface land; . . . requirements designed to control or prevent damage to the environment (including damage to fish and wildlife habitat); and . . . requirements to protect the interests of individuals living in the general area of the right-of-way or permit who rely on the fish, wildlife and biotic resources of the area for subsistence purposes."

Cooperative Unit Act (16 U.S.C. 753(a)-753(b)). This Act provides for cooperative programs for research and training between the Fish and Wildlife Service, the States, and universities.

Airport and Airway Development Act (49 U.S.C. 1716). This Act requires the Secretary of Transportation to ". . . consult with the Secretary of the Interior with regard to the effect that any project . . . may have on natural resources including, but not limited to, fish and wildlife, natural, scenic, and recreation assets, water and air quality, and other factors affecting the environment . . .".

Department of Transportation Act (49 U.S.C. 1653(f)). This Act makes it national policy that ". . . special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites . . .," and requires that the Secretary of Transportation ". . . cooperate and consult with the Secretary of the Interior in developing transportation plans and programs that include measures to maintain or enhance the natural beauty of the lands traversed." The Department of Transportation projects using protected lands cannot be approved unless there are no feasible and prudent alternatives to avoid such use and, if none, all possible measures to minimize harm have been considered.

EXECUTIVE

President's Water Policy Message (June 6, 1978). This Message directs the Secretary of the Interior to promulgate procedures for determination of measures to mitigate losses of fish and wildlife resources.

Water Resources Council's *Final Rules; Principles and Standards for Water and Related Land Resources Planning—Level C* (September 29, 1980). These rules reiterate the importance of participation in the development planning process by interested Federal agencies, including the Department of the Interior. This participation includes review, coordination, or consultation required under various legislative and executive authorities. Under these rules, "Consideration is to be given to mitigation (as defined in 40 CFR 1508.20) of the adverse effects of each alternative plan. Appropriate mitigation is to be included where suitable as determined by the agency decisionmaker. Mitigation measures included are to be planned for at least concurrent and proportionate implementation with other major project features, except where such concurrent and proportionate mitigation is physically impossible. In the latter case, the reasons for deviation from this rule are to be presented in the planning report, and mitigation is to be planned for the earliest possible implementation. Mitigation for fish and wildlife and their habitat is to be planned in coordination with Federal and State fish and wildlife agencies in accordance with the Fish and Wildlife Coordination Act of 1958 (16 U.S.C. 661-664) (sic)."

Executive Order 11990—Protection of Wetlands (May 24, 1977). This Executive Order requires that each Federal agency ". . . take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's responsibilities for: (1) acquiring, managing and disposing of Federal lands and facilities; and (2) providing federally undertaken, financed or assisted construction and improvements; and (3) conducting Federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulation and licensing activities." Relevant wetland concerns and values include, but are not

limited to, maintenance of natural systems and long-term productivity of existing flora and fauna, habitat diversity, hydrological utility, fish, wildlife, timber, and food. Under this Order, a developmental project in a wetland may proceed only if no practicable alternatives can be ascertained and if the proposal . . . includes all practicable measures to minimize harm to the wetland that may result from its use."

Executive Order 11988—Floodplain Management (May 24, 1977). This Executive Order requires that Federal agencies take floodplain management into account when formulating or evaluating water or land use plans and that these concerns be reflected in the budgets, procedures, and regulations of the various agencies. This Order allows developmental activities to proceed in floodplain areas only when the relevant agencies have ". . . considered alternatives to avoid adverse effects and incompatible development in the floodplains . . ." or when, in lieu of this, they have ". . . designed or modified their actions in order to minimize potential harm to or within the floodplain . . .".

Executive Order 11987—Exotic Organisms (May 24, 1977). This Executive Order requires that Federal agencies shall restrict, to the extent permitted by law, the introduction of exotic species into the lands or waters which they own, lease, or hold for purposes of administration, and encourage the States, local governments, and private citizens to do the same. This Executive Order also requires Federal agencies to restrict, to the extent permitted by law, the importation of exotic species and to restrict the use of Federal funds and programs for such importation. The Secretary of the Interior, in consultation with the Secretary of Agriculture, is authorized to develop by rule or regulation a system to standardize and simplify the requirements and procedures appropriate for implementing this Order.

NATIONAL/INTERNATIONAL TREATIES

Federal Trust Responsibility to Indian Tribes. This responsibility is reflected in the numerous Federal treaties with the Indian tribes. These treaties have the force of law. Protection of Indian hunting and fishing rights necessitates conservation of fish and wildlife and their habitat.

Convention Between the United States and Japan (September 19, 1974). This Treaty endorses the establishment of sanctuaries and fixes preservation and enhancement of migratory bird habitat as a major goal of the signatories.

Convention Between the United States and the Union of Soviet Socialist Republics Concerning the Conservation of Migratory Birds and Their Environments (November 8, 1978). This Treaty endorses the establishment of sanctuaries, refuges, and protected areas. It mandates reducing or eliminating damage to all migratory birds. Furthermore, it provides for designation of special areas for migratory bird breeding, wintering, feeding, and molting, and commits the signatories to ". . . undertake measures necessary to protect the ecosystems in these areas . . . against pollution, detrimental alteration and other environmental degradation." Implementing legislation, Pub. L. 95–616, was passed in the United States in 1978.

Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere (April 15, 1941). This Treaty has several provisions requiring parties to conserve certain wildlife resources and their habitats.

Convention Between the United States and Great Britain (for Canada) for Protection of Migratory Birds (August 1, 1916, as amended January 30, 1979). This Treaty provides for a uniform ". . . system of protection for certain species of birds which migrate between the United States and Canada, in order to assure the preservation of species either harmless or beneficial to man." The Treaty prohibits hunting insectivorous birds, but allows killing of birds under permit when injurious to agriculture. The 1979 amendment allows subsistence hunting of waterfowl outside of the normal hunting season.

APPENDIX B—OTHER DEFINITIONS

"Compensation," when used in the context of Service mitigation recommendations, means full replacement of project-induced losses to fish and wildlife resources, provided such full replacement has been judged by the Service to be consistent with the appropriate mitigation planning goal.

"Ecoregion" refers to a large biogeographical unit characterized by distinctive biotic and abiotic relationships. An ecoregion may be subclassified into domains, divisions, provinces, and sections. A technical explanation and map is provided in the "Ecoregions of the United States" by Robert G. Bailey, published by the U.S. Forest Service, 1976.

"Ecosystem" means all of the biotic elements (i.e., species, populations, and communities) and abiotic elements (i.e., land, air, water, energy) interacting in a given geographic area so that a flow of energy leads to a *clearly* defined trophic structure, biotic diversity, and material cycles. (Eugene P. Odum. 1971. *Fundamentals of Ecology)*

"Evaluation species" means those fish and wildlife resources in the planning area that are selected for impact analysis. They must currently be present or known to occur in the planning area during at least one stage of their life history except where species not present (1) have been identified in fish and wildlife restoration or improvement plans approved by State or Federal resource agencies, or (2) will result from natural species succession over the life of the project. In these cases, the analysis may include such identified species not currently in the planning area.

There are two basic approaches to the selection of evaluation species: (1) selection of species with high public interest, economic value or both; and (2) selection of species to provide a broader ecological perspective of an area. The choice of one approach in lieu of the other may result in a completely different outcome in the analysis of a proposed land or water development. Therefore, the objectives of the study should be clearly defined before species selection is initiated. If the objectives of a study are to base a decision on potential impacts to an entire ecological community, such as a unique wetland, then a more ecologically based approach is desirable. If, however, a land or water use decision is to be based on potential impacts to a public use area, then species selection should favor animals with significant human use values. In actual practice, species should be selected to represent social, economic and broad ecological views because mitigation planning efforts incorporate objectives that have social, economic, and ecological aspects. Species selection always should be approached in a manner that will optimize contributions to the stated objectives of the mitigation planning effort.

Most land and water development decisions are strongly influenced by the perceived impacts of the proposed action on human use. Since economically or socially important species have clearly defined linkages to human use, they should be included as evaluation species in all appropriate land and water studies. As a guideline, the following types of species should be considered:

- Species that are associated with Important Resource Problems as designated by the Director of the Fish and Wildlife Service (except for threatened or endangered species).

• Other species with monetary and non-monetary benefits to people accruing from consumptive and nonconsumptive human uses including, but not limited to, fishing, hunting, bird-watching and educational, aesthetic, scientific or subsistence uses.

An analysis based only on those species with directly identifiable economic or social value may not be broad enough to adequately describe all of the ramifications of a land and water use proposal. If it is desirable to increase the ecological perspective of an assessment, the following types of species should be considered:

• Species known to be sensitive to specific land and water use actions. The species selected with this approach serve as "early warning" or indicator species for the affected fish and wildlife community.

• Species that perform a key role in a community because of their role in nutrient cycling or energy flows. These species also serve as indicators for a large segment of the fish and wildlife community, but may be difficult to identify.

• Species that represent groups of species which utilize a common environmental resource (guilds). A representative species is selected from each guild and predicted environmental impacts for the selected species are extended with some degree of confidence to other guild members.

"Federal action agency" means a department, agency or instrumentality of the United States which plans, constructs, operates or maintains a project, or which plans for or approves a permit, lease, or license for projects or manages Federal lands.

"Fish and wildlife resources" means birds, fishes, mammals, and all other classes of wild animals and all types of aquatic and land vegetation upon which wildlife is dependent.

"Habitat" means the area which provides direct support for a given species, population, or community. It includes all environmental features that comprise an area such as air quality, water quality, vegetation and soil characteristics and water supply (including both surface and groundwater).

"Habitat value" means the suitability of an area to support a given evaluation species.

"Important Resource Problem" means a clearly defined problem with a single important population or a community of similar species in a given geographic area as defined by the Director of the Fish and Wildlife Service.

"In-kind replacement" means providing or managing substitute resources to replace the habitat value of the resources lost, where such substitute resources are physically and biologically the same or closely approximate those lost.

"Loss" means a change in fish and wildlife resources due to human activities that is considered adverse and;

(1) reduces the biological value of that habitat for evaluation species;

(2) reduces population numbers of evaluation species;

(3) increases population numbers of "nuisance" species;

(4) reduces the human use of those fish and wildlife resources; or

(5) disrupts ecosystem structure and function.

Changes that improve the value of existing habitat for evaluation species are not to be considered losses, i.e., burning or selective tree harvesting for wildlife management purposes. In addition, reductions in animal populations for the purpose of harvest or fish and wildlife managment will not be considered as losses for the purpose of this policy.

"Minimize" means to reduce to the smallest practicable amount or degree.

"Mitigation banking" means habitat protection or improvement actions taken expressly for the purpose of compensating for unavoidable losses from specific future development actions. It only includes those actions above and beyond those typically taken by Congress for protection of fish and wildlife resources.

"Out-of-kind replacement" means providing or managing substitute resources to replace the habitat value of the resources lost, where such substitute resources are physically or biologically different from those lost.

"Planning area" means a geographic space with an identified boundary that includes:

(1) The area identified in the study's authorizing document;

(2) The locations of resources included in the study's identified problems and opportunities;

(3) The locations of alternative plans, often called "project areas;" and

(4) The locations of resources that would be directly, indirectly, or cumulatively affected by alternative plans, often called the "affected area."

"Practicable" means capable of being done within existing constraints. The test of what is practicable depends upon the situation and includes consideration of the pertinent factors, such as environment, cost, or technology.

"Project" means any action, planning or approval process relating to an action that will directly or indirectly affect fish and wildlife resources.

"Replacement" means the substitution or offsetting of fish and wildlife resource losses with resources considered to be of equivalent biological value. However, resources used for replacement represent loss or modification of another type of habitat value. Replacement actions still result in a loss of habitat acreage and types which will continually diminish the overall national resource base. It should be clearly understood that replacement actions never restore the lost fish and wildlife resource—that is lost forever.

Dated: January 13, 1981.

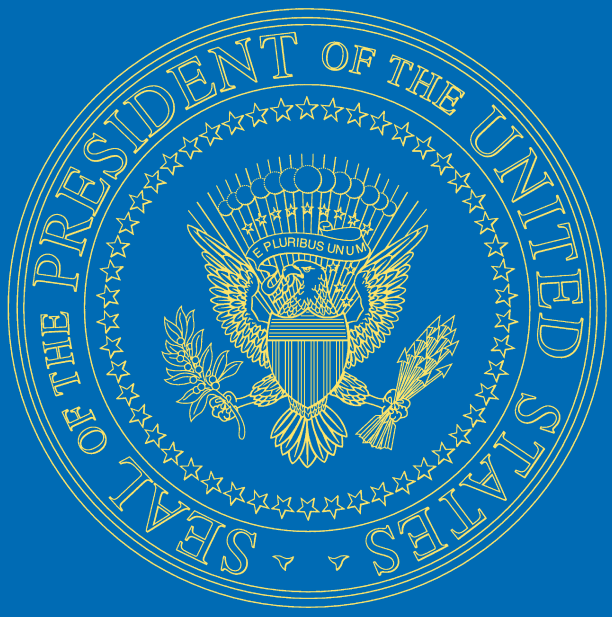
Cecil Andrus,

Secretary of the Department of the Interior.

[FR Doc. 81-1895 Filed 1-22-81; 8:45 am]

BILLING CODE 4310-55-M

National Energy Policy



Report of the
National Energy Policy Development Group

May 2001

Reliable, Affordable, and Environmentally Sound Energy for America's Future

Report of the

National Energy Policy Development Group

"America must have an energy policy that plans for the future, but meets the needs of today. I believe we can develop our natural resources and protect our environment."

— President George W. Bush

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THE VICE PRESIDENT

WASHINGTON

May 16, 2001

The Honorable George W. Bush
President of the United States
The White House
Washington, D.C. 20500

Dear Mr. President:

On behalf of the National Energy Policy Development Group, I submit for your consideration our National Energy Policy report. As you directed us at the outset of your Administration, we have developed a national energy policy designed to help bring together business, government, local communities and citizens to promote dependable, affordable and environmentally sound energy for the future.

The report reflects the requirements and philosophy you set out for our work. It envisions a comprehensive long-term strategy that uses leading edge technology to produce an integrated energy, environmental and economic policy. To achieve a 21st century quality of life -- enhanced by reliable energy and a clean environment -- we must modernize conservation, modernize our infrastructure, increase our energy supplies, including renewables, accelerate the protection and improvement of our environment, and increase our energy security.

We submit these recommendations with optimism. The tasks ahead are great but achievable. To meet our energy challenge, we must put to good use the resources around us and the talents within us. It summons the best of America and offers a healthier environment, a stronger economy and a brighter future for the American people.

Sincerely,

Dick Cheney

Enclosure

Members of the
National Energy Policy Development Group

DICK CHENEY
The Vice President

COLIN L. POWELL
The Secretary of State

PAUL O'NEILL
The Secretary of the Treasury

GALE NORTON
The Secretary of the Interior

ANN M. VENEMAN
The Secretary of Agriculture

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The Secretary of Commerce

NORMAN Y. MINETA
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RUBEN BARRALES
Deputy Assistant to the President and Director of Intergovernmental Affairs

Executive Director: Andrew D. Lundquist

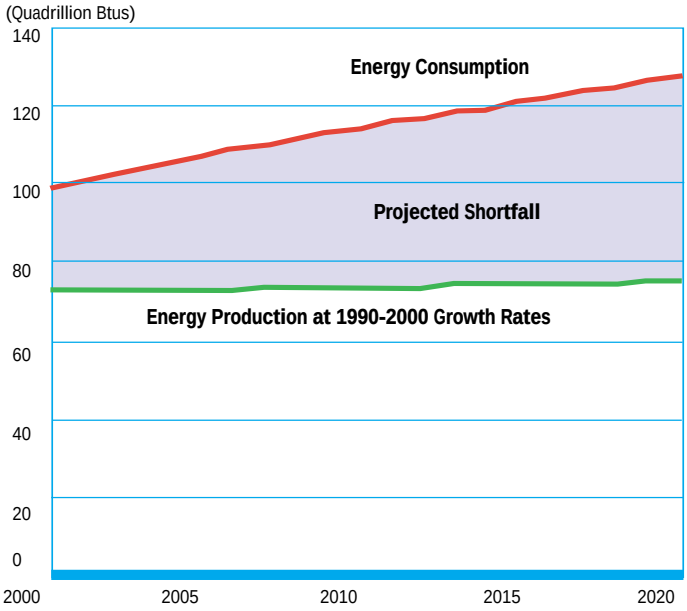
Contents

Overview

Reliable, Affordable, and Environmentally Sound Energy for America's Future

In his second week in office, President George W. Bush established the National Energy Policy Development Group, directing it to "develop a national energy policy designed to help the private sector, and, as necessary and appropriate, State and local governments, promote dependable, affordable, and environmentally sound production and distribution of energy for the future." This Overview sets forth the National Energy Policy Development (NEPD) Group's findings and key recommendations for a National Energy Policy.

Figure 1
Growth in U.S. Energy Consumption Is Outpacing Production



Over the next 20 years, growth in U.S. energy consumption will increasingly outpace U.S. energy production, if production only grows at the rate of the last 10 years.

Sources: Sandia National Laboratories and U.S. Department of Energy, Energy Information Administration.

America in the year 2001 faces the most serious energy shortage since the oil embargoes of the 1970s. The effects are already being felt nationwide. Many families face energy bills two to three times higher than they were a year ago. Millions of Americans find themselves dealing with rolling blackouts or brownouts; some employers must lay off workers or curtail production to absorb the rising cost of energy. Drivers across America are paying higher and higher gasoline prices.

Californians have felt these problems most acutely. California actually began the 1990s with a surplus of electricity generating capacity. Yet despite an economic boom, a rapidly growing population, and a corresponding increase in energy needs, California did not add a single new major electric power plant during the 1990s. The result is a demand for electricity that greatly succeeds the amount available.

A fundamental imbalance between supply and demand defines our nation's energy crisis. As the chart illustrates, if energy production increases at the same rate as during the last decade our projected energy needs will far outstrip expected levels of production.

This imbalance, if allowed to continue, will inevitably undermine our economy, our standard of living, and our national security. But it is not beyond our power to correct. America leads the world in scientific achievement, technical skill, and entrepreneurial drive. Within our country are abundant natural resources, unrivaled technology, and unlimited human creativity. With forward-looking leadership and sensible policies, we can meet our fu-

America's expanding economy, growing population, and rising standard of living will be sustained by our unmatched technological know-how.

ture energy demands and promote energy conservation, and do so in environmentally responsible ways that set a standard for the world.

The Challenge

America's energy challenge begins with our expanding economy, growing population, and rising standard of living. Our prosperity and way of life are sustained by energy use. America has the technological know-how and environmentally sound 21st century technologies needed to meet the principal energy challenges we face: promoting energy conservation, repairing and modernizing our energy infrastructure, and increasing our energy supplies in ways that protect and improve the environment. Meeting each of these challenges is critical to expanding our economy, meeting the needs of a growing population, and raising the American standard of living.

We are already working to meet the first challenge: using energy more wisely. Dramatic technological advances in energy efficiency have enabled us to make great strides in conservation, from the operation of farms and factories to the construction of buildings and automobiles. New technology allows us to go about our lives and work with less cost, less effort, and less burden on the natural environment. While such advances cannot alone solve America's energy problems, they can and will continue to play an important role in our energy future.

The second challenge is to repair and expand our energy infrastructure. Our current, outdated network of electric generators, transmission lines, pipelines, and refineries that convert raw materials into usable fuel has been allowed to deteriorate. Oil pipelines and refining capacity are in need of repair and expansion. Not a single major oil refinery has been built in the United States in nearly a generation, causing the kind of bottlenecks that lead to sudden spikes in the price of gasoline. Natural gas distribution, likewise, is hindered by an aging and inadequate network of pipelines. To match supply and demand will require some 38,000 miles of new gas pipelines, along with 255,000 miles of distribution lines. Similarly, an antiquated and inadequate transmission grid prevents us from routing electricity over long distances and thereby avoiding regional blackouts, such as California's.

"America must have an energy policy that plans for the future, but meets the needs of today. I believe we can develop our natural resources and protect our environment."

— President
George W. Bush

Increasing energy supplies while protecting the environment is the third challenge. Even with successful conservation efforts, America will need more energy.

Renewable and alternative fuels offer hope for America's energy future. But they supply only a small fraction of present energy needs. The day they fulfill the bulk of our needs is still years away. Until that day comes, we must continue meeting the nation's energy requirements by the means available to us.

Estimates indicate that over the next 20 years, U.S. oil consumption will increase by 33 percent, natural gas consumption by well over 50 percent, and demand for electricity will rise by 45 percent. If America's energy production grows at the same rate as it did in the 1990s we will face an ever-increasing gap.

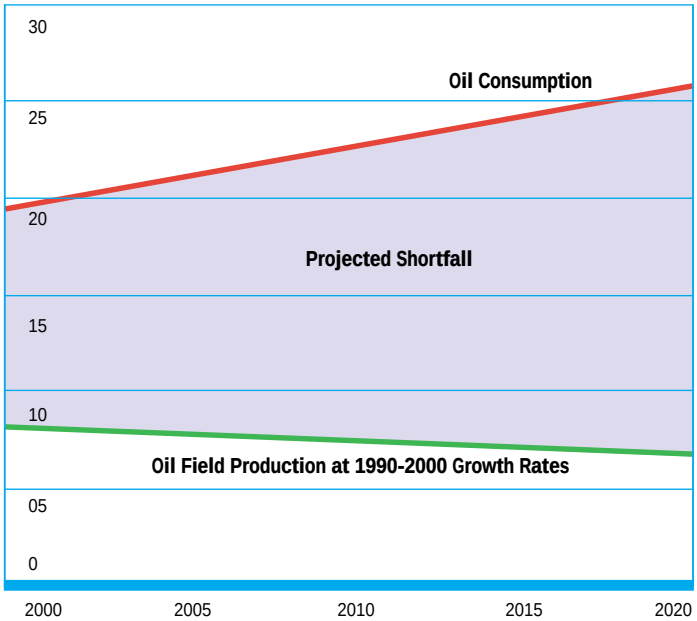
Increases on this scale will require preparation and action today. Yet America has not been bringing on line the necessary supplies and infrastructure.

Extraordinary advances in technology have transformed energy exploration and production. Yet we produce 39 percent less oil today than we did in 1970, leaving us ever more reliant on foreign suppliers. On our present course, America 20 years from now will import nearly two of every three barrels of oil – a condition of increased dependency on foreign powers that do not always have America's interests at heart. Our increasing demand for natural gas – one of the cleanest forms of energy – far exceeds the current rate of production. We should reconsider any regulatory restrictions that do not take technological advances into account.

Figure 2

U.S. Oil Consumption Will Continue to Exceed Production

(Millions of Barrels per Day)



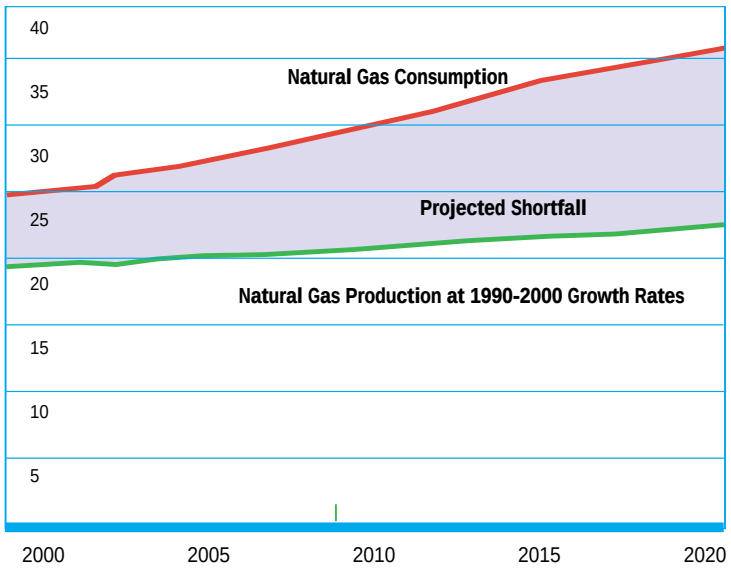
Over the next 20 years, U.S. oil consumption will grow by over 6 million barrels per day. If U.S. oil production follows the same historical pattern of the last 10 years, it will decline by 1.5 million barrels per day. To meet U.S. oil demand, oil and product imports would have to grow by a combined 7.5 million barrels per day. In 2020, U.S. oil production would supply less than 30 percent of U.S. oil needs.

Sources: Sandia National Laboratories and U.S. Department of Energy, Energy Information Administration.

Figure 3

U.S. Natural Gas Consumption Is Outpacing Production

(Trillion Cubic Feet)



Over the next 20 years, U.S. natural gas consumption will grow by over 50 percent. At the same time, U.S. natural gas production will grow by only 14 percent, if it grows at the rate of the last 10 years.

Sources: Sandia National Laboratories and U.S. Department of Energy, Energy Information Administration.

erview chart

We have a similar opportunity to increase our supplies of electricity. To meet projected demand over the next two decades, America must have in place between 1,300 and 1,900 new electric plants. Much of this new generation will be fueled by natural gas. However, existing and new technologies offer us the opportunity to expand nuclear generation as well. Nuclear power today accounts for 20 percent of our country's electricity. This power source, which causes no greenhouse gas emissions, can play an expanding part in our energy future.

The recommendations of this report address the energy challenges facing America. Taken together, they offer the thorough and responsible energy plan our nation has long needed.

Components of the National Energy Policy

The National Energy Policy we propose follows three basic principles:

- The Policy is a long-term, comprehensive strategy. Our energy crisis has been years in the making, and will take years to put fully behind us.
- The Policy will advance new, environmentally friendly technologies to increase energy supplies and encourage cleaner, more efficient energy use.
- The Policy seeks to raise the living standards of the American people, recognizing that to do so our country must fully integrate its energy, environmental, and economic policies.

Applying these principles, we urge action to meet five specific national goals. America must modernize conservation, modernize our energy infrastructure, increase energy supplies, accelerate the protection and improvement of the environment, and increase our nation's energy security.

Modernize Conservation

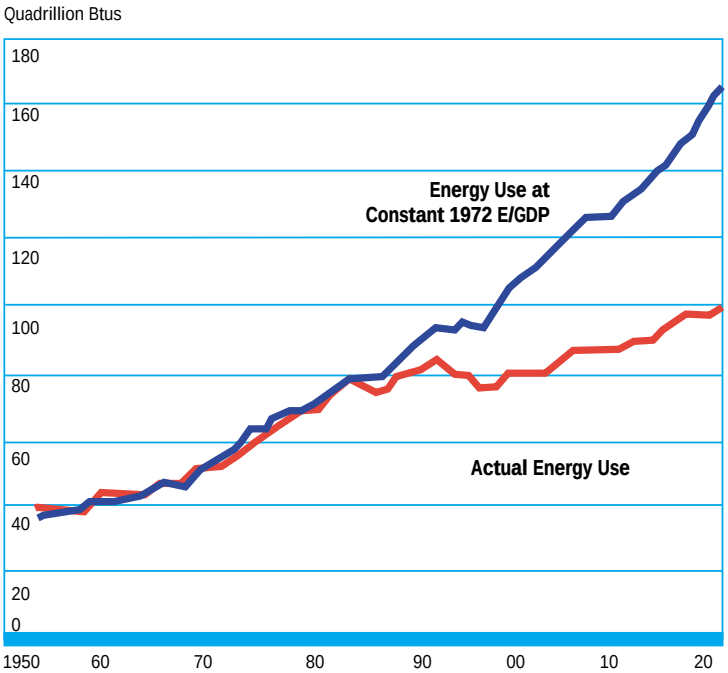
Americans share the goal of energy conservation. The best way of meeting this goal is to increase energy efficiency by applying new technology – raising productivity, reducing waste, and trimming costs. In addition, it holds out great hope for improving the quality of the environment. American families, communities, and businesses all depend upon reliable and affordable energy services for their well being and safety. From transportation to communication, from air conditioning to lighting, energy is critical to nearly everything we do in life and work. Public policy can and should encourage energy conservation.

Over the past three decades, America has made impressive gains in energy efficiency. Today's automobiles, for example, use about 60 percent of the gasoline they

"Here we aim to continue a path of uninterrupted progress in many fields... New technologies are proving that we can save energy without sacrificing our standard of living. And we're going to encourage it in every way possible."

— Vice President
Richard B. Cheney

Figure 4
U.S. Economy is More Energy Efficient (Energy Intensity)
Primary Energy Use



Improvements in energy efficiency since the 1970s have had a major impact in meeting national energy needs relative to new supply. If the intensity of U.S. energy use had remained constant since 1972, consumption would have been about 70 quadrillion Btus (74 percent) higher in 1999 than it actually was.

Source: U.S. Department of Energy, Energy Information Administration.

did in 1972, while new refrigerators require just one-third the electricity they did 30 years ago. As a result, since 1973, the U.S. economy has grown by 126 percent, while energy use has increased by only 30 percent. In the 1990s alone, manufacturing output expanded by 41 percent, while industrial electricity consumption grew by only 11 percent. We must build on this progress and strengthen America's commitment to energy efficiency and conservation.

The National Energy Policy builds on our nation's successful track record and will promote further improvements in the productive and efficient use of energy. This report includes recommendations to:

- Direct federal agencies to take appropriate actions to responsibly conserve energy use at their facilities, especially during periods of peak demand in regions where electricity shortages are possible, and to report to the President on actions taken.
- Increase funding for renewable energy and energy efficiency research and development programs that are performance-based and cost-shared.
- Create an income tax credit for the purchase of hybrid and fuel cell vehicles to promote fuel-efficient vehicles.
- Extend the Department of Energy's "Energy Star" efficiency program to include schools, retail buildings, health care facilities, and homes and extend the "Energy Star" labeling program to additional products and appliances.
- Fund the federal government's Intelligent Transportation Systems program, the fuel cell powered transit bus program, and the Clean Buses program.
- Provide a tax incentive and streamline permitting to accelerate the development of clean Combined Heat and Power technology.
- Direct the Secretary of Transportation to review and provide recommendations on establishing Corporate Average Fuel Economy (CAFE) standards with due consideration to the National Academy of Sciences study of CAFE standards to be released in July, 2001.

Modernize Our Energy Infrastructure

The energy we use passes through a vast nationwide network of generating facilities, transmission lines, pipelines, and refineries that converts raw resources into usable fuel and power. That system is deteriorating, and is now strained to capacity.

One reason for this is government regulation, often excessive and redundant. Regulation is needed in such a complex field, but it has become overly burdensome. Regulatory hurdles, delays in issuing permits, and economic uncertainty are limiting investment in new facilities, making our energy markets more vulnerable to transmission bottlenecks, price spikes and supply disruptions. America needs more environmentally-sound energy projects to connect supply sources to growing markets and to deliver energy to homes and business.

To reduce the incidence of electricity blackouts, we must greatly enhance our ability to transmit electric power between geographic regions, that is, sending power to where it is needed from where it is produced. Most of America's transmission lines, substations, and transformers were built when utilities were tightly regulated and provided service only within their assigned regions. The system is simply unequipped for large-scale swapping of power in the highly competitive market of the 21st century.

The National Energy Policy will modernize and expand our energy infrastructure in order to ensure that energy supplies can be safely, reliably, and affordably transported to homes and businesses. This report includes recommendations to:

- Direct agencies to improve pipeline safety and expedite pipeline permitting.
- Issue an Executive Order directing federal agencies to expedite permits and coordinate federal, state, and local actions necessary for energy-related project approvals on a national basis

"For the electricity we need, we must be ambitious. Transmission grids stand in need of repair, upgrading, and expansion. . . . If we put these connections in place, we'll go a long way toward avoiding future blackouts."

— Vice President
Richard B. Cheney

in an environmentally sound manner, and establish an interagency task force chaired by the Council on Environmental Quality. The task force will ensure that federal agencies set up appropriate mechanisms to coordinate federal, state and local permitting activity in particular regions where increased activity is expected.

- Grant authority to obtain rights-of-way for electricity transmission lines with the goal of creating a reliable national transmission grid. Similar authority already exists for natural gas pipelines and highways.
- Enact comprehensive electricity legislation that promotes competition, encourages new generation, protects consumers, enhances reliability, and promotes renewable energy.
- Implement administrative and regulatory changes to improve the reliability of the interstate transmission system and enact legislation to provide for enforcement of electricity reliability standards.
- Expand the Energy Department's research and development on transmission reliability and superconductivity.

Increase Energy Supplies

A primary goal of the National Energy Policy is to add supply from diverse sources. This means domestic oil, gas, and coal. It also means hydropower and nuclear power. And it means making greater use of non-hydro renewable sources now available.

One aspect of the present crisis is an increased dependence, not only on foreign oil, but on a narrow range of energy options. For example, about 90 percent of all new electricity plants currently under construction will be fueled by natural gas. While natural gas has many advantages, an over-reliance on any one fuel source leaves consumers vulnerable to price spikes and supply disruptions. There are several other fuel sources available that can help meet our needs.

Currently, the U.S. has enough coal to last for another 250 years. Yet very few coal-powered electric plants are now under construction. Research into clean coal technologies may increase the attractiveness of coal as a source for new generation plants.

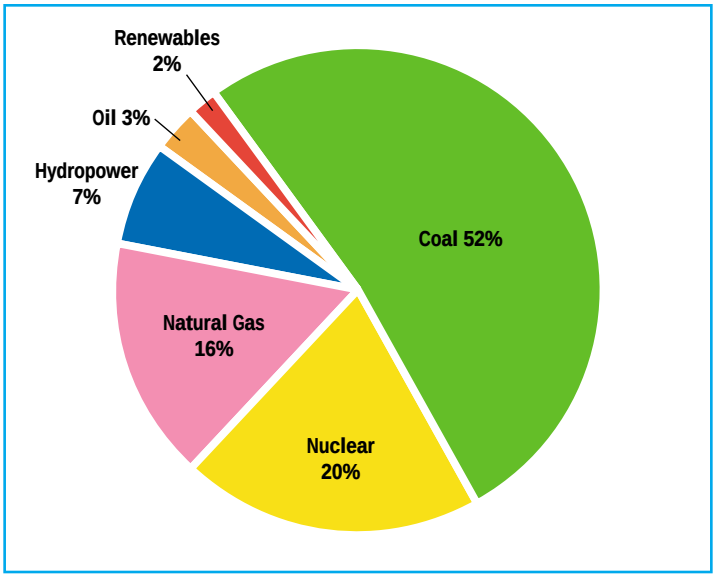
Nuclear power plants serve millions of American homes and businesses, have a dependable record for safety and efficiency, and discharge no greenhouse gases into the atmosphere. As noted earlier, these facilities currently generate 20 percent of all electricity in America, and more than 40 percent of electricity generated in 10 states in the Northeast, South, and Midwest. Other nations, such as Japan and France, generate a much higher percentage of their electricity from nuclear power. Yet the number of nuclear plants in America is actually projected to decline in coming years, as old plants close and none are built to replace them.

Enormous advances in technology have made oil and natural gas exploration and production both more efficient and more environmentally sound. Better technology means fewer rigs, more accurate drilling, greater resource recovery and envi-

"As a country, we have demanded more and more energy. But we have not brought on line the supplies needed to meet that demand.... We can explore for energy, we can produce energy and use it, and we can do so with a decent regard for the natural environment."

—Vice President
Richard B. Cheney

Figure 5
Fuel Sources for Electricity Generation in 2000



Electricity is a secondary source of energy, generated through the consumption of primary sources. Coal and nuclear energy account for nearly 75 percent of U.S. electricity generation.

Source: U.S. Department of Energy, Energy Information Administration

ronmentally friendly exploration. Drilling pads are 80 percent smaller than a generation ago. High-tech drilling allows us to access supplies five to six miles away from a single compact drilling site, leaving sensitive wetlands and wildlife habitats undisturbed. Yet the current regulatory structure fails to take sufficient account of these extraordinary advances, excessively restricting the environmentally safe production of energy from many known sources.

Our policy will increase and diversify our nation's sources of traditional and alternative fuels in order to furnish families and businesses with reliable and affordable energy, to enhance national security, and to improve the environment. This report includes recommendations to:

- Issue an Executive Order directing all federal agencies to include in any regulatory action that could significantly and adversely affect energy supplies a detailed statement on the energy impact of the proposed action.
- Open a small fraction of the Arctic National Wildlife Refuge to environmentally regulated exploration and production using leading-edge technology. Examine the potential for the regulated increase in oil and natural gas development on other federal lands.
- Earmark $1.2 billion of bid bonuses from the environmentally responsible leasing of ANWR to fund research into alternative and renewable energy resources – including wind, solar, biomass, and geothermal.
- Enact legislation to expand existing alternative fuels tax incentives to include landfills that capture methane gas emissions for electricity generation and to electricity produced from wind and biomass. Extend the number of eligible biomass sources to include forest-related sources, agricultural sources, and certain urban sources.
- Provide $2 billion over 10 years to fund clean coal technology research and a new credit for electricity produced from biomass co-fired with coal.
- Direct federal agencies to streamline the hydropower relicensing process with proper regard given to environmental factors.
- Provide for the safe expansion of nuclear energy by establishing a national repository for nuclear waste, and by streamlining the licensing of nuclear power plants.

Accelerate Protection and Improvement of the Environment

America's commitment to environmental protection runs deep. We are all aware of past excesses in our use of the natural world and its resources. No one wishes to see them repeated. In the 21st century, the ethic of good stewardship is well established in American life and law.

We do not accept the false choice between environmental protection and energy production. An integrated approach to policy can yield a cleaner environment, a stronger economy, and a sufficient supply of energy for our future. The primary reason for that has been steady advances in the technology of locating, producing, and using energy. Since 1970, emissions of key air emissions are down 31 percent. Cars today emit 85 percent less carbon monoxide than 30 years ago. Lead emissions are down 90 percent. Lead levels in ambient air today are 98 percent lower than they were in 1970. America is using more, and polluting less.

One of the factors harming the environment today is the very lack of a comprehensive, long-term national energy policy. States confronting blackouts must take desperate measures, often at the expense of environmental standards, requesting waivers of environmental rules, and delaying the implementation of anti-pollution efforts. Shortfalls in electricity generating capacity and shortsighted policies have blocked construction of new, cleaner plants, leaving no choice but to rely on older, inefficient plants to meet demand. The increased use of emergency power sources, such as diesel generators, results in greater air pollution.

New anti-pollution technologies hold great promise for the environment. The same can be said of 21st century power generators that must soon replace older models; signifi-

"We will insist on protecting and enhancing the environment, showing consideration for the air and natural lands and watersheds of our country."

— Vice President
Richard B. Cheney

cant new resources for land conservation efforts; and continued research into renewable energy sources. All have a place in the National Energy Policy.

The National Energy Policy will build upon our nation's successful track record and will promote further improvements in the productive and efficient use of energy. This report includes recommendations to:

- Enact "multi-pollutant" legislation to establish a flexible, market-based program to significantly reduce and cap emissions of sulfur dioxide, nitrogen oxides, and mercury from electric power generators.
- Increase exports of environmentally friendly, market-ready U.S. technologies that generate a clean environment and increase energy efficiency.
- Establish a new "Royalties Conservation Fund" and earmark royalties from new, clean oil and gas exploration in ANWR to fund land conservation efforts.
- Implement new guidelines to reduce truck idling emissions at truck stops.

Increase Energy Security.

The National Energy Policy seeks to lessen the impact on Americans of energy price volatility and supply uncertainty. Such uncertainty increases as we reduce America's dependence on foreign sources of energy. At the same time, however, we recognize that a significant percentage of our resources will come from overseas. Energy security must be a priority of U.S. trade and foreign policy.

We must look beyond our borders and restore America's credibility with overseas suppliers. In addition, we must build strong relationships with energy-producing nations in our own hemisphere, improving the outlook for trade, investment, and reliable supplies.

Energy security also requires preparing our nation for supply emergencies, and assisting low-income Americans who are most vulnerable in times of supply disruption, price spikes, and extreme weather.

To ensure energy security for our nation and its families, our report includes these recommendations:

- Dedicate new funds to the Low Income Home Energy Assistance Program by funneling a portion of oil and gas royalty payments to LIHEAP when oil and natural gas prices exceed a certain amount.
- Double funding for the Department of Energy's Weatherization Assistance Program, increasing funding by $1.4 billion over 10 years.
- Direct the Federal Emergency Management Administration to prepare for potential energy-related emergencies.
- Support a North American Energy Framework to expand and accelerate cross-border energy investment, oil and gas pipelines, and electricity grid connections by streamlining and expediting permitting procedures with Mexico and Canada. Direct federal agencies to expedite necessary permits for a gas pipeline route from Alaska to the lower 48 states.

Looking Toward the Future

The President's goal of reliable, affordable, and environmentally sound energy supplies will not be reached overnight. It will call forth innovations in science, research, and engineering. It will require time and the best efforts of leaders in both political parties. It will require also that we deal with the facts as they are, meeting serious problems in a serious way. The complacency of the past decade must now give way to swift but well-considered action.

Present trends are not encouraging, but they are not immutable. They are among today's most urgent challenges, and well within our power to overcome. Our country has met many great tests. Some have imposed extreme hardship and sacrifice. Others have demanded only resolve, ingenuity, and clarity of purpose. Such is the case with energy today.

We submit these recommendations with optimism. We believe that the tasks ahead, while great, are achievable. The energy crisis is a call to put to good use the resources around us, and the talents within us. It summons the best of America, and offers the best of rewards – in new jobs, a healthier environment, a stronger economy, and a brighter future for our people.

"The goals of this strategy are clear: to ensure a steady supply of affordable energy for America's homes and businesses and industries."

— President
George W. Bush

Taking Stock

Energy Challenges Facing the United States

The U.S. economy depends on reliable and affordable energy. In the coming months, we face several serious long-term energy challenges: electricity shortages and disruptions in California and the West, dramatic increases in gasoline prices due to record-low inventories, a strained supply system, and continued dependence on foreign suppliers.

America's current energy challenges can be met with rapidly improving technology, dedicated leadership, and a comprehensive approach to our energy needs. Our challenge is clear—we must use technology to reduce demand for energy, repair and maintain our energy infrastructure, and increase energy supply. Today, the United States remains the world's undisputed technological leader; but recent events have demonstrated that we have yet to integrate 21st-century technology into an energy plan that is focused on wise energy use, production, efficiency, and conservation.

Prices today for gasoline, heating oil, and natural gas are dramatically higher than they were only a year ago. In California, homeowners, farmers, and businesses face soaring electricity prices, rolling blackouts, increasing financial turmoil, and an uncertain energy future. Our nation's dependence on foreign sources of oil is at an all-time high and is expected to grow. Current high energy prices and supply shortages are hurting U.S. consumers and businesses, as well as their prospects for continued economic growth.

Our national energy policy must be comprehensive in scope. It must protect our environment. It must also increase our supply of domestic oil, natural gas, coal, nuclear, and renewable energy sources. Our failure over the past several years to modernize our energy infrastructure—the network of transmission lines, gas pipelines, and oil refineries that transports our energy to consumers and converts raw materials into usable fuels—is a result of the lack of careful planning and lack of a comprehensive national energy plan. The United States faces serious energy challenges: electricity shortages and disruptions in California and elsewhere in the West, dramatic increases in gasoline prices due to record-low inventories, a strained supply system, and continued dependence on foreign suppliers. These challenges have developed from years of neglect and can only be addressed with the implementation of sound policy. There are no easy, short-term solutions.

Our increased dependence on foreign oil profoundly illustrates our nation's failure to establish an effective energy policy. Between 1991 and 2000, Americans used 17 percent more energy than in the previous decade, while during that same period, domestic energy production rose by only 2.3 percent. While U.S. production of coal, natural gas, nuclear energy, and renewable energy has increased somewhat in recent years, these increases have been largely offset by declines in domestic oil production. As a result, America has met almost all of its increased energy demand over the past ten years with increased imports.

U.S. energy consumption is projected to increase by about 32 percent by 2020. Unless a comprehensive national energy policy is adopted, Americans will continue to feel the effects of an inadequate electrical transmission grid, a pipeline system stretched to capacity, insufficient domestic energy supply, and a regional imbalance in supply sources. It is important that we meet these challenges with a comprehensive energy plan that takes a long-term approach to meeting our energy needs.

California's Energy Challenge

Recent and looming electricity blackouts in California demonstrate the problem of neglecting energy supply. They also foretell the consequences of failing to implement a long-term energy plan for our nation as a whole. Though weather conditions and design flaws in California's electricity restructuring plan contributed, the California electricity crisis is at heart a supply crisis.

Since 1995, California's peak summer demand for electricity has risen by at least 5,500 megawatts (MW), while in-state generation has failed to keep pace. California's generation shortfall did not stem from a lack of interest in building capacity. Since 1997, power producers filed applications to build an additional 14,000 MW of new capacity in California.

In addition to a lack of new generation, a crucial transmission bottleneck in the middle of the state—called Path 15—prevents power in the south from being shipped to the north during emergencies.

This year, reduced hydropower availability due to low rainfall, higher than expected unplanned plant outages, and the financial problems of California's utilities exacerbated this growing supply–demand imbalance. As a result, California's supply problem turned into a crisis, resulting in soaring electricity bills for homes and businesses and rolling blackouts.

In part due to the interconnected nature of the western electricity grid, California's critical electricity shortages have helped to drive up electricity costs in the West.

Unfortunately, there are no short-term solutions to long-term neglect. It can take new power plants and transmission facilities years to site, permit, and construct. Despite expedited federal permitting, California's emergency efforts to increase new generation by 5,000 MW by July appear to be falling short. Less than 2,000 MW of new generation is expected to be in place by summer. Even with aggressive conservation measures, peak demand this summer is projected to outstrip supply by several thousand megawatts. The California grid operator expects more than 30 days of blackouts.

California officials have warned that the crisis may last several years. Though California's efforts to increase generation may not suffice to prevent blackouts this summer, if continued and strengthened, they promise to limit the duration of the crisis.

Recommendations:

★ The National Energy Policy Development (NEPD) Group recommends that the President issue an Executive Order to direct all federal agencies to include in any regulatory action that could significantly and adversely affect energy supplies, distribution, or use, a detailed statement on (1) the energy impact of the proposed action, (2) any adverse energy effects that cannot be avoided should the proposal be implemented, and (3) alternatives to the proposed action. The agencies would be directed to include this statement in all submissions to the Office of Management and Budget of proposed regulations covered by Executive Order 12866, as well as in all notices of proposed regulations published in the Federal Register.

★ The NEPD Group recommends that the President direct the executive agencies to work closely with Congress to implement the legislative components of a national energy policy.

Conservation and Energy Efficiency

Conservation and energy efficiency are crucial components of a national energy plan. Energy efficiency is the ability to use less energy to produce the same amount of useful work or services. Conservation is closely related and is simply using less energy. Improved energy efficiency and conservation reduces energy consumption and energy costs, while maintaining equivalent service in our homes, offices, factories, and automobiles. Greater energy

efficiency helps the United States reduce energy imports, the likelihood of energy shortages, emissions, and the volatility of energy prices.

Over the last three decades, the United States has significantly improved its energy efficiency by developing and expanding the use of energy efficient technologies. Although our economy has grown by 126 percent since 1973, our energy use has increased by only 30 percent. Had energy use kept pace with economic growth, the nation would have consumed 171 quadrillion British thermal units (Btus) last year instead of 99 quadrillion Btus.

About a third to a half of these savings resulted from shifts in the economy, such as the growth of the service sector. The other half to two-thirds resulted from greater energy efficiency. Technological improvements in energy efficiency allow consumers to enjoy more energy services without commensurate increases in energy demand. The rate at which these efficiency improvements are made varies over time, depending on the extent to which factors—such as energy policies, research and development, prices, and market regulations—encourage the development of new, efficient products and consumer investment in these products. An increased rate of improvement in energy efficiency can have a large impact on energy supply and infrastructure needs, reducing the need for new power plants and other energy resources, along with reduced stress on the energy supply infrastructure.

Load management is the ability to adjust energy loads to reflect immediate supply conditions. In the very short term, direct appeals for conservation can ease strained energy supply markets for a time. Over the longer run, the ability to adjust demand on an as-needed basis can be an important source of energy reserves, resulting in lower energy bills for participating customers.

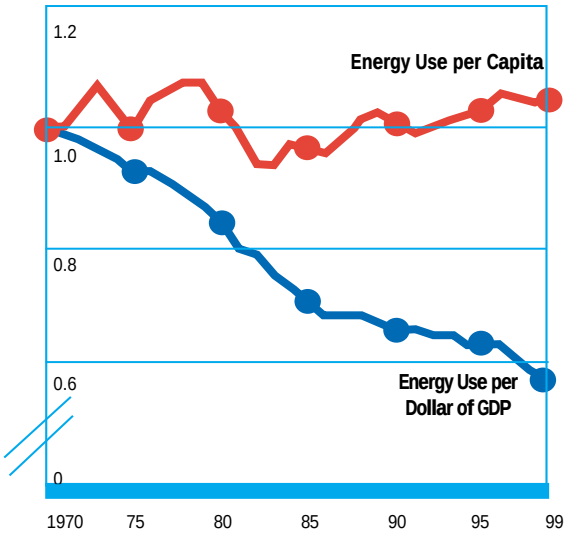
The impact that improvements in energy efficiency can have on energy supply markets grows over time. Electricity demand is projected to rise by 1.8 percent a year over the next 20 years, requiring the addition of some 393,000 MW of generation capacity. At the same time, energy efficiency is projected to continue to improve between 2000 and 2020. A decrease in demand from 1.8 percent to 1.5 percent would reduce the need for new generating capacity next year by about 2,000 MW. Extending that reduction over the next 20 years would reduce the need for new generation by 60,000 to 66,000 MW.

While this projection shows that conservation can help ensure the United States has adequate energy supplies for the future, it also shows that conservation alone is not the answer. Even with more conservation, the U.S. will need more energy supplies. Today, new technologies offer new opportunities to enhance our energy efficiency. As these technologies gain market acceptance, they will help ensure a reliable and affordable energy and electric power supply for the nation.

Energy Intensity

The energy intensity of the U.S. economy is measured by the amount of energy used to produce a dollar's worth of gross domestic product (GDP). It now takes only about 56 percent of the energy required in 1970 to produce a

Figure 1-1
U.S. Energy Use per Capita and per Dollar of GDP: 1970–1999
(Index: 1970 = 1)



The energy intensity of the U.S. economy is measured by the amount of energy used to produce a dollar's worth of gross domestic product (GDP). By that yardstick, U.S. energy intensity declined significantly between 1970 and 1985, and has continued to decline, albeit at a slower rate.

Source: U.S. Department of Energy, Energy Information Administration.

Measures of Electrical Power

A watt is a measure of the amount of energy that can be produced during a specific period of time.

1 kilowatt (KW)= 1,000 watts
1 megawatt (MW)=1million watts
1 gigawatt (GW)=1 billion watts
1 terawatt (TW)=1 trillion watts

U.S. Energy Efficiency Is Improving

- New home refrigerators now use about one-third less energy than they did in 1972.
- New commercial fluorescent lighting systems use less than half the energy they did during the 1980s.
- Federal buildings now use about 20 percent less energy per square foot since 1985.
- Industrial energy use per unit of output declined by 25 percent from 1980 to 1999.
- The chemical industry's energy use per unit of output has declined by roughly 40 percent in the past 25 years.
- The U.S. government has reduced its energy use in buildings by over 20 percent since 1985.
- The amount of energy required to generate 1 kilowatt-hour of electricity has declined by 10 percent since 1980.

What Causes Transmission Constraints?

When additional electricity flow from one area exceeds a circuit's capacity to carry that flow to another area, the overloaded circuit becomes congested and blocks a steady flow of power. To prevent transmission bottlenecks, system operators curtail transactions between areas or increase generation on the side of the constraint where the electricity is flowing and reduce generation on the opposite side. Transmission constraints result in price differences between regions that exceed differences due to line losses, because electricity can no longer flow freely to the affected area.

dollar of GDP today (Figure 1-1). This reduction is attributable to improved energy efficiency, as well as to structural changes in the economy, particularly the relative decline of energy-intensive industries.

The decline in the nation's energy intensity accelerated between 1999 and 2000, a period when nonenergy-intensive industries experienced rapid growth. Energy intensity is projected to continue to decline through 2020 at an average rate of 1.6 percent a year. This is a slower rate of decline than experienced in the 1970s and early 1980s, which was characterized by high energy prices and a shift to less energy-intensive industries, but is a more rapid rate of decline than experienced on average during the latter part of the 1980s and the 1990s.

Challenges Confronting Electricity Supply

Our nation's electricity supply has failed to keep pace with growing demand. This imbalance is projected to persist into the future. The adverse consequences have manifested themselves most severely in the West, where supply shortages have led to high prices and even blackouts. In other regions, inadequate supply threatens the reliability and affordability of electric power.

Large amounts of new generating capacity are slated for installation around the country from 2001 to 2004. However, there is a geographic mismatch between where we will generate energy and where it is needed. For example, little capacity is being added where it is most needed, such as in California and eastern New York.

A pressing long-term electricity challenge is to build enough new generation and transmission capacity to meet projected growth in demand.

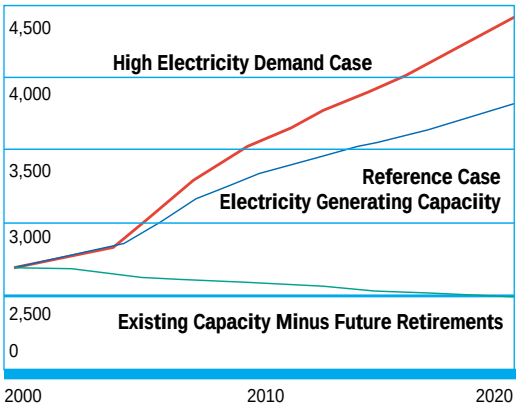
Electricity supply conditions in the Southeast are expected to be tight in the summer of 2001, much as they have been the previous two years. The Northeast may also face supply shortages. If the temperatures of the summer of 2000 had been normal rather than unseasonably cool, New York and New England would most likely have experienced electricity supply shortfalls and price spikes. Critical supply problems could arise if the weather in the summer of 2001 is unusually warm or if plant outages rise above average levels.

Our nation's most pressing long-term electricity challenge is to build enough new generation and transmission capacity to meet projected growth in demand. Across the country, we are seeing the same signs that California faced in the mid-1990s: significant economic regulatory uncertainty, which can result in inadequate supply. This level of uncertainty can vary across the country, depending on state and local regulations. Of the approximately 43,000 MW of new generating capacity that power companies planned in 1994 for construction from 1995 to 1999, only about 18,000 MW were actually built. Although plans have been announced to build more capacity than the country will need over the next five to seven years, this new construction assumes market and regulatory conditions that are not yet assured. Over the next twenty years, the United States will need 1,300 to 1,900 new power plants, which is the equivalent of 60 to 90 new power plants a year (Figure 1-2).

But even with adequate generating capacity, we do not have the infrastructure to ensure reliable supply of electricity. Investment in new transmission capacity has failed to keep pace with growth in demand and with changes in the industry's structure. Since 1989, electricity sales to consumers have increased by 2.1 percent annually, yet transmission capacity has increased by only 0.8 percent annually. As electricity markets become more regional, transmission constraints are impeding the movement of electricity both within and between regions.

The price spikes in the Midwest in the summer of 1998 were in part caused by trans-

Figure 1-2
The U.S. Needs More Power Plants



The nation is going to require significant new generation capacity in the next two decades. Depending on demand, the United States will need to build between 1,300 and 1,900 new power plants—or about one new power plant a week.

Source: U.S. Department of Energy, Energy Information Administration.

mission constraints, which limited the region's ability to import electricity from other regions at a time of high demand. Transmission bottlenecks contributed to the blackouts in California over the past year, and have been a persistent cause of price spikes in New York City during peak demand. Constraints on New England's ability to import low-cost power from Canada could raise electricity prices during periods of high demand.

Electricity is a secondary source of energy, generated through the consumption of primary sources (Figure 1-3). The largest source of U.S. electricity generation is coal, followed by nuclear energy, natural gas, hydropower, oil, and non-hydropower renewable energy.

Coal

Coal is America's most abundant fuel source. The United States has a 250-year supply of coal. Over 1 billion tons of coal were produced in 25 states in 2000. About 99.7 percent of U.S. coal production is consumed domestically, with electricity generation accounting for about 90 percent of coal consumption.

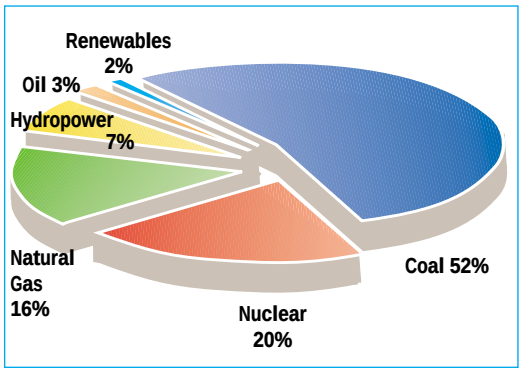
After peaking in 1982, coal prices have generally declined. This trend is projected to continue through 2020, reflecting an expanding shift into lower-cost western coal production and substantial increases in productivity. While coal is expected to remain the dominant fuel in meeting increasing U.S. electricity demand through 2020, energy policy goals must be carefully integrated with environmental policy goals. The Clean Air Act Amendments of 1990 and related state regulations require electricity generators to reduce emissions of sulfur dioxide and nitrogen oxide.

Nuclear Energy

Nuclear energy is the second-largest source (20 percent) of U.S. electricity generation. Nuclear power is used exclusively to generate electricity. Nuclear power has none of the emissions associated with coal and gas power plants, including nitrogen oxides, sulfur dioxide, mercury and carbon dioxide. Costs of electricity generation by nuclear plants compare favorably with the costs of generation by other sources.

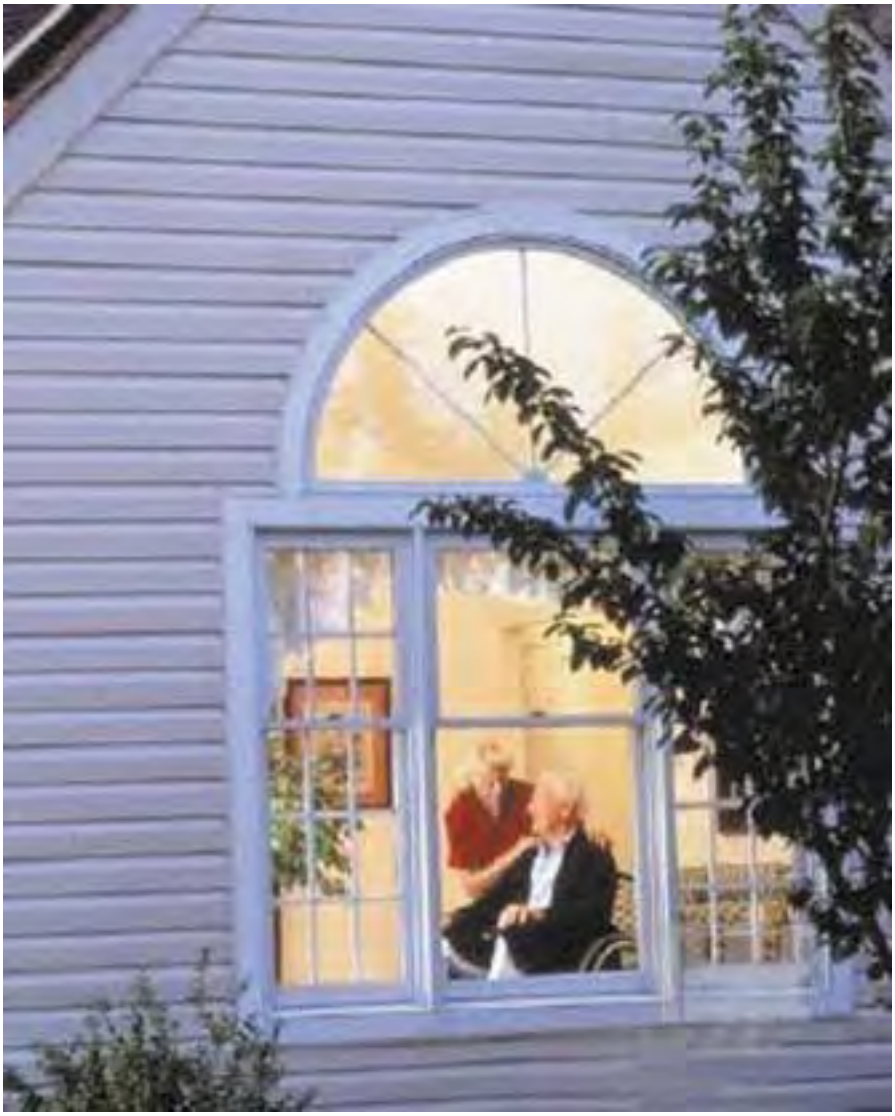
While the number of nuclear plants has declined due to retirements, nuclear electricity generation has steadily increased in recent years. Several factors have created a more favorable environment for nuclear energy: safe, standardized plant designs; an improved licensing process; effective safety oversight by the Nuclear Regulatory Commission (NRC); the advent of new technologies; and uncertain, volatile natural gas prices. This more favorable environment has resulted in increased re-licensing of nuclear plants and the consolidation of several plants in the hands of fewer, more experienced operators.

Figure 1-3
Fuel Sources for Electricity Generation in 2000



Electricity is a secondary source of energy, generated through the consumption of primary sources. Coal and nuclear energy account for over 70 percent of U.S. electricity generation.

Source: U.S. Department of Energy, Energy Information Administration.



Many Americans received high heating bills this winter as a result of sharp increases in natural gas prices.

The nuclear industry is closely regulated by the NRC, which provides oversight of the operation and maintenance of these plants. This oversight includes a comprehensive inspection program that focuses on the most significant potential risks of plant operations, and features full-time resident inspectors at each plant, as well as regional inspectors with specialized expertise. In addition to rigorous inspection criteria, the installation of new design features, improvements in operating experience, nuclear safety research, and operator training have all contributed to the nuclear industry's strong safety record.

An important challenge to the use of nuclear energy is the issue of safe and timely long-term storage of spent nuclear fuel and high- and low-level radioactive waste. Currently, no plans exist to construct any new nuclear plants. However, due to more favorable conditions, the decline in nuclear energy generation has not been as rapid as was predicted only a few years ago, as evidenced by increased re-licensing.

Natural Gas

Natural gas is the third-largest source of U.S. electricity generation, accounting for 16 percent of generation in 2000. Under existing policy, natural gas generating capacity is expected to constitute about 90 percent of the projected increase in electricity generation between 1999 and 2020. Electricity generated by natural gas is expected to grow to 33 percent in 2020—a growth driven by electricity restructuring and the economics of natural gas power plants. Lower capital costs, shorter construction lead times, higher efficiencies, and lower emissions give gas an advantage over coal and other fuels for new generation in most regions of the country.

However, natural gas is not just an electricity source. It is used in many different ways, including as vehicle fuel, as industrial fuel, and in our homes. In addition, natural gas is used as a feedstock during the manufacturing process of such products as chemicals, rubber, apparel, furniture, paper, clay, glass, and other petroleum and coal products. Overall, natural gas accounts for 24 percent of total U.S. energy consumed and for all purposes 27 percent of domestic energy produced.

Eighty-five percent of total U.S. natural gas consumption is produced domestically. The import share of consumption rose from 5 percent in 1987 to 15 percent in 2000, and net imports have comprised more than 50 percent of the growth in gas demand since 1990. Canada, with very large gas supplies and easy pipeline access to the lower 48 states, accounts for nearly all U.S. natural gas imports. Unlike oil, almost all natural gas is produced and sold within the same region. Therefore, prices are determined by regional, rather than global, markets.

In 2000, natural gas prices moved

sharply higher after fifteen years of generally flat prices. Futures prices surged by 320 percent in 2000 to an all-time high of $9.98 per million Btus in late December 2000—nearly five times higher than the $2.05 per million Btu average from 1991 to 1999. While prices have declined since the beginning of 2001, they remain much higher than recent levels.

Between 2000 and 2020, U.S. natural gas demand is projected by the Energy Information Administration to increse by more than 50 percent, from 22.8 to 34.7 trillion cubic feet. Others, such as Cambridge Energy Research Associates, expect gas consumption to increase by about 37 percent over that period. Growth is projected in all sectors—industrial, commercial, residential, transportation, and electric generation. More than half of the increase in overall gas consumption will result from rising demand for electricity generation.

Although high natural gas prices have negative effects on consumers, businesses, industries, and the economy as a whole, they also promote more rapid development and adoption of new energy efficient technologies, investment in distribution systems, and greater investment in exploration and development. Although these market responses do not occur rapidly enough to prevent near-term price spikes, over time, they help to hold down prices.

As a result of the sharp increase in natural gas prices, many consumers received historically high utility bills this winter. The price spike has had a particularly severe impact on low-income consumers who use natural gas for heating. In recent months, 5 million consumers have applied for federal and state assistance to pay their heating bills—an increase of 1 million consumers over last year.

The projected rise in domestic natural gas production—from 19.3 trillion cubic feet in 2000 to 29.0 trillion cubic feet in 2020—may not be high enough to meet projected demand. In the near term, incremental production of natural gas is expected to come primarily from unconventional sources in the Rocky Mountain, Gulf Coast, and mid-continent regions; the North Slope of Alaska; and the offshore Gulf of Mexico. Onshore federal lands currently contribute about 10 percent of U.S. production, and federal offshore production contributes about 26 percent.

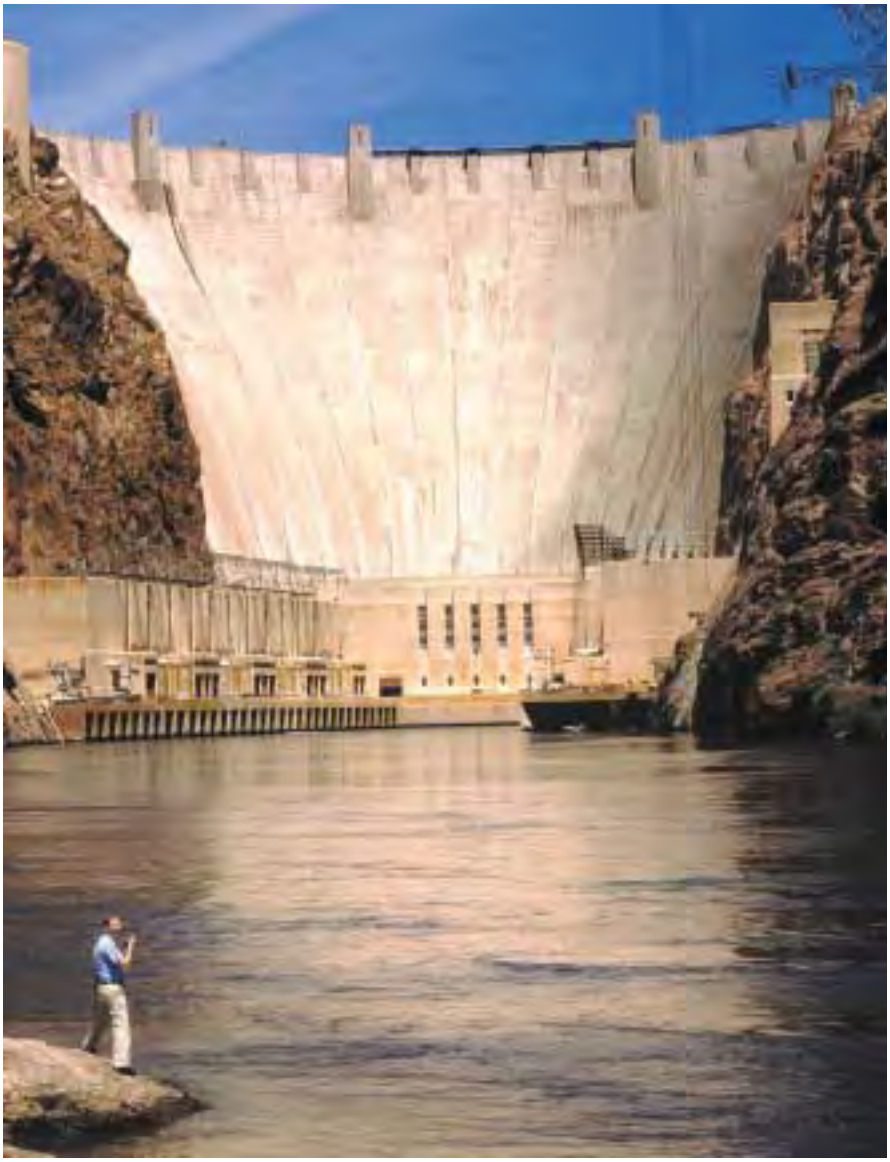
The most significant long-term challenge relating to natural gas is whether adequate supplies can be provided to meet sharply increased projected demand at reasonable prices. If supplies are not adequate, the high natural gas prices experienced over the past year could become a continuing problem, with consequent impacts on electricity prices, home heating bills, and the cost of industrial production. These concerns will redouble if policy decisions sharply reduce electricity generation by any other source, since it is doubtful that natural gas electricity generation could expand to the extent necessary to compensate for that loss of generation.

To meet this long-term challenge, the United States not only needs to boost production, but also must ensure that the natural gas pipeline network is expanded to the extent necessary. For example, although natural gas electricity generation in New England is projected to increase by 16,000 MW through 2000, bottlenecks may block the transmission of necessary supplies. Unless pipeline constraints are eliminated, they will contribute to supply shortages and high prices, and will impede growth in electricity generation.

Hydropower

Hydropower is the fourth-largest source of U.S. electricity generation, accounting for about 7 percent of total generation in 2000. In some regions of the country, such as the Northwest and New York, hydropower makes a much bigger contribution to electricity generation. Although the United States is second only to Canada in hydropower generation, hydropower generation has remained relatively flat in the United States for years.

Hydropower has significant environmental benefits. It is a form of low-cost electricity generation that produces no emissions, and it will continue to be an important source of U.S. energy for the future. Given the potential impacts on fish and wildlife, however, it is important to ef-



Hydropower is the fourth-largest source of U.S. electricity generation. The most significant challenge confronting this source of energy is regulatory uncertainty regarding the federal licensing process.

ficiently and effectively integrate national interests in both natural resource preservation and environmental protection with energy needs.

There are two categories of hydropower projects in the United States: (1) those operated by federal electric utilities, such as the federal power marketing administrations (Bonneville, Western, Southwestern, and Southeastern); and (2) the approximately 2,600 non-federal hydropower dams licensed or exempted by the Federal Energy Regulatory Commission (FERC). The federal utilities have large hydropower systems operated by the Bureau of Reclamation and Army Corps of Engineers, and play an important role meeting electricity demand, especially in the Northwest and the West. Hydropower projects operate with multiple purposes, such as electricity generation, flood control, navigation, and irrigation.

Although most potential for hydropower has already been developed, there is some undeveloped hydropower capacity in the United States. Much of this capacity could be expanded without constructing a new dam.

The most significant challenge confronting hydropower is regulatory uncertainty regarding the federal licensing process. The process is long and burdensome, and decision-making authority is spread across a range of federal and state agencies charged with promoting different public policy goals. Reforms can improve the hydropower licensing process, ensuring better public participation, ensuring that effective fish and wildlife conditions are adopted, and providing interagency resolution before conflicting mandatory license conditions are presented. The licensing process needs both administrative and legislative reforms. In addition, FERC should be encouraged to adopt appropriate deadlines for its own actions during the process.

Oil

Oil accounts for approximately 3 percent of electricity generation. Oil is used as a primary source to fire electricity generation plants in some regions. Specifically, oil is an important source of electricity in Hawaii, Florida, and some northeastern states. Oil can also be used an additional source of fuel for electricity generation in plants that can use either natural gas or oil. However, electricity generation from oil is projected to decline to about one-half of one percent of total electricity generation by 2020.

Renewable Energy: A Growing Resource

Renewable energy technologies tap natural flows of energy—such as water, wind, solar, geological, and biomass sources—to produce electricity, fuels, and heat. Non-hydropower renewable electricity generation is projected to grow at a faster rate

than all other generation sources, except natural gas. These sources of energy are continuously renewable, can be very clean, are domestically produced, and can generate income for farmers, landowners, and others. Although its production costs generally remain higher than other sources, renewable energy has not experienced the price volatility of other energy resources.

Non-hydropower renewable energy sources currently account for only about 4 percent of total energy consumption and 2 percent of total electricity generation. The sources of non-hydropower renewable electricity generation are biomass (the direct combustion of plant matter and organic residues, such as municipal solid waste use); geothermal (use of naturally occurring steam and hot water); wind; and solar. Biomass and geothermal account for most renewable electricity generation.

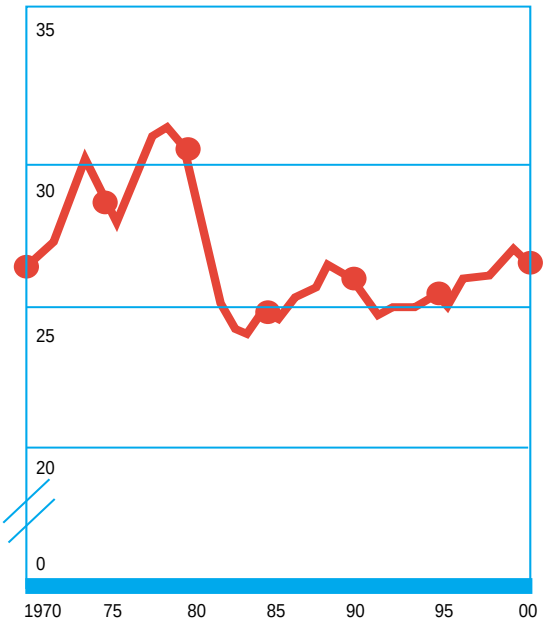
The most important long-term challenge facing renewable energy remains economic. Renewable energy costs are often greater than those of other energy sources. However, these costs have declined sharply in recent years, due to improved technology. If this trend continues, renewable energy growth will accelerate. By 2020, non-hydropower renewable energy is expected to account for 2.8 percent of total electricity generation.

Transportation Energy Needs

Oil is the nation's largest source of primary energy, serving almost 40 percent of U.S. energy needs. In 2000, the United States consumed an average of 19.5 million barrels of oil every day. Transportation fuels account for about two-thirds of our oil consumption, and the industrial sector for 25 percent. Residential and commercial uses, such as heating oil and propane—important fuels in the Northeast and Midwest—account for most of the rest.

The share of oil in U.S. energy supply has declined since the early 1970s, the result of growth in other fuels, particularly coal and nuclear. Per capita oil consumption, which reached a peak in 1978, has fallen by 20 percent from that level (Figure 1-4).

Figure 1-4
U.S. Per Capita Oil Consumption: 1970–2000



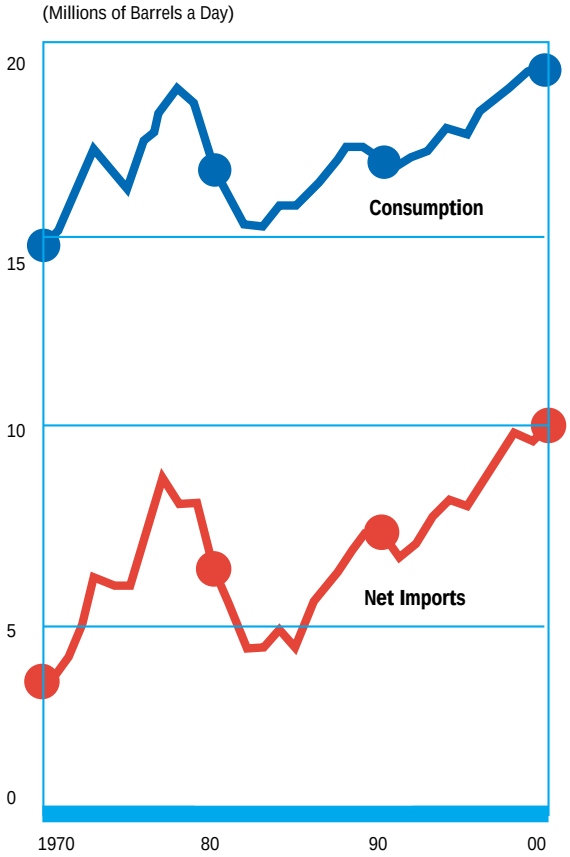
Per capita oil consumption reached a peak in 1978 of 31 barrels. it has fallen by 20 percent since then to 26 barrels per capita.

Source: U.S. Department of Energy, Energy Information Administration

Renewable energy technologies tap natural flows of energy to produce electricity, fuels, and heat.

U.S. Department of Energy, National Renewable Energy Laboratory

Figure 1-5
Dependence on Foreign Sources of Oil



U.S. dependence on oil imports is a serious long-term challenge. The economic security of our nation and our trading partners will remain closely tied to global oil market developments.

Source: U.S. Department of Energy, Energy Information Administration.

In 2020, oil is projected to account for roughly the same share of U.S. energy consumption as it does today.

The United States has been a net importer of energy since the 1950s, and U.S. dependence on imports has grown sharply since 1985 (Figure 1-5). Today, oil accounts for 89 percent of net U.S. energy imports. Net oil imports account for most of the rise in energy imports since the mid-1980s, and have grown from about 4.3 million barrels per day (bpd) in 1985 to 10 million bpd in 2000.

World oil prices have been marked by notable price volatility over the past several years. For example, the average initial purchase price of crude oil rose from $8.03 a barrel in December 1998 to $30.30 a barrel in November 2000. Spot prices rose even higher. This dramatic price swing was the product of several events. A series of production cuts by the Organization of Petroleum Exporting Countries (OPEC) in 1998 and 1999 sharply curtailed global oil supplies. At the same time, rebounding demand for oil in Asia following roughly two years of economic weakness, and rapid economic growth in the United States boosted oil consumption and squeezed supplies even further. By September 2000, oil prices peaked as markets faced limited supply of crude and petroleum products

U.S. Department of Transportation

Domestic oil supply cannot be increased unless several access and infrastructure challenges are addressed. For example, U.S. refining and pipeline capacity has not kept pace with increasing demand for petroleum products.

ahead of the winter season, when demand is typically higher. In December 2000, oil prices fell after the market absorbed the impact of a series of OPEC production increases.

This recent price volatility illustrates the effect of intermittent market power exerted by cartel behavior in a global petroleum market. Moreover, prices are set in a market where supply is geographically concentrated. Almost two-thirds of world proven reserves are in the Middle East. Elsewhere, Central and South America account for 9 percent; Africa, 7 percent; North America, 5 percent; Eastern Europe and the former Soviet Union, 5 percent; the rest of Asia, 4 percent; and Western Europe, 2 percent. OPEC's huge oil reserves and production capacity and its periodic efforts to influence prices add to volatility in the market.

Oil prices are expected to remain high through 2002, affecting the cost of transportation, heating, electricity generation, and industrial production. High oil prices mean high prices for petroleum products, such as gasoline, diesel fuel, heating oil, propane, and jet fuel. The summer 2001 base case average gasoline price from the Department of Energy *Short-Term Energy Outlook* is $1.49 per gallon. However, prices have risen more rapidly than anticipated since the report's release, and a much higher summer average in the range of $1.50 to $1.65 per gallon is likely. Some areas have already experienced gasoline prices above $2.00 per gallon. Gasoline inventories going into the driving season are projected to be lower than last year, which could set the stage for regional supply problems that once again create significant price volatility in gasoline markets.

Because the United States is a mature oil-producing region, production costs are often higher than in foreign countries.

Price Volatility in Gasoline Markets

During the early summer of 2000, low inventories set the stage for a gasoline price run-up in the Midwest. Several pipeline and refinery problems sent marketers scrambling for limited supplies of both reformulated gasoline (RFG) and conventional gasoline, driving prices up rapidly. In Chicago, the spot price for blend stock for RFG, excluding ethanol, doubled in about six weeks, from 83 cents per gallon on April 25 to $1.65 on June 7. Spot prices then fell back over the next five weeks to 84 cents on July 12 as extra supply began arriving. Retail regular-grade RFG prices in the Midwest rose from $1.47 on April 24 to just over $2.00 per gallon on June 19, before falling back to $1.43 by July 24, showing the typical tendency of

retail prices to lag spot price changes.

Refiners face additional challenges as a result of various state and local clean fuel requirements for distinct gasoline blends ("boutique fuels"). These different requirements sometimes make it difficult, if not impossible, to draw on gasoline supplies from nearby areas or states to meet local needs when the normal supply is disrupted.

In 2000, very low inventories of gasoline and other refined products on the U.S. East and Gulf coasts increased the market's susceptibility to external shocks, such as operating problems in refineries or pipelines, or short-term surges in demand. Last winter, heating oil prices were at near-record levels. During 2000, the federal government reduced the vulnerability of the Northeast to heating oil shortages, such as those experienced in January 2000, by creating a 2-million-barrel heating oil reserve in New Jersey and Connecticut.

Because the United States is a mature oil-producing region, production costs are often higher than in foreign countries, particularly OPEC countries. In addition, access to promising domestic oil reserves is limited. U.S. oil production in the lower 48 states reached its peak in 1970 at 9.4 million bpd. A surge in Alaskan North Slope oil production beginning in the late 1970s helped postpone the decline in overall U.S. production, but Alaska's production peaked in 1988 at 2 million bpd, and fell to 1 million bpd by 2000. By then, U.S. total oil output had fallen to 5.8 million bpd, 39 percent below its peak.

By 2020, U.S. oil production is projected to decline from 5.8 to 5.1 million bpd under current policy. However, oil consumption is expected to rise to 25.8 million bpd by 2020, primarily due to growth in consumption of transportation fuels. Given existing law, production from offshore sources, particularly the Gulf of Mexico, is predicted to play an increasingly important role in the future, accounting for a projected high of 40 percent of domestic oil production by 2010, up from 27 percent today. Technological advances can mitigate the decline in U.S. oil production by enhancing recovery from domestic oil reserves and lowering production costs.

Our projected growing dependence on oil imports is a serious long-term challenge. U.S. economic security and that of our trading partners will remain closely tied to global oil market developments. Without a change in current policy, the share of U.S. oil demand met by net imports is projected to increase from 52 percent in 2000 to 64 percent in 2020. By 2020, the oil for nearly two of every three gallons of our gasoline and heating oil could come from foreign countries. The sources of this imported oil have changed considerably over the last thirty years, with more of our imports coming from the Western Hemisphere. Despite progress in diversifying our oil suppliers over the past two decades, the U.S. and global economies remain vulnerable to a major disruption of oil supplies.

The Strategic Petroleum Reserve (SPR), the federal government's major tool for responding to oil supply disruptions, has not kept pace with the growth in imports. The number of days of net oil import protection provided by the Reserve declined from 83 days of imports in 1992 to 54 days of imports today. Net domestic oil imports have increased significantly since 1992, while the SPR's oil inventory actually decreased.

Domestic oil supply cannot be increased unless several access and infrastructure challenges are addressed. U.S. refining and pipeline capacity has not kept pace with increasing demand for petroleum products. Unless changes take place, the net effect will likely be increased imports, regionally tight markets, and circumstances in which prices for gasoline, heating oil, and other products rise independently of oil prices.

Greater price volatility for gasoline, diesel fuel, heating oil, propane, and jet fuel is likely to become a larger problem over time, unless additional refining capacity and expanded distribution infrastructure can be developed at the same time cleaner products are required. Increasing domestic oil production and reducing demand, particularly for transportation fuels, will re-

quire adoption of a comprehensive national energy policy.

Alternative Transportation Fuels

Development of alternative fuels such as ethanol and other biofuels (liquid fuels derived from organic matter, such as crops), natural gas, and electricity, can help diversify the transportation sector that is so reliant on oil.

Ethanol, a biofuel based on starch crops such as corn, is already making a significant contribution to U.S. energy security, displacing more oil than any other alternative fuel. Other biofuels, such as biodiesel, which can be made from soybean, canola oils, animal fats, and vegetable oils, are making an increasingly important contribution

The success of the federal alternative fuels program has been limited, however. The program focuses on mandating that certain fleet operators purchase alternative fueled vehicles. The hope was that this vehicle purchase mandate would lead to expanded use of alternative fuels. That expectation has not been realized, since most fleet operators purchase dual-fueled vehicles that operate on petroleum motor fuels. Reforms to the federal alternative fuels program could promote alternative fuels use, such as expanding the development of an alternative fuels infrastructure.

Summary of Recommendations

Taking Stock: Energy Challenges Facing the United States

★ The NEPD Group recommends that the President issue an Executive Order to direct all federal agencies to include in any regulatory action that could significantly and adversely affect energy supplies, distribution, or use, a detailed statement on: (1) the energy impact of the proposed action, (2) any adverse energy effects that cannot be avoided should the proposal be implemented, and (3) alternatives to the proposed action. The agencies would be directed to include this statement in all submissions to the Office of Management and Budget of proposed regulations covered by Executive Order 12866, as well as in all notices of proposed regulations published in the Federal Register.

★ The NEPD Group recommends that the President direct the executive agencies to work closely with Congress to implement the legislative components of a national energy policy.

★ The NEPD Group recommends to the President that the NEPD Group continue to work and meet on the implementation of the National Energy Policy, and to explore other ways to advance dependable, affordable, and environmentally responsible production and distribution of energy.

Note: All recommendations in this report are subject to execution in accordance with applicable law. Legislation would be sought where needed. Also, any recommendations that involve foreign countries would be executed in accordance with the customs of international relations, including appropriate diplomatic consultation.

Regional U.S. Energy Challenges

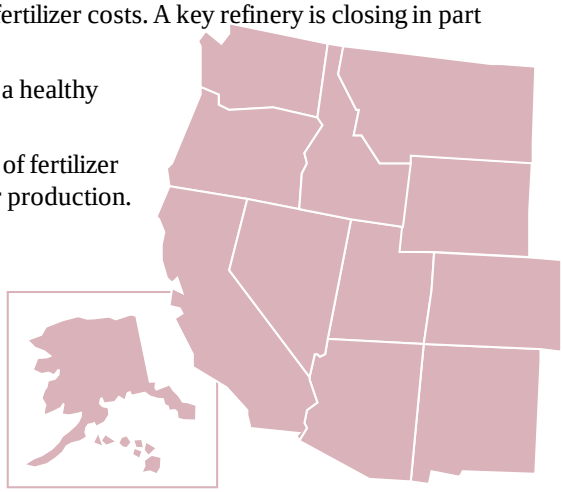
Midwest

Energy consumption in the Midwest is dominated by the industrial sector, the sector with the fastest-growing consumption rate through 2020. The transportation sector has the second-fastest consumption growth rate through 2020. States are affected by higher prices for natural gas, propane, and gasoline, and they expect gasoline price spikes this summer. Electricity supplies in some parts of the region may be tight during peak summer demand. High energy prices will drive up farm operating costs, particularly for fertilizer, irrigation, grain drying, and fuel for tractors.

Illinois consumers are reeling from high heating and cooling costs. Landlords are forced to pass on these costs in the form of higher rents. Farmers face low commodity prices, high fuel costs, and dramatically higher fertilizer costs. A key refinery is closing in part because of the cost of meeting cleaner-burning gasoline requirements.

Minnesota's residential electricity use has increased due to population growth and a healthy economy.

Iowa imports over 90 percent of its energy. Farmers are paying twice the 1999 price of fertilizer because of higher prices for natural gas, which is a major component in the fertilizer production.



West

Energy consumption in the West is dominated by the transportation sector, which is followed closely by the industrial sector. The region's drought emergency is exacerbating an already challenging energy picture. California is likely to experience more severe electricity blackouts this summer. The Pacific Northwest faces a major shortage of hydropower generation due to low water levels. Electricity prices will remain high in the West until more supply is added. Gasoline could be in short supply this summer in California and other states.

California's energy consumption has grown by about 7 percent a year, while production has remained flat. The point has been reached where demand is occasionally exceeding supply, which has caused rolling blackouts. The situation is likely to worsen this summer when demand will peak.

Oregon's lowest snow pack in history will result in the most severe short-term electricity problem in decades. The state will face high spot market prices and reports the highest gasoline prices in the country.

Washington businesses are closing down or cutting back on production. Electricity costs of $400 per unit compared to $35 a year ago contributed to the closure of a major paper plant employing 800 employees.

Colorado small business are suffering as well. A 169 percent jump in natural gas prices in one year may force small businesses to close.

Idaho utilities are offering to pay their irrigation customers to not farm portions of their fields to reduce electricity demand and make that saved power available for other local customers. The low snow pack has reduced water in river systems needed for hydropower generation.

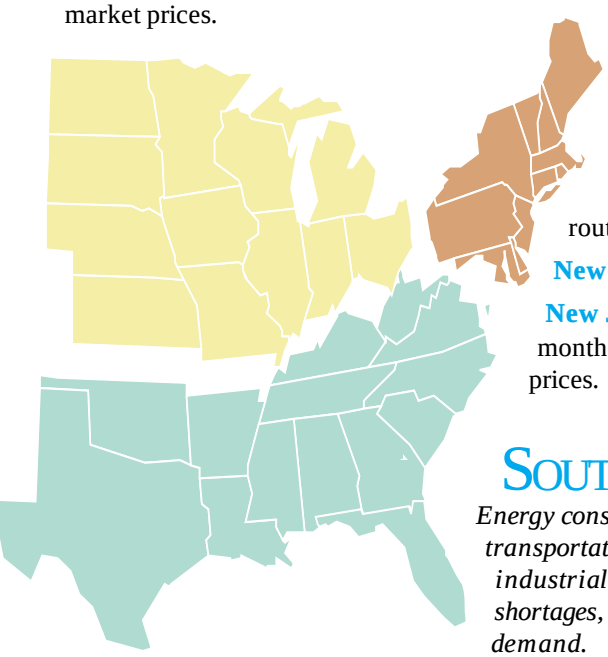
Hawaii's geographic isolation contributes to its many energy issues, such as importing 100 percent of its energy, its disproportionately high consumption of jet fuel and heavy reliance on tourism, and its dependence on imported oil for over 90 percent of its primary energy, the majority from sources in the Asia-Pacific region. Electricity is produced mainly from oil, including residuals and distillates from refineries and coal. Because the Islands' electric grids are not interconnected, electric utilities must operate with high reserve margins.

Nevada is covered in large part by federal lands that require federal approval for permitting new transmission and generation facilities. The permitting process can be protracted and cumbersome, despite efforts by federal agencies to streamline and coordinate. The desert climate requires both heating and cooling, the cost of which can be burdensome. While the desert climate is also conducive to geothermal, wind, and solar technologies, additional work is needed to make these technologies economically competitive.

NORTHEAST

Energy consumption in the Northeast is dominated by the transportation sector. Forecasts developed by the Energy Information Administration indicate that the transportation sector will also remain the dominant sector with the fastest-growing consumption rate through 2020. Northeast states' energy challenges include reducing vehicle pollution and interstate transport of power plant emissions. Heavy dependence on heating oil results in disproportionate impacts during cycles of high prices. Energy supplies in the region are limited by electric transmission and gas pipeline bottlenecks.

New York is rushing to complete 11 small natural gas turbines to avoid blackouts in New York City this summer, where customers pay market prices.



Delaware needs upgraded transmission lines to handle increasing loads. Traditional distributed generation using diesel generators may address these shortfalls, but could raise environmental problems.

Connecticut expects no power shortages this summer, but brownouts are possible if there is a prolonged spike in energy use while power plants are shut down for routine maintenance.

New Hampshire must conserve power on hot days to avoid summer blackouts.

New Jersey regulators have had to allow utilities to raise natural gas rates by 2 percent a month through July 2001 to make up for money lost during the winter due to high fuel prices.

SOUTH

Energy consumption in the South is dominated by the industrial sector, followed by the transportation sector. The transportation sector, however, is expected to grow faster than the industrial sector through 2020. While no state in the region anticipates summer power shortages, electricity supplies in parts of the region may be tight during peak summer demand.

Arkansas' costs of natural gas and propane have doubled and then tripled, contributing to employee layoffs.

Oklahoma's second-largest industry is the oil and gas industry. The volatility of oil and gas markets can severely affect Oklahomans and the state's economy.

Striking Home

The Impacts of High Energy Prices on Families, Communities, and Businesses

American families, communities, and businesses all depend on reliable and affordable energy for their health, safety, and livelihood. Energy is a critical component of nearly everything that affects our daily lives, from transportation to communication, from food production to medical services, and from air conditioning to heating. Americans expect these services to enhance our lives, and are keenly aware that each additional, unanticipated energy expense is a decrease in funds available for other needs.

Recommendation:

★ The NEPD Group recommends that the President direct the Secretary of Energy to explore potential opportunities to develop educational programs related to energy development and use. This should include possible legislation to create public education awareness programs about energy. Such programs should be long-term in nature, should be funded and managed by the respective energy industries, and should include information on energy's compatibility with a clean environment.

Impacts of High Energy Prices on the Daily Lives of Americans

Many American families and businesses have already felt the strain of rising prices and unreliable energy supplies. Every time energy prices rise, American families have fewer dollars available to meet their needs. Low-income households, energy-intensive industries, and farmers generally find it difficult to make rapid adjustments to energy price increases.

Rising oil prices act like a tax by foreign oil exporters on Americans. Changing energy prices impose economic costs, such as forcing plants to change schedules, replace machinery, or even shut down. These costs can eventually impact economic growth. So far, increased capital investment by domestic energy producers has offset only a small part of the dampening effects of higher energy costs on consumer spending.

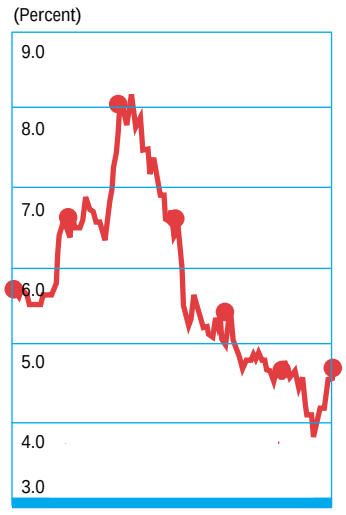
Families

Energy bills for the 74 million middle-class American households consist primarily of home and transportation related expenses. Heating and cooling expenses represent about 40 percent of household energy costs. Other energy expenses include costs for lighting, hot water, appliances, and transportation.

For almost twenty years, the share of household income that Americans spent on their energy needs steadily declined. However, between 1998 and the end of last year, family spending on energy rose by more than 26 percent, from 3.8 to 4.8 percent of after-tax income (Figure 2-1).

Last winter, heating bills for many families tripled. Roughly 50 percent of American families heat their homes with natural gas. Because the last two months of 2000 were particularly cold in some parts of the country, heating bills increased significantly relative to the previous winter. Last winter, average natural gas heating costs in the Midwest increased by 73 percent, from $540 to $933. New Englanders' heating bills rose by 27 percent, from $760 to $967.

Figure 2-1
Income Spent on Energy



Until recently, the share of disposable household income spent on energy steadily declined, falling to a low of 3.8 percent at the end of 1998. Higher prices for oil and other energy products and record cold temperatures in late 2000 bumped this share up to 4.8 percent in the fourth quarter.

Note: Plotted quarterly through the fourth quarter of 2000.

Source: U.S. Department of Commerce, Bureau of Economic Analysis.

Higher energy prices have forced some energy-intensive manufacturing industries to halt or scale back production and lay off workers.

Many working households can usually accommodate such increases in energy by cutting back on other needs. However, low-income households often have more difficult choices to make. Energy costs for an average low-income household could total 14 percent of family income during the winter of 2000–01, up from about 11 percent for the previous winter. In contrast, energy costs typically represent only about 4 percent of a middle-class family's household budget.

The Low Income Home Energy Assistance Program (LIHEAP) is a federal block grant program that helps low-income consumers pay their energy bills. Last winter, 1.2 million more American families applied for LIHEAP assistance to pay their heating bills, bringing the total close to 5 million American families—up by 26 percent over last year's 3.9 million applicants. As many as 3.6 million families in eighteen states and the District of Columbia risk being unable to pay their bills and having their energy cut off because of the effects of rapidly increasing energy costs.

Recommendations:

★ The NEPD Group recommends that the President take steps to mitigate impacts of high energy costs on low-income consumers. These steps would include:

- Strengthening the Low Income Home Energy Assistance Pro gram by making $1.7 billion available annually. This is an increase of $300 million over the regular FY 2001 appropriation.
- Directing the Secretaries of Interior and Health and Human Services to propose legislation to bolster LIHEAP funding by using a portion of oil and gas royalty payments.
- Redirecting royalties above a set trigger price to LIHEAP, whenever crude oil and natural gas prices exceed that trigger price, as determined by the responsible agencies.

★ The NEPD Group recommends that the President increase funding for the Weatherization Assistance Program by $1.2 billion over ten years. This will roughly double the spending during that period on weatherization. Consistent with that commitment, the FY 2002 Budget includes a $120 million increase over 2001. The Department of Energy will have the option of using a portion of those funds to test improved implementation approaches for the weatherization program.

★ The NEPD Group recommends that the President support legislation to allow funds dedicated for the Weatherization and State Energy Programs to be transferred to LIHEAP if the Department of Energy deems it appropriate.

The low-income elderly are particularly vulnerable to disruptions in energy supply. If they keep their homes at a reasonable temperature, the high cost of electricity may make it difficult for them to pay their higher electricity bills. This could further result in an elimination of service. Another summer of very hot weather and high energy bills could cause serious health problems for some Americans, particularly those sensitive to high temperatures.

The Department of Energy's Weatherization Assistance Program has reduced the heating and cooling costs of low-income households by weatherizing more than 5 million homes since its inception in 1976. The President has requested $1.2 billion in additional funding for this program over ten years, roughly double the current level of spending. Consistent with that commitment, the 2002 budget will include a $120 million increase over 2001.

The Department of Energy's Weatherization Assistance Program

The energy burden on low-income households, as a proportion of income, is four times greater than for other American households. The Weatherization Program provides grant funding for a network of all states and some 970 local weatherization agencies to provide insulation, duct system improvements, furnace upgrades, and other cost-effective, energy-saving improvements based on the energy needs of each home weatherized. Currently, each dollar spent on home weatherization generates $2.10 worth of energy savings over the life of the home; with additional economic, environmental, health, and safety benefits associated with the installations and resulting home improvements. Typical savings in heating bills, for a natural gas heated home, grew from about 18 percent in 1989 to 33 percent today.

Businesses

For businesses, higher energy prices and disruptions in energy supply may increase inflation and reduce profits, production, investment, and employment. The im-

pact of higher energy prices takes two forms: the higher costs of paying for the energy to run the business, and the higher costs when raw fuel sources are used in manufacturing.

In some energy-intensive industries, rising energy prices have had a significant effect on product prices and operations. For instance, while nonenergy producer prices at the intermediate stage of processing have risen by only 3.6 percent since December 1998, prices of industrial materials and plastic resins, which use petroleum inputs, are up 14 and 23 percent, respectively. DuPont, the leading U.S. producer of plastics, chemicals, and fibers derived from oil and natural gas, faced an increase of $1.3 billion in raw material costs last year, the largest increase in the industry in a decade. The company expects further disruptions this year due to high energy costs.

The Federal Reserve has reported that businesses have experienced higher energy costs for a number of months, but have been unable to pass these increases on to customers due to intense foreign and domestic competition and slowing demand. On March 7, 2001, the Federal Reserve reported that businesses across the country experienced higher fuel and other energy costs in February 2001, but most businesses were unwilling or unable to pass these costs on to consumers.

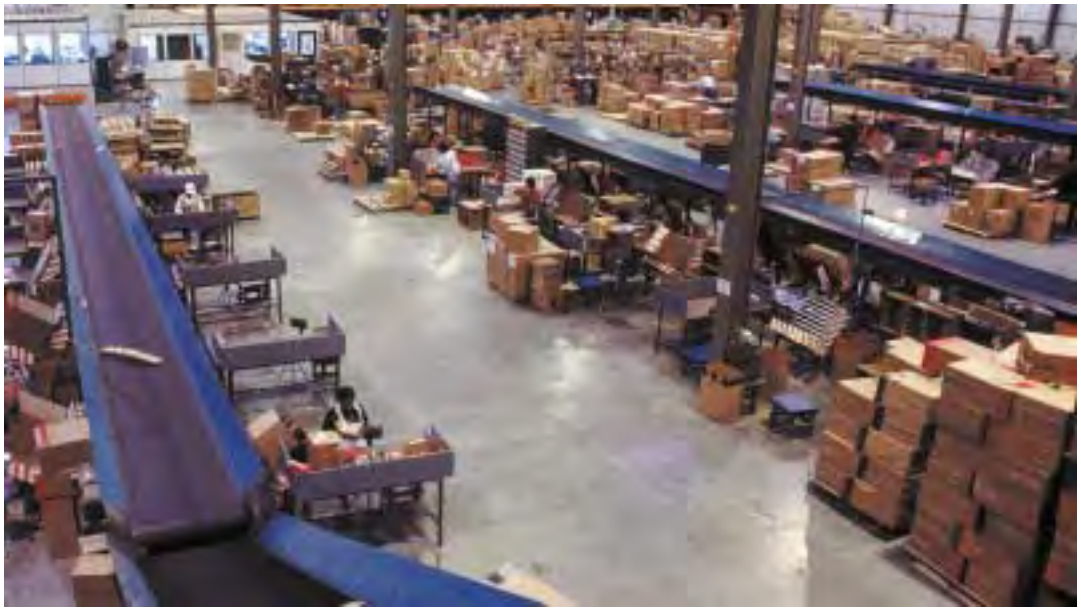
This absorption of much of the higher costs of energy has deteriorated the profit margins of many businesses. About one-quarter of the increase in total unit costs of nonfinancial, nonenergy corporations in the final quarter of last year reflected a rise in energy costs. A more moderate pace of consumer spending, due in part to higher energy prices (natural gas in particular) also contributed to the margin squeeze. The reduction in businesses' purchasing power has also constrained outlays for plants and equipment and most likely intensified the slowdown in business investment that occurred in the last half of 2000.

Energy-intensive manufacturing industries are very sensitive to changes in energy prices, and adjust their production accordingly. Some companies have been forced to halt or scale back production and lay off workers. Others have deemed it more profitable to sell their energy than to produce their products. In the Pacific Northwest, Georgia-Pacific's paper mill closed down and laid off 800 workers until diesel generators could be installed. In recent months, the company's average power costs soared from $1.2 million to $10 million.

For other industries, such as computer-driven service industries, energy is not an important component of the total cost. However, many such businesses require a high-quality, reliable source of power. Even a brief loss of power can impose significant costs on high-technology firms.

Energy supply disruptions also impose costs on firms when products or prod-

Disruptions in the supply of energy impose hardships on businesses when products or product inputs are damaged or destroyed, or when production runs are interrupted.



Many companies have been unable to pass higher energy costs on to their customers, which has sharply reduced their profit margins.

Farmers have been hit especially hard by higher fuel and oil prices, which accounted for over a third of the rise in the cost of running their farms.

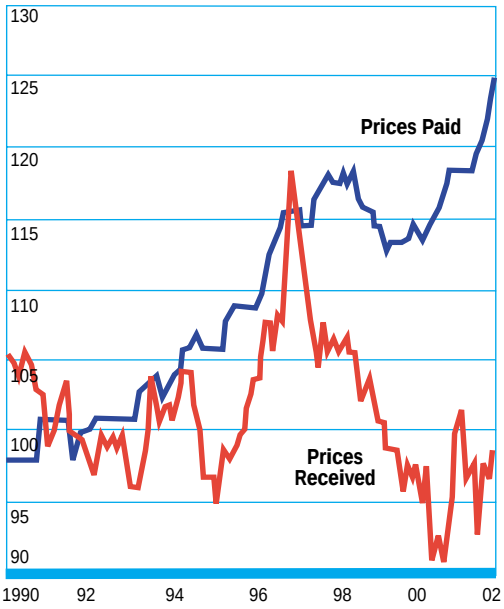
uct inputs are damaged or destroyed, or when production runs are interrupted. For example, a survey of small businesses conducted by the National Federation of Independent Business in February, 2001, found that more than half of the firms surveyed that had experienced blackouts this year in California were forced to reduce or shut down business operations altogether during the blackouts. About one-third lost sales, almost 21 percent said materials were damaged or destroyed, and nearly 40 percent had to absorb wage costs for work that was not completed.

For businesses that seek to mitigate energy price volatility, an important factor is access to derivatives markets. Both exchange-traded futures and over-the-counter derivative contracts allow firms to substantially reduce their exposure to changes in energy prices. A wide variety of highly liquid futures contracts on energy products such as oil, natural gas, and electricity allow energy users and market participants to reduce or add financial exposure to energy prices. More sophisticated and customizable products are available in the over-the-counter derivative markets. As these markets become increasingly liquid and efficient, more firms will take advantage of these products, reducing the economy's sensitivity to shifts in energy prices. However, most small businesses currently lack the resources or sophistication to take advantage of these products, and will therefore remain vulnerable to rising energy costs. The U.S. government should continue to support the development of efficient derivatives markets.

Figure 2-2

Farmers Are Being Squeezed by Energy Prices

(Index: 1990–92 = 100)



Costs for fuel, fertilizer, and electricity have boosted total prices paid by farmers, while prices farmers receive for their products have remained weak.

Note: Prices paid are for goods, services, interest, taxes, and wages; prices received are for all farm products.

Source: U.S. Department of Agriculture.

Agriculture

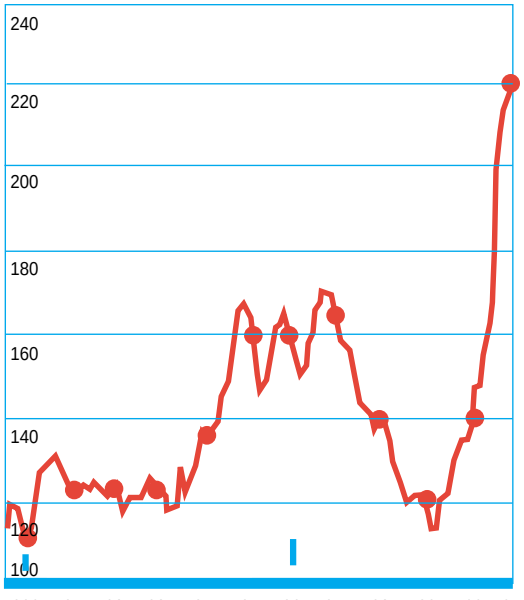
Farmers need ample, affordable energy to run their machinery and equipment. Today, farm production costs are rising sharply, while farm income remains low. Increasing oil prices and interest rates, along with higher prices for other production inputs (including hired labor), boosted farmers' production expenses by 4 percent, or $7.6 billion, in 2000. The rise in farm production expenses has occurred at a time of continued weakness in the prices farmers receive for their products (Figure 2-2).

Higher fuel and oil prices accounted for over one-third of the increase in farm

Figure 2-3

Farm Costs Are Increasing

(Index: December 1979 = 100)



Rising energy prices had a significant effect on product prices in some industries that are heavily dependent on energy inputs. The most dramatic example is the 90 percent increase in the price of nitrogenous fertilizer since December 1998.

Source: U.S. Department of Labor.

production costs. Retail diesel prices this past winter were $1.60 a gallon, compared to about $1.40 a year ago and only $1.00 two years ago. Propane prices were over $1.60 a gallon this winter, compared to $1.10 a year ago. And, natural gas prices hit $10.00 per million Btus in January, after averaging about $2.50 for most of 1998–99. Although natural gas prices have declined, they remain much higher than earlier levels.

Natural gas is an important component of farm production costs. For example, it is used to dry grain, heat farm buildings, and run food-processing equipment. Heating costs for poultry producers soared last winter, sharply reducing earnings.

Natural gas also is a major component in the production of fertilizers, pesticides, and other farm chemicals. It accounts for 70 to 90 percent of the cost of producing anhydrous ammonia, a key source of nitrogen fertilizer. Surging natural gas prices have boosted the price of nitrogenous fertilizer by 90 percent since 1998 (Figure 2-3). During last December and January, several nitrogen production plants shut down, and capacity utilization fell to 50 percent. Anhydrous ammonia recently sold for $330 a ton in the Midwest, compared to $210 a ton for all of 2000 and $160 to $170 a ton at the start of 2000.

Depending on the region of the country and type of farming enterprises, energy-related expenses range from 10 to 30 percent of operating costs for producing major crops. Farm operating costs are highest where fertilizer use is heaviest and natural gas is used for irrigation pumps, such as wheat, cotton, and corn farms in the West and southwestern plains states. Costs are high for greenhouse and nursery crops that use natural gas for heating. Perishable crops also face problems, as energy costs in processing are markedly higher.

Most of California's 9.5 million irrigated acres use electricity to pump water. In addition to higher bills, California farmers will likly face rolling blackouts this summer, which may disrupt farming and processing operations. Low stream flows in the West this year may lead to more pumping of ground water, which will add to irrigation costs in the West. As a result, the costs of California's agricultural products may rise significantly.

In 2001, farmers' total cash production expenses are forecast to increase by an additional $1.5 billion to a record $179.5 billion.

Farm production costs are rising sharply, while farmers' incomes remain low. Depending on the region of the country and type of farming enterprises, energy-related expenses range from 10 to 30 percent of operating costs for producing major crops

Even though total planted acreage is expected to fall this year, higher natural gas prices will raise expenses for nitrogen fertilizer. At the same time, net cash farm income is projected to decline from $56.4 billion in 2000 to under $51 billion in 2001, as production expenses continue to rise.

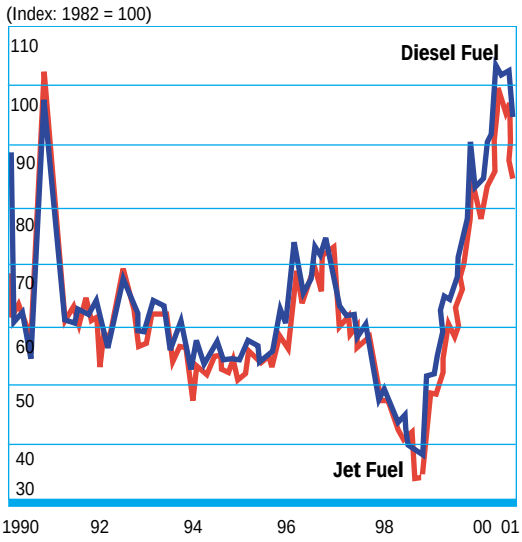
Taken together, fertilizer, fuel, and electricity costs for farmers are forecast to reach $24 billion for 2001, up by about 28 percent from $18.7 billion in 1999. This increase is about 9 percent of U.S. net cash farm income, and that share could be much higher for many individual commodities.

Transportation

The transportation sector accounts for nearly 30 percent of total U.S. energy consumption. The major transportation fuel sources are petroleum-based gasoline and diesel, jet, and marine-mode bunker fuels. Natural gas pipelines are used for product distribution, and electricity is the primary source of power for rail transit and liquid pipeline transmission and distribution.

During 2000, oil prices surged to a nine-year high, and gasoline prices skyrocketed. On average, fuel prices rose by 30 to 40 cents a gallon from 1999 prices, resulting in sharp increases for most modes of transportation, with nearly a 60 percent increase in railroad diesel fuel prices.

Figure 2-4
Transportation Costs Are on the Rise



The recent 140 percent rise in producer prices for intermediate diesel and airline fuels has affected the price of passenger and freight transport.

Note: Plotted through February 2001.
Source: U.S. Department of Labor.

A recent study by a San Francisco Bay business group concluded that blackouts could cost California as much as $16 billion annually, and $5 billion in the Bay area alone.

Price spikes have hit the travel and trucking industries particularly hard and have led to the closure of some operations. Trucking bankruptcies are currently at an all-time high. Over 3,500 motor carrier operations failed in 2000, a dramatic increase over the previous record high of 2,700 motor carrier failures in 1997. Producer prices for intermediate diesel fuel and aviation fuel each rose by about 140 percent from a low in December 1998, affecting passenger and freight transport in the highway, airline, rail, and other transportation sectors (Figure 2-4).

For most transport operations, energy-related expenses were 7 to 14 percent of total operating costs in 1998–99. This share was expected to jump to 10 to 25 percent in 2000. Excluding private auto travel, U.S. passenger and freight operations in 1999 generated about $600 billion in annual revenue and paid approximately $60 billion for fuel and power. If the volume stayed the same in 2000, the various increases in fuel costs for each mode of transportation would yield a fuel bill of

about $80 billion—an increase of one-third over the prior year's bill.

Economic Impacts of California's Energy Crunch

In California, 43 percent of small businesses surveyed in February, 2001, said the power problem had dimmed their views about California as an attractive place for doing business. When asked whether they agreed with the statement, "The electricity problem has forced me to take concrete steps exploring the possibility of moving my business out of California," 18.3 percent of small business respondents said they either agreed or strongly agreed with the statement. More than 31 percent said they will probably or definitely cut back on planned business investment, and almost 20 percent are exploring a move to another state. Half of these small businesses concluded that blackouts would reduce their earnings.

The Silicon Valley Manufacturing Group recently estimated that its nearly 200 members lost over $100 million dollars because of one day of rolling blackouts in June 2000. Countless more millions of dollars have been lost by interruptible commercial power users. Fontana-based California Steel Industries estimates it lost $2.4 million in a single day after its interruptible power was cut off twice for a total of about 12 hours. A recent study by a San Francisco Bay business group concluded that blackouts could cost California as much as $16 billion annually, and $5 billion in the Bay area alone.

The example of California's utilities illustrates the potentially severe negative effects on companies whose business is highly sensitive to energy prices. In this instance, rising energy costs coupled with an inability to pass those costs along to customers has created a sharp increase in short-term liabilities. Pacific Gas & Electric has been forced to file for bankruptcy as a result, and Southern California Edison, while avoiding bankruptcy for the time being, has seen its access to credit markets disappear and the value of its financial assets plummet. Resulting concerns about solvency have led to a withdrawal of bank-lending facilities and supplier credit.

The situation in California is of particular concern because of the major role the state plays in the regional and national economies. California's economy is equivalent to about 13 percent of U.S. gross domestic product (GDP), and it has accounted for an even larger share of U.S. GDP growth in recent years. Some businesses and consumers have been affected by production losses, lost wages, and higher energy bills resulting from rolling blackouts and higher natural gas prices.

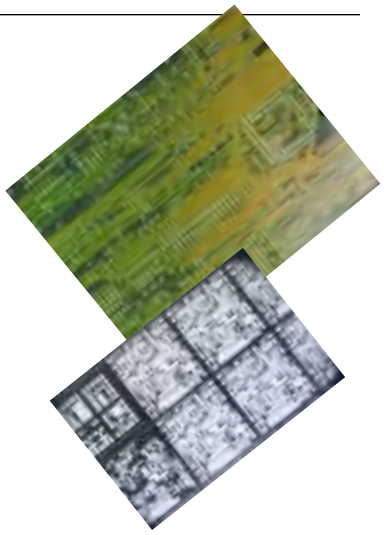
The power supply crunch in California and the West could affect the region's economy, as energy supply uncertainty could reduce investment in the region. California's troubles could also spill over to the national economy:

- California accounted for 11 percent of U.S. manufacturing output in 1998. Sectors in other regions that rely on those products, or that supply inputs to California manufacturers, may share any pain caused by the energy squeeze.
- Disruptions to California's economy could have negative impacts on our international trade. California accounts for over 16 percent of total U.S. commodity exports; nearly 25 percent of industrial equipment and computers, electronics, and instruments exports; and over 15 percent of farm commodity and food product exports.
- The credit problems of the California utilities have boosted commercial paper rates for all lower-rated borrowers, and liquidity in the commercial paper market has fallen. This will push some firms to seek other sources of financing, which can be more costly than commercial paper.

American consumers and businesses are best served when markets function freely. Free markets allow prices to reflect changes in demand and supply, and avoid subsidies, price caps, and other constraints.

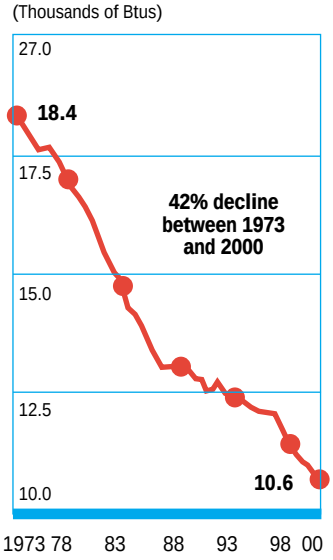
Improvements in Energy Efficiency Can Help

Improved energy efficiency strengthens energy security. The 42 percent decline in the intensity of U.S. energy use since the energy crisis in 1973 reflects a combination of technological advances, conservation ef-



The Silicon Valley Manufacturing Group recently estimated that its nearly 200 members lost over $100 million dollars because of only one day of rolling blackouts in California.

Figure 2-5
Conservation Through Higher Efficiency
Energy Consumption per Dollar of Real GDP



Energy intensity is the amount of energy used to produce a dollar's worth of gross domestic product (GDP). As a result of the 42 percent decline in energy intensity since the first energy crisis in 1973, the U.S. economy is far better prepared to day than it was in the 1970s to ad just to energy price or supply shocks.

Note: Real GDP in 1996 chained dollars.
Source: U.S. Department of Energy, Energy Information Administration.

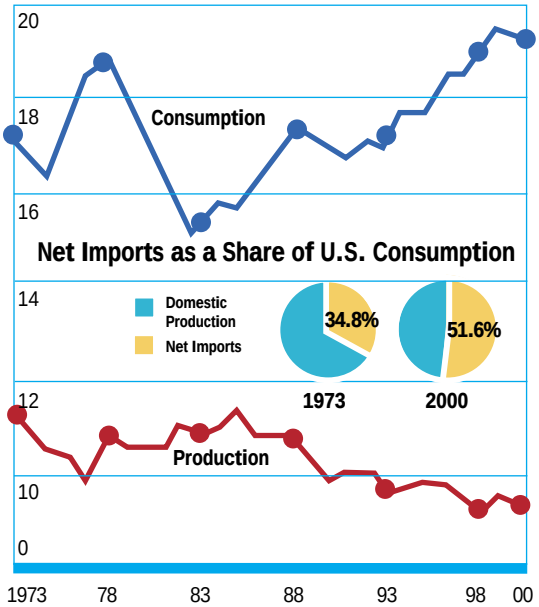
forts, regulatory action, market response, and a shift toward a service economy (Figure 2-5). Our improvements in energy efficiency have prevented our current energy problems from becoming worse.

The macroeconomic effects of a substantial rise in energy prices take two forms. First, to the extent that energy resources are imported, more U.S. dollars must be sent abroad to finance energy consumption, thus reducing funds available for investing in our own country. Second, higher prices cause dislocations among certain sectors of the economy, which could ultimately feed through to lower GDP growth and higher inflation.

Reliance on Foreign Energy

Between 1973 and 2000, U.S. dependence on foreign oil rose from about 35 percent to more than 52 percent of U.S. consumption (Figure 2-6). During the same period, the import share of natural gas consumption climbed from less than 5 percent to more than 15 percent and continues to rise.

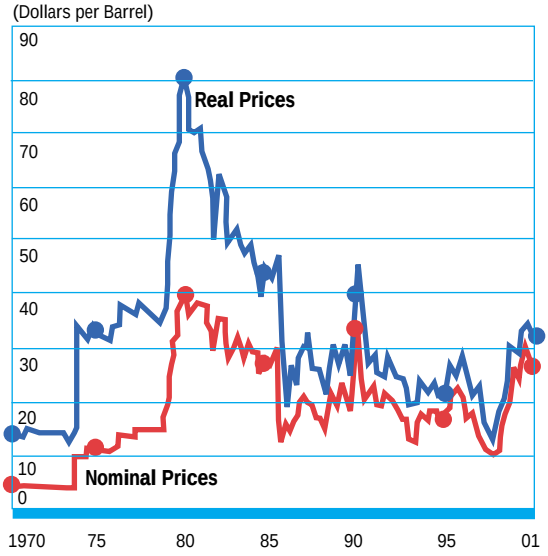
Figure 2-6
Dependence on Oil Imports Is Rising
(Millions of Barrels per Day)



Over the past few decades, U.S. consumption of oil and petroleum products has increasingly outpaced domestic production. Today the United States imports over half of the oil it consumes—up from about 35 percent in the early 1970s.

Note: Petroleum includes both crude oil and petroleum products.
Source: U.S. Department of Energy, Energy Information Administration.

Figure 2-7
Oil Prices Have Risen Sharply
Monthly Spot Price of West Texas Intermediate Crude Oil
(Dollars per Barrel)



Despite the sharp rise in crude oil prices since late 1998, real prices still remain lower than at any time from 1974 to 1985.

Note: Real prices in 2000 dollars. Prices deflated using the Consumer-Price Index–Urban (CPI–U) Research Series for all items linked to CPI–U–X1 prior to December 1977.
Sources: Wall Street Journal; U.S. Department of Labor, Bureau of Labor Statistics.

Imports of energy products make up nearly 11 percent of all U.S. imports. By contrast, U.S. energy exports are relatively small. The energy trade deficit relative to our GDP represents the share of U.S. income that must be exported to purchase foreign fuel to meet domestic energy needs. The U.S. energy trade deficit in 2000 was about $120 billion, most of which was spent on oil imports.

As a share of GDP, the energy trade deficit had fallen to as low as 0.4 percent at the beginning of 1999, when prices for imported crude oil were less than $10 a barrel. However, by the end of 2000, these prices had tripled to more than $30 a barrel (Figure 2-7). As a result of both the oil price spike and growing U.S. demand, the energy deficit deteriorated significantly to 1.3 percent of GDP by the fourth quarter of last year—the largest deficit relative to GDP since the mid-1980s (Figure 2-8). The rise in oil prices alone has added about 0.7 percent of GDP to the U.S. trade deficit, compared to 0.9 percent in the euro currency area, and 0.8 percent in Japan.

Financial markets react to energy costs and the effect those energy costs have on both individual firms and sectors of the market.

Figure 2-8

The U.S.Energy Trade Deficit Has Worsened

The energy trade deficit relative to GDP represents the share of domestic income that must be exported to sup port domestic energy needs. For the past several years, the United States has been a net importer of energy prod ucts. As a consequence, our energy trade balance has been in deficit. By the fourth quarter of 2000, the energy deficit had deteriorated significantly to 1.3 percent of GDP—the largest since the mid-1980s.

Note: Plotted quarterly through the fourth quarter of 2000.-
Source: U.S. Department of Commerce, Bureau of Economic Analysis.-

Net U.S. oil imports are 4 billion barrels a year, which means that each $1 increase in the price of imported crude oil boosts U.S. expenditures by about $4 billion. Given these guidelines, the $20 per barrel increase from early 1999 to late 2000 translates into an export of roughly $80 billion a year (0.9 percent of GDP) when measured from the low price prevailing at the end of 1998.

Impacts of Energy Prices on Financial Markets

An analysis of the financial impacts of higher energy prices can be divided into two parts: the effects on individual firms whose securities comprise the financial markets, and the macroeconomic impact on inflation and interest rates. Rising energy costs and greater volatility in energy prices can have a negative effect on both individual firms and the broader financial environment, generally producing lower asset prices and higher interest rates. The financial market impact to date of rising energy prices has been limited to firms with high sensitivity to energy costs and to those with significant exposure to the California crisis. The second broad effect of rising energy costs is an increase both in measured inflation

and in expectations for future inflation. Both factors have considerable impact on interest rates and, therefore, on the borrowing costs for businesses and consumers throughout the economy.

Inflation Expectations and Interest Rates

Measurable inflation, for both producers and consumers, is a primary concern of the Federal Reserve in conducting monetary policy. Energy costs represent roughly 16 percent of the producer price index for finished goods and 8 percent of the consumer price index. This means that sharply rising energy costs can have a substantial impact on the Federal Reserve's decision-making process. Additional impacts will come from the market's anticipating Federal Reserve actions and pushing short-term interest rates higher than they otherwise would have been. Higher short-term interest rates raise the nominal cost of borrowing for firms and individuals and can slow economic growth.

Rising energy prices can also raise the inflation expectations of lenders, which can result in higher interest rates for borrowing at longer maturities. Rising long-term interest rates can reduce long-term investment, limiting future economic growth and productivity gains. Such an outcome would carry negative consequences for growth-sensitive financial sectors, such as equity and high-yield debt markets.

More broadly, declining credit fundamentals for certain business sectors could raise borrowing costs for firms not directly affected by higher energy prices. For example, commercial paper rates for all lower-rated borrowers have been affected by the credit problems of the California utilities, and liquidity in the market has fallen. As a result, firms may need to seek other sources of financing, such as bank loans (if obtainable) or asset-backed loans, that can be more costly than traditional commercial paper issuance.

Global Financial Markets

The upward pressure on interest rates that may result from higher U.S. energy costs also affects markets beyond our borders. U.S. monetary policy and related movements in short-term interest rates can have a significant impact on other countries. While the effect varies from region to region, many emerging market economies, particularly in Latin America, are vulnerable to upward moves in U.S. interest rates.

Higher nominal interest rates in the developed countries tend to reduce the amount of capital flowing to emerging markets. To the extent that this reduces investment, economic activity may be further reduced. In addition, borrowing in dollars is a significant source of funding for sovereign and private-sector entities worldwide, particularly in the emerging markets. Rising U.S. interest rates will increase the interest expenses for these borrowers, diverting funds from more productive uses and reducing overall credit quality.

The global market for energy is highly fragmented and region-specific, with the exception of oil. Nevertheless, certain nations and regions are net importers of energy and are highly sensitive to changing prices. Japan, a major importer of oil and natural gas, is particularly vulnerable. Europe is a net importer of energy, with certain exceptions, while emerging market nations vary widely in their dependence on foreign energy sources.

At the macroeconomic level, rising energy prices will increase the current account deficit of energy-importing nations. Since current account deficits must be financed, these nations will most likely need to pay higher interest rates to attract the necessary capital. As noted, this will tend to reduce domestic investment and lower long-term growth. In some countries, such as the United States or Japan, changes in interest rates and growth expectations can have substantial global impact.

Central banks and monetary authorities vary in the degree to which they focus on inflation in setting monetary policy, making some countries more or less likely than others to raise interest rates in an environment of rising energy prices.

Although Japan maintains a current account surplus due to manufacturing exports, its role as an international creditor could diminish. This may have additional impacts on the global financial markets, since Japanese financial institutions are generally suppliers of global credit.

The impact of rising energy costs on the dollar is likely to be mixed. While slower U.S. growth generally reduces demand for dollars, rising oil prices are likely to increase demand, since oil contracts are usually denominated in dollars.

Summary of Recommendations

★ The NEPD Group recommends that the President direct the Secretary of Energy to explore potential opportunities to develop educational programs related to energy development and use. This should include possible legislation to create public education awareness programs about energy. Such programs should be long-term in nature, should be funded and managed by the respective energy industries, and should include information on energy's compatibility with a clean environment.

★ The NEPD Group recommends that the President take steps to mitigate impacts of high energy costs on low-income consumers. These steps would include:

- Strengthening the Low Income Home Energy Assistance Program by making $1.7 billion available annually. This is an increase of $300 million over the regular FY 2001 appropriation.
- Directing the Secretaries of Interior and Health and Human Services to propose legislation to bolster LIHEAP funding by using a portion of oil and gas royalty payments.
- Redirecting royalties above a set trigger price to LIHEAP, whenever crude oil and natural gas prices exceed that trigger price, as determined by the responsible agencies.

★ The NEPD Group recommends that the President increase funding for the Weatherization Assistance Program by $1.2 billion over ten years. This will roughly double the spending during that period on weatherization. Consistent with that commitment, the FY 2002 Budget includes a $120 million increase over 2001. The Department of Energy will have the option of using a portion of those funds to test improved implementation approaches for the weatherization program.

★ The NEPD Group recommends that the President support legislation to allow funds dedicated for the Weatherization and State Energy Programs to be transferred to LIHEAP if the Department of Energy deems it appropriate.

★ The NEPD Group recommends the President recognize unique regional energy concerns by working with the National Governors Association and regional governor associations to determine how to better serve the needs of diverse areas of the country.

★ The NEPD Group recommends the President direct FEMA to prepare for potential energy emergencies.

- -FEMA should work with states' Offices of Emergency Management as they expand existing emergency operations plans to identify potential problems and address consequences of the power shortages. FEMA should use its current Regional Incident Reporting System to identify any situations that might demand immediate attention.
- Using the structure of the already existing Federal Response Plan, FEMA should conduct Regional Interagency Steering Committee (RISC) meetings for states affected by the energy shortfalls. The RISC is a FEMA-led interagency committee comprised of agencies and departments that support the Federal Response Plan. Either an upcoming, scheduled RISC meeting or a special-focus RISC meeting can be held to identify the short-term energy outlook, as well as any expected consequences, in each of the states during the peak summer season.

Protecting America's Environment

Sustaining the Nation's Health and Environment

Over the last three decades, American ingenuity has led to a reduction in adverse environmental and public health impacts from energy development and use. Americans demand a reliable energy supply and a clean environment, and we can achieve both. Spurred by strong environmental concerns, competitive forces, and environmental regulations, businesses have developed innovative technologies and pollution-prevention techniques to protect the environment. However, more can be done.

As our energy needs continue to grow and our production and distribution system is strained to capacity, it is clear that the lack of a comprehensive energy policy has environmental costs. For example, to prevent blackouts, California officials must tolerate a large short-term increase in smog-forming nitrogen oxides emissions. In Los Angeles, older, dirtier power plants have had to run longer than expected. California is also rushing to use mid-sized "peaker power plants" and diesel-fired emergency backup generators to keep the lights on.

The short-term cost in increased pollutant emissions of these emergency measures has been stark. Preliminary figures from California's South Coast Air Quality Management District indicate emissions have doubled in the first three months of the year compared with last year. In addition to nitrogen oxides emissions, diesel-fired backup generators also emit toxic soot. But with many days of blackouts predicted in California this summer, these generators will most likely run for much longer than expected, and could greatly increase emissions.

In the longer term, penalties and technological improvements should offset the impact of these increased emissions. However, California's experience demonstrates the environmental costs of not building an adequate supply of clean energy.

Government's Role

The federal government has a unique role in facilitating energy development while simultaneously protecting the environment and conserving our country's natural resource legacy. Energy development initiatives will be successful only if they adequately address their impacts on natural resource values.

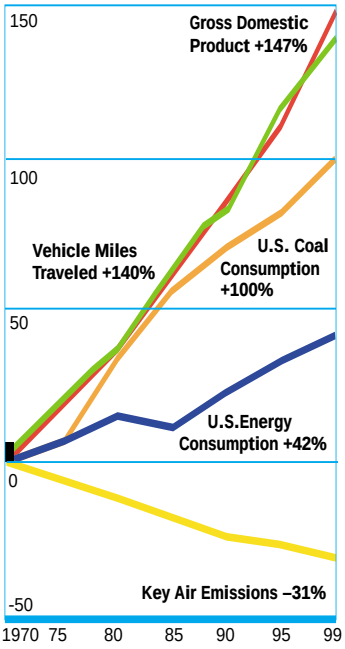
Federal, state, tribal, and local governments have the responsibility of protecting unique natural resources and environmental values. In fact, some environmental protections we enjoy today are often taken for granted. For example, lead levels in ambient air today are 98 percent lower than they were in 1970, largely because government regulations required that lead be removed from gasoline. The reduced number of children with IQs below 70 is attributed to reducing lead in our environment.

As U.S. energy needs grow, additional innovations will be necessary to continue improving environmental conditions and to meet new environmental challenges. As we improve the energy production and distribution system, all levels of government must ensure that regulatory systems protecting public health and the environment are rigorous and efficient, and encourage innovation and improvement.

Roughly 30 percent of our nation's electricity supply is now generated by nuclear, hydropower, and renewable sources, all of which have few air emissions.

Figure 3-1
Cleaner Air: Energy Consumption Has Risen While Emissions Have Declined

(Percent Change Since 1970)



Despite a marked increase in U.S. energy consumption, a combination of environmental regulations and technologies has decreased aggregate emissions of key air emissions: SO_2, NOx, mercury, CO, and volatile organic compounds.

Sources: U.S. Department of Energy, Energy Information Administration, and U.S. Environmental Protection Agency.

Air Quality

Regulatory Programs

Advances in technology and environmental regulations have decreased aggregate emissions of key air pollutants over the last three decades, despite a marked increase in energy consumption (Figure 3-1). Roughly 30 percent of our nation's electricity supply is now generated by nuclear, hydropower, and renewable sources, all of which have few air emissions.

Nonetheless, fossil fuel-fired power plants, other industrial sources, and vehicles remain significant sources of air pollution (Figure 3-2). These emissions can be associated with significant health problems, including respiratory and cardiopulmonary disease, cancer, and birth defects. In addition, they can be harmful to forests, water bodies, and fish, and can decrease visibility in scenic areas.

Environmental Protection Agency's (EPA) Acid Rain Program, enacted as part of the 1990 Clean Air Act Amendments, is the only program directed primarily at reducing air emissions from electric utilities.

Using flexible market-based incentives instead of technology-forcing standards, the program has reduced sulfur dioxide (SO_2) emissions from utilities faster than required by law for a fraction of the initial cost estimates. By 2010, EPA expects the program will reduce annual SO_2 emissions by 10 million tons from 1980 levels, thus avoiding significant health problems and the costs associated with those levels.

Federal and state regulatory programs also limit air pollution directly by restricting emissions from cars and trucks, and indirectly by setting criteria for the fuel for these vehicles. An individual car meeting 2004 federal requirements will emit 95 percent less carbon monoxide (CO), 94 percent fewer nitrogen oxides (NOx), and 98 percent fewer hydrocarbons than an average car did before laws limiting such vehicle pollution. Although individual cars and trucks are far cleaner today than they were in 1970, total emissions from the fleet of highway vehicles have remained relatively constant, because Americans drive twice as many miles today (2.5 trillion miles a year) as they did in 1970 (1.1 trillion miles a year).

Despite these and other achievements, further air quality improvements can be sought, as well as ways to address new problems identified by recent scientific findings. EPA has recently adopted new, more stringent standards to further reduce ozone and particulate matter. To meet public health and environmental challenges, power plants, industrial sources, and vehicles will need to produce fewer potentially harmful emissions.

Recommendation:

★ The NEPD Group recommends that the President direct the Administrator of the Environmental Protection Agency (EPA) to propose multi-pollutant legislation. The NEPD Group recommends that the President direct the EPA Administrator to work with Congress to propose legislation that would establish a flexible, market-based program to significantly reduce and cap emissions of sulfur dioxide, nitrogen oxides, and mercury from electric power generators. Such a program (with appropriate measures to address local concerns) would provide significant public health benefits even as we increase electricity supplies.

- Establish mandatory reduction targets for emissions of three main pollutants: sulfur dioxide, nitrogen oxides, and mercury.
- Phase in reductions over a reasonable period of time, similar to the successful acid rain reduction program established by the 1990 amendments to the Clean Air Act.
- Provide regulatory certainty to allow utilities to make modifications to their plants without fear of new litigation.
- Provide market-based incentives, such as emissions-trading credits to help achieve the required reductions.

Cleaner, More Efficient Technologies

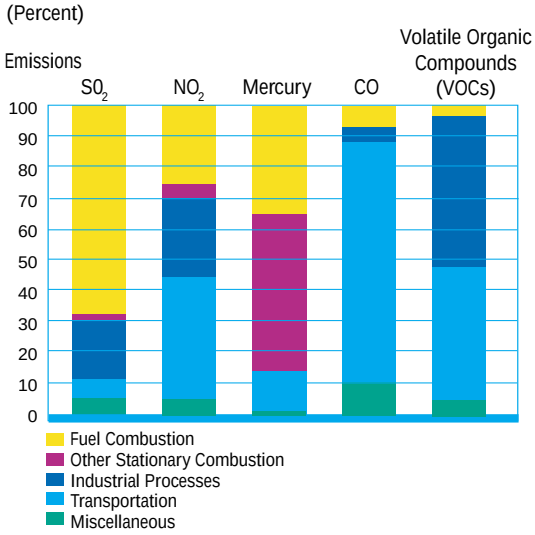
Emission control technologies and emission prevention not only decrease pollution but can also contribute to economic prosperity. Innovative emission control and prevention technology and increasingly efficient energy systems have developed at a brisk pace, increasing our ability to provide cleaner, cheaper energy. Besides reducing pollution, environmental technologies account for about $21.3 billion in U.S. exports, and support approximately 136,000 U.S. jobs.

The need to reduce emissions from cars and trucks has contributed to technological innovations that have transformed the domestic and global automotive industries. U.S. vehicle emission standards were the primary driving force for the original development of innovative technologies, many of which have become standard design features of today's high-tech vehicles: sophisticated three-way catalysts, on-board computers, oxygen sensors, and fuel-injection systems for cars and advanced fuel systems for trucks. Technologies such as these have allowed today's vehicles to be much cleaner, more efficient, higher performing, more reliable, and more durable than their counterparts of the 1960s and 1970s. Manufacturers are now working on developing state-of-the-art pollution control technology to further reduce emissions from motor vehicles. For optimal performance, this technology requires low-sulfur fuel that, consistent with applicable law, will be required in 2004 for gasoline and 2006 for diesel fuel. Some vehicles use alternative fuels (*e.g.*, natural gas, propane, ethanol, and electricity); others operate with a hybrid gasoline and electrical motor; and others are using fuel cells.

Cleaner Electricity

The source of energy used for power generation significantly affects the amount of air emissions. Clean energy can be generated from nuclear plants, hydropower facilities, wind farms, and solar energy systems with negligible (if any) air emissions. These sources today make up about 30 percent of our electricity supply. Solar and wind energy systems will continue to improve with advances in short-term weather and climate forecasting. Improved forecasting can also maximize hydropower efficiency.

Figure 3-2
Sources of Pollutants from Energy Generation and Use
(Percent)



Technology significantly reduces pollution from coal-fired power plants, which generate more electricity in the United States than any other source. For example, scrubbers can remove 95 percent of the SO_2 emissions from a coal-fired power plant. With the innovative, market-based SO_2 reduction requirements of the Clean Air Act Amendments of 1990, the estimated cost of using a scrubber on a coal-fired power plant to remove one ton of SO_2 has dropped approximately 40 percent in four years, from $474/ton in a 1993 estimate to $282/ton in a 1997 estimate, and continues to decline. Other existing control technologies for coal-fired plants can reduce NOx emissions by more than 90 percent.

A recently permitted state-of-the-art coal-fired unit, for example, at a Kansas City Power & Light facility, has 88 percent lower NOx, 99 percent lower particulate matter, and 92 percent lower SO_2 emissions than would an uncontrolled facility.

Recent research by the Department of Energy (DOE), EPA, and private companies suggests that existing technologies can also significantly reduce mercury emissions.

Technologies for Reducing SO_2 Emissions

Many power plants use flue-gas desulfurization, or scrubbers, to reduce SO_2 emissions from burning coal. The most common wet scrubber, the limestone forced-oxidation (LSFO) process, removes SO_2 from the flue gas by sorption and through chemical reactions with the limestone. LSFO technologies can remove up to 98 percent of SO_2 and significant amounts of mercury. The most common dry scrubber, the lime spray-drying process, is used for plants that burn lower-sulfur coals. A lime slurry mixes with the hot flue gas in a spray dryer and reacts with SO_2. By recapturing sorbent at the bottom of the spray dryer removed in a particulate control device, dry scrubbers can remove up to 96 percent of SO_2.

Clean Coal Technologies

New clean coal technologies are showing that air pollution can be reduced, and energy efficiency increased, by using America's abundant supply of coal.

Most conventional air emission control technologies installed on coal-fired electric-generating boilers have been designed to remove a specific pollutant from the stack flue gas. Because these technologies may not be the most cost effective means of reducing multiple pollutants, several companies are developing a single-control technology to reduce multiple air pollutants to levels equivalent to those achieved by conventional controls.

For example, a First Energy plant in New Hampshire recently pilot-tested state-of-the-art technology that has cut NOx emissions by 76 percent, SO_2 by 44 percent, total particulate matter by 99.94 percent, and mercury by 81 percent. The process uses electrically charged particles instead of catalysts to oxidize the air pollutants into products that are easily removed and can be converted to gypsum, fertilizer, and concentrated acids. American Electric Power is installing a wet scrubber system that it expects will remove up to 75 percent NOx and 90 percent mercury. It injects a phosphorus mixture into the hot flue gas, causing the release of ozone. The ozone then oxidizes the mercury into ionic mercury and the NOx into N_2, both of which are water-soluble and easily removed.

Using flexible market-based incentives, EPA's Acid Rain Program has reduced sulfur dioxide (SO_2) emissions from utilities faster than required by law for a fraction of the initial cost estimates.

Technologies for Improved Efficiencies

Two-thirds of the energy used in a conventional coal-fired power plant is wasted in the production of electricity. These losses can be minimized through a number of innovations, including installing high efficiency steam turbines, reducing steam leaks, and using software to optimize combustion efficiency. New coal-burning power plants can achieve efficiencies of over 40 percent using existing technology, and companies are developing even more efficient technologies. Wasted energy can also be recycled for use in industrial processes or for heating buildings.

A family of technologies known as combined heat and power (CHP) can achieve efficiencies of 80 percent or more. In addition to environmental benefits, CHP projects offer efficiency and cost savings in a variety of settings, including industrial boilers, energy systems, and small, building-scale applications. At industrial facilities alone, there is potential for an additional 124,000 megawatts (MW) of efficient power from gas-fired CHP, which could result in annual emission reductions of 614,000 tons of NOx emissions and 44 million metric tons of carbon equivalent. CHP is also one of a group of clean, highly reliable distributed energy technologies that reduce the amount of electricity lost in transmission while eliminating the need to construct expensive power lines to transmit power from large central power plants.

The U.S. Department of Energy, through its Clean Coal Technology Program, is working with utilities and scientists to develop even cleaner, more efficient electricity-generating systems using coal. One of the most promising new approaches to using coal for clean production of electricity is integrated gasification combined-cycle (IGCC) technology. IGCC power plants convert coal to a gaseous fuel, from which most

Clean Coal Technologies Up Close

The Wabash River Coal Gasification Project in Terre Haute, Indiana, is one of the cleanest, most efficient coal-burning facilities in the country. Partly funded by the Department of Energy (DOE) as part of its Clean Coal Technology Program, the 262-MW coal gasification facility is owned and operated by PSI Energy and Global Energy, Inc. Instead of being directly burned, the coal is gasified and then combusted in a combined-cycle gas turbine. This allows the coal to burn more efficiently—which means it gets more energy than a traditional plant out of the same amount of coal. The Wabash River Facility is over 20 percent more efficient than a typical coal-fired power plant.

The gasification process also allows many of the impurities in the coal to be removed before it is combusted to generate electricity. At the Wabash River project, over 99 percent of the sulfur is removed from the coal and marketed to industrial users of sulfur. Slag is also removed and is marketed to the construction industry. The plant's design allows it to burn other fuels, such as petroleum coke.

DOE is currently working with Global Energy and other industry partners to see if the plant could also be used to co-produce chemical feedstocks and transportation fuels. Additionally, DOE and its partners are studying lessons learned from the project to design a less expensive, more efficient coal gasification facility that would be ready for commercial deployment by 2005.

of the impurities are removed prior to combustion, and then use the gaseous fuel in a combustion turbine to produce electricity. Waste heat from the turbine is used to generate steam and drive a steam turbine, to produce more electricity.

Coal gasification plants offer the flexibility to burn other fuels, such as petroleum coke, and to make other products in addition to electricity, such as chemical feedstocks and transportation fuels. Hydrogen, which is produced directly in the coal gasifier, can be used in fuel cell-equipped vehicles. Methane, hydrogen, and other gasified coal products can be recombined into more traditional fuels, such as methanol, gasoline, or diesel fuel. Because these fuels would contain essentially no sulfur, they would easily meet EPA's sulfur standards for transportation fuels, and they would be usable in fuel cell-equipped vehicles designed for these fuels.

Two plants demonstrating coal gasification technology have already been built in the United States and have achieved over 98 percent SO_2 reduction, 90 percent NOx reduction, particulate emissions below detectable levels, and approximately 38 percent efficiency. EPA believes that lessons learned will enable the next plant of this design to achieve 42 percent efficiency, and the research goal is to achieve 60 percent efficiency for plants introduced after 2015.

A modern gas-fired power plant has virtually no SO_2 or mercury emissions and emits 97 percent less NOx and 50 percent less carbon dioxide (CO_2) than a traditional coal-fired plant. Natural gas as a source of electricity generation is on the rise, in part because it can help generators meet increasingly stringent clean air requirements.

Conservation and Environmental Protection

Conserving energy minimizes adverse environmental effects. Government partnerships with businesses and consumers are improving the energy efficiency of homes, office buildings, transportation sources, and industrial sites throughout the country. EPA's voluntary conservation and energy efficiency programs include Energy Star products labeling; Energy Star Residential programs for both new homes and home improvement; Energy Star Buildings, principally for commercial buildings; and new Energy Star for Industry, which focuses on manufacturers. In 2000, business participation in EPA's voluntary energy efficiency

programs reduced NOx emissions by more than 160,000 tons.

Through EPA's and the Department of Transportation's Commuter Choice Leadership Initiative, private-public employers are offering employees a variety of commuting options, which encourage commuting patterns that save fuel and energy while reducing emissions. For example, a 10 percent reduction in the rate of growth in vehicle miles traveled can result in annual savings of 38 million barrels of gasoline (82 million barrels of oil) by 2005, and can remove 45,000 metric tons of NOx, 37,000 metric tons of hydrocarbons, and 4.8 million metric tons of carbon-equivalent emissions.

Energy efficiency and conservation in the home are also important factors. Examples include EPA's home improvement program, which involves efficient appliances, duct work to prevent air conditioners from leaking, efficient windows, programmable thermostats, and efficient residential lighting.

Federal and state regulators are working with businesses and communities to mitigate adverse environmental impacts by requiring developers and operators to choose more environmentally friendly sites, infrastructure routes, and operational criteria; fostering the use of technologies that both protect the environment and still meet energy production goals; and requiring reclamation and mitigation of any environmental damage.

Water Quality

Oil, gas, and coal extraction processes can degrade water quality through their discharges. Energy generation and use can also degrade water quality by directly discharging pollutants into water bodies; changing the temperature, timing, and flow characteristics of water bodies; and emitting pollutants into the air that are ultimately deposited in water. Leaking storage tanks and pipelines release petroleum and fuel additives that can contaminate surface water and ground water, including drinking-water supplies.

Federal and state regulators are working with businesses and communities to mitigate these adverse impacts by requiring developers and operators to choose more environmentally friendly sites, infrastructure routes, and operational criteria; fostering the use of technologies that both protect the environment and meet energy production goals; and requiring reclamation and mitigation of any environmental damage. For example, as a result of an analysis under the National Environmental Policy Act of the impacts of a new power plant in California, the company building the plant agreed to change the design to use a dry cooling method. This change reduced ground-water consumption by 95 percent and eliminated both cooling tower "blowdown" water and particulate emissions, while still achieving the desired energy production. Adverse impacts to aquatic life from cooling-water intakes, thermal discharges, and hydropower intakes can be minimized with proper design and environmental controls. A cooperative government, industry, and community-based approach during project siting and design will help ensure full consideration of the effects upon fish and aquatic resources.

Programs to reduce air pollution also help clean up water bodies. For example, reducing electric utilities' air emissions of NOx and SO_2 and vehicles' NOx emissions reduces eutrophication and acid deposition in estuaries, both of which can harm fish populations and threaten commercial and recreational yields. For example, roughly 25 percent of nitrogen (which contributes to

eutrophication) entering Chesapeake Bay is from air emissions. And by significantly reducing SO_2 air emissions, the Acid Rain Program has helped reduce the acidification of water bodies.

Airborne mercury emitted by coal-fired power plants has been deposited into thousands of water bodies, and humans can be exposed to toxic methyl mercury when they eat fish from these waters. The Bush Administration will propose legislation adding mercury to the list of pollutant emissions from power plants that will be subject to mandatory limits.

Fish, Wildlife, and Their Habitat

Ecosystems provide food, shelter, and critical breeding and spawning grounds for fish and wildlife, and support commercial and recreational fishing, tourism, and other activities that contribute billions of dollars to the U.S. economy every year. Oil and gas exploration and production, hydropower dams, power plants, pipelines, and other energy-related projects can potentially affect fish, wildlife, and habitat. However, technological advances, a strong commitment to environmental protection, and the use of appropriate regulatory tools can enable proper energy development to go forward in an environmentally sensitive manner. It is important to recognize and to continue the progress in this area.

When energy development is proposed, the federal government has the dual responsibilities of facilitating such energy development *and* conserving our natural resource legacy.

Special efforts are often necessary to ensure that proposed energy projects do not diminish the vitality of these unique resources. Working together, the public, businesses, and federal, state, tribal, and local governments can ensure that environmental impacts are carefully evaluated when considering energy exploration and production activities. For example, such precautions have been important for the exploration and production that is already allowed today in 42 National Wildlife Refuges.

Recommendation:Ä

★ The NEPD Group recommends that the President direct the Secretary of the Interior to work with Congress to create the "Royalties Conservation Fund."

- This fund will earmark potentially billions of dollars in royalties from new oil and gas prodution in ANWR to fund land conservation efforts.
- This fund will also be used to eliminate the maintenance and improvements backlog on federal lands.

Technological advances and a strong commitment to environmental protection are enabling the healthy coexistence of our nation's diverse ecosystems with the development of energy resources.

Hydropower Generation

Hydropower, although a clean energy source, does present environmental challenges. Unless properly designed and operated, hydropower dams can injure or kill fish, such as salmon, by blocking their passage to upstream spawning pools. Innovations in fish ladders, screens, and hatcheries are helping to mitigate these adverse impacts. Ongoing dam relicensing efforts are resulting in community involvement and the industry's application of the latest technologies to ensure the maintenance of downstream flows and the upstream passage of fish. These efforts also have been successful in identifying and removing older, nonfunctioning dams and other impediments to fish movements.

Ecosystems provide food, shelter, and critical breeding and spawning grounds for fish and wildlife, and support commercial and recreational fishing, tourism, enhance our quality of life,and other activities that contribute billions of dollars to the U.S. economy every year.

Some natural resource areas are to be protected from any exploration. In other areas, energy development can proceed using the most advanced designs and technologies to ensure that proposed energy projects do not diminish the vitality and diversity of these unique resources.

An example of such successful collaboration involves the Wanapum Dam on the Columbia River. In coordination with the National Marine Fisheries Service, the Grant County Public Utility District No. 2 installed spillway deflectors that effectively reduced concentrations of total dissolved gas that can harm fish and other aquatic life. Furthermore, through the unique collaboration on this project, the cost for the spillway deflectors was a fraction of that for deflectors installed at other hydropower projects.

Coal, Oil, and Gas Exploration and Production

Certain exploration and production activities can pose environmental impacts to wildlife habitat, unless conducted in a way that protects the environment. In sensitive areas, these effects can often be avoided or minimized by timing exploration and operation activities in light of migration, nesting, and other critical time periods for wildlife. In addition, new technologies designed to lessen these and other impacts can be used, such as double-walled pipes to reduce the risk of oil spills.

Surface impacts from coal mining and oil exploration can temporarily damage habitats during the operation phases until reclamation is complete. To mitigate impacts during mining, for example, stormwater runoff and discharge into undisturbed environments are controlled. After mining is complete, reclamation efforts required by the Surface Mining Control and Reclamation Act restore viable habitats through careful reconstruction of physical and botanical resources. For instance, in the Powder River Basin, as part of reclamation, coal companies strategically place large boulders and other rock material to create wildlife cover and denning habitat. Restoration of wildlife habitat on these reclaimed areas has been quite successful.

In Alaska's Arctic—home to such animals as polar bears, musk oxen, caribou, wolves, and arctic fox—the bitterly cold winters have proven to be beneficial for environmentally responsible energy development. For example, when the North Slope is frozen and snow-covered, seismic trains can travel across it to gather geophysical information. Furthermore, companies have adopted innovative techniques to reduce the possible impacts of exploration and development. In Alaska's National Petroleum Reserve, the "footprint" from most exploratory wells on federal lands is short-lived and has minimal impact due to the use of ice roads and ice pads that melt with the spring thaw. Advances in extended-reach drilling technologies have also served to minimize environmental effects during energy production activities.

A lengthy 1999 Department of Energy study examined the environmental benefits of new exploration and production technologies and concluded that "improvements over the past 40 years have dramatically reduced industry's footprint on the fragile tundra, have minimized waste produced, and have protected the land for resident and migrating wildlife." The same study concluded that "it is important to tell this remarkable story of environmental progress in E&P [exploration and production] technology. Greater awareness of the industry's achievements in environmental protection will provide the context for effective policy, and for informed decision-making by both the private and public sectors."

Waste Management

Vigilant management and careful disposal of waste from energy extraction and production can prevent the contamination of our air, land, and water. Federal and state authorities are working to ensure that energy projects maintain sound programs to safely handle wastes from mining, drilling, generation and transmission.

Nuclear power plants present waste management challenges unique among energy-generating technologies. They generate spent fuel, as well as other radioactive waste, which must be isolated from ecosystems and human contact for long periods of time. Currently, spent fuel is stored at reactor sites in a number of states, although capacity is limited. Newer technologies have been developed to reduce the volume and

increase the manageability of spent fuel, but such spent fuel will still require safe handling and long-term isolation.

While the federal government has the responsibility to address such high-level wastes, states have the responsibility to address low-level wastes from nuclear plants, such as clothing and equipment. Disposal options for this type of radioactive waste are limited, because siting these facilities has been controversial. In fact, there are only three disposal facilities active in the United States.

Accidental Releases

Since the passage of the Oil Pollution Act in 1990, which, among other things, required double-hulled vessels and improved industry readiness, oil spilled in coastal zone waters has decreased from almost 8 million gallons in 1990 to just over 1 million gallons in 1999. Most energy production facilities implement comprehensive risk-management plans, which reduce the potential for accidents and help local officials prepare for accidents that may arise.

In contrast, inland oil spills do not appear to be decreasing at the same rate as coastal spills. The federal government receives many more inland oil spill notifications (9,000 notifications a year in the early 1990s versus 10,000 to 12,000 a year in the late 1990s), and many very large inland oil spills occur each year (over 100,000 gallons). The continued problem with inland oil spills may be due to aging pipelines, storage tanks, and other infrastructure components.

Since the advent of commercial nuclear power generation, there have been no radiation-related injuries or deaths associated with the operation of a commercial nuclear power plant in the United States. The most significant incident from a nuclear plant in the United States, at Three Mile Island in 1979, prompted improved safety regulation of nuclear plants. New nuclear reactor designs promise even higher safety levels than the reactors currently operating in this country.

Radiation exposure from nuclear facilities is extremely rare. In fact, roughly 82 percent of human exposure to radiation comes from natural sources: radon gas; the human body, which contains radioactive elements; outer space; and rocks and soil. Radon accounts for about 55 percent of our exposure to natural sources of radiation; radioactive elements in our own bodies account for 11 percent; rocks and soil account for 11 percent; and outer space, including the sun, accounts for 8 percent. The remaining 18 percent of average human radiation exposure comes from man-made sources, primarily medical and dental X-rays and consumer products.

The safety of U.S. nuclear energy plants has improved sharply in recent years. A safe nuclear energy plant is one that runs well, experiences few unplanned outages, and has a well-disciplined work force that follows procedures and avoids accidents. The safety of a U.S. nuclear energy plant is typically gauged by monitoring indicators of its performance in these areas: unplanned automatic reactor shutdowns, the annual percentage of possible power generated, and the industrial safety accident rate for plant workers.

In 2000, for the fourth year in a row, the number of unscheduled reactor shutdowns was zero. The industry generated 91.1 percent of its potential maximum output, breaking its 1999 record of 88.7 percent, far better than the typical 80 percent number of ten years ago.

Today, U.S. nuclear plants are more efficient and safer than ever. In the increasingly deregulated marketplace, competition has forced improvements in plant operations that have benefited safety performance as much as economic performance.

Climate Change

Energy-related activities are the primary sources of U.S. man-made greenhouse gas emissions, representing about 85 percent of the U.S. man-made total carbon-equivalent emissions in 1998.

Scientists continue to learn more about global climate change, its causes, potential impacts, and possible solutions.

The United States recognizes the seriousness of this global issue as scientists attempt to learn more about climate change. The United States is making progress in reducing emissions of greenhouse gases. Recent data show that the rate of growth in U.S. greenhouse gas emissions has begun to decline, even as the U.S. economy has been growing at an unprecedented rate. For example, historically U.S. CO_2 emissions have grown at roughly half the rate of GDP. In recent years, however, very robust growth in the nation's GDP has been accompanied by a slowdown in the growth of greenhouse gas emissions. In both 1998 and 1999, U.S. GDP grew by more than 4 percent a year, while CO_2 emissions grew by less than 1.5 percent a year. In addition, the carbon intensity of the U.S. economy—the amount of CO_2 emitted per unit of GDP—declined by 15 percent during the 1990s.

The United States has reduced greenhouse gas emissions by promoting energy efficiency and the broader use of renewable energy through a wide range of public-private partnership programs. These programs save energy, cut energy bills, enhance economic growth, and reduce emissions of conventional air pollutants as well as greenhouse gases.

The U.S. government, businesses, and nongovernmental organizations are sequestering carbon, at home and abroad. For example, working with the U.S. Fish and Wildlife Service Research, Illinova Generating Company has voluntarily committed to reforesting 100,000 acres of bottomland hardwood forests on National Wildlife Refuges in the Lower Mississippi River Valley. It is projected that this project will sequester approximately 13.5 million tons of carbon, improve fish and wildlife populations by restoring the natural forest wetland habitats, and enhance the Gulf of Mexico's near-shore aquatic environment by restoring natural forested wetland filters to the Mississippi River floodplain.

Industry and the federal government are researching various new technologies that will reduce greenhouse gas emissions or sequester those emissions, in geologic formations, oceans, and elsewhere.

Forests can absorb carbon dioxide, which accounts for the largest share of greenhouse gas emissions. Working with the U.S. Fish and Wildlife Service Research, Illinova Generating Company has voluntarily committed to reforesting 100,000 acres of bottomland hardwood forests on National Wildlife Refuges in the Lower Mississippi River Valley.

Regulatory Structure

The United States has adopted many regulatory protections to limit the environmental damage and public health consequences of the exploration, extraction, production, and use of energy. Most environmental controls are implemented through state or federal permitting or review systems, which often require time for agency review and public participation. Facilities may need several different permits or reviews from different agencies, and they may also need to meet local licensing or zoning laws. Businesses have an interest in moving expeditiously to respond to consumers' needs. The public also has an interest in participating in the system to ensure that appropriate health and environmental precautions will be taken.

Regulatory requirements are not static. New scientific information and new control technologies result in new regulations and modifications to existing regulations over time. However, some level of certainty in the regulatory environment is important for all parties. Businesses can plan more effectively in such an environment, and regulators can focus on ensuring that the desired outcomes are in fact achieved consistently. For example, studies have shown that if electricity generators knew today what their emission requirements for several emissions would be for a defined time period, they would most likely control emissions more cost effectively and sooner than if their emission requirements were decided upon one gas at a time.

Traditional permit and regulatory programs may not always be the most effective and efficient way to protect the environment. Increasingly, regulatory programs are considering approaches that include market-based incentives. These types of incentives offer advantages over traditional forms of regulation because they set high performance standards and then allow market forces to determine the most effective way to meet them. While not appropriate for every situation, market-based incentives can control pollution at a lower cost to society than traditional regulation, stimulate technological improvements, and be structured to achieve larger reductions in pollution than would result from traditional regulations.

A good example of a U.S. market-based program is the Acid Rain Program, which has reduced SO_2 air emissions from utilities at a fraction of the initial cost estimates. Other emerging market-based environmental protection mechanisms include effluent trading, wetland mitigation banks, tradable development rights, easement purchases, off-site mitigation, and leasing or purchasing of water rights. These programs can reduce mitigation or pollution control costs, increase business flexibility, and provide transparency and environmental protection for the public.

The environmental review process can also be made more open, understandable, predictable, and coordinated among federal agencies and with state and local agencies. It can be improved by providing greater information to clarify expectations for energy developers, facilitating concurrent reviews by federal agencies by standardizing certain information needs, sharing information received by project applicants, and seeking opportunities to integrate required environmental processes and reviews.

Recommendation:

★ The NEPD Group recommends that the President issue an Executive Order to rationalize permitting for energy production in an environmentally sound manner by directing federal agencies to expedite permits and other federal actions necessary for energy-related project approvals on a national basis. This order would establish an interagency task force chaired by the Council on Environmental Quality to ensure that federal agencies responsible for permitting energy-related facilities are coordinating their efforts. The task force will ensure that federal agencies set up appropriate mechanisms to coordinate federal, state, tribal, and local permitting activity in particular regions where increased activity is expected.

Summary of Recommendations

Protecting America's Environment: Sustaining the Nation's Health and Environment

★ The NEPD Group recommends that the President direct the Administrator of the Environmental Protection Agency (EPA) to propose multi-pollutant legislation. The NEPD Group recommends that the President direct the EPA Administrator to work with Congress to propose legislation that would establish a flexible, market-based program to significantly reduce and cap emissions of sulfur dioxide, nitrogen oxides, and mercury from electric power generators. Such a program (with appropriate measures to address local concerns) would provide significant public health benefits even as we increase electricity supplies.

- Establish mandatory reduction targets for emissions of three main pollutants: sulfur dioxide, nitrogen oxides, and mercury.
- Phase in reductions over a reasonable period of time, similar to the successful acid rain reduction program established by the 1990 amendments to the Clean Air Act.
- Provide regulatory certainty to allow utilities to make modifications to their plants without fear of new litigation.
- Provide market-based incentives, such as emissions trading credits to help achieve the required reductions.

★ The NEPD Group recommends the President direct the Secretary of the Interior to work with Congress to create the "Royalties Conservation Fund."

- This fund will earmark potentially billions of dollars in royalties from new oil and gas production in ANWR to fund land conservation efforts.
- This fund will also be used to eliminate the maintenance and improvements backlog on federal lands.

★ The NEPD Group recommends the President issue an Executive Order to rationalize permitting for energy production in an environmentally sound manner by directing federal agencies to expedite permits and other federal actions necessary for energy-related project approvals on a national basis. This order would establish an interagency task force chaired by the Council on Environmental Quality to ensure that federal agencies responsible for permitting energy-related facilities are coordinating their efforts. The task force will ensure that federal agencies set up appropriate mechanisms to coordinate federal, state, tribal, and local permitting activity in particular regions where increased activity is expected.

Using Energy Wisely

Increasing Energy Conservation and Efficiency

The Department of Energy has installed two low-sulfur light bulbs as a test at its Forrestal Building headquarters in Washington, D.C. The two golf ball-sized bulbs, like those on the opposite page, are at each end of a 240-foot, 10-inch-wide reflective plastic "light pipe."
U.S. DEPARTMENTOF ENERGY

U.S. DEPARTMENTOF ENERGY

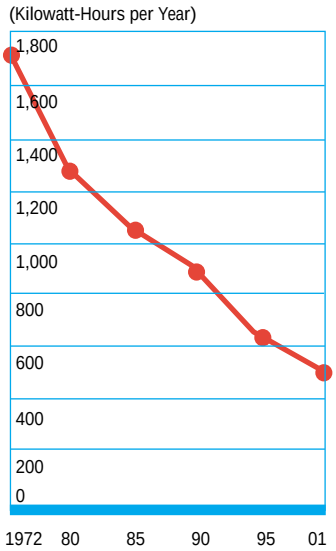
Energy efficiency is the ability to use less energy to produce the same amount of lighting, heating, transportation, and other energy services. For a family or business, conserving energy means lower energy bills. For the country as a whole, greater energy efficiency helps us make the most of U.S. energy resources, reduces energy shortages, lowers our reliance on energy imports, mitigates the impact of high energy prices, and reduces pollution. Improvements in efficiency can be particularly effective in reducing energy demand when energy is most expensive.

Conservation and energy efficiency are important elements of a sound energy policy. Improved energy efficiency is the result of many decisions, including those of individual consumers; manufacturers of cars and appliances; home builders; and state, federal, and local government officials. The federal government can promote energy efficiency and conservation by including the dissemination of timely and accurate information regarding the energy use of consumers' purchases, setting standards for more energy efficient products, and encouraging industry to develop more efficient products. The federal government can also promote energy efficiency and conservation through programs like the Energy Star program, and search for more innovative technologies that improve efficiency and conservation through research and development.

Since 1973, the U.S. economy has grown nearly five times faster than energy use (126 percent versus 26 percent). Had Americans continued to use energy as intensively as in 1970, the U.S. would have consumed about 177 quadrillion Btus of energy last year, compared to about 99 quadrillion Btus actually consumed.

British Thermal Unit (Btu)
A British thermal unit is the amount of heat required to raise the temperature of one pound of water one degree Fahrenheit at sea level. Put another way, it is approximately the same amount of energy contained in a wooden match head.

Figure 4-1
New Refrigerator-Freezers are Using Less Energy
Consumption per Unit for New Shipments



Over the last thirty years, the energy efficiency of refrigerator-freezer appliances has increased by approximately 70 percent.

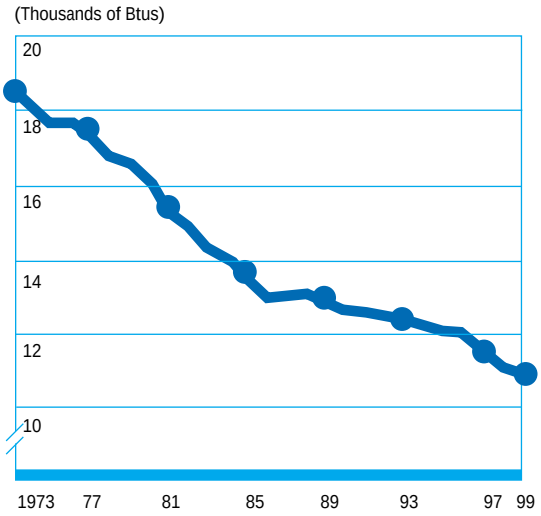
Sources: AHAM 2000 Major Home Industry Fact Book and BTS appliance standard.

Improving Efficiency through Innovative Technologies

One measure of energy efficiency is energy intensity—the amount of energy it takes to produce a dollar of gross domestic product (GDP). While about half of the long-term decline in energy intensity can be attributed to changes in the economy, especially the shift from manufacturing to services, the other half reflects improved energy efficiency. Gains in energy efficiency over the last three decades were built on a combination of technological improvements, better management practices, and learning to put these technologies and practices to their best use in automobiles, homes, offices, factories, and farms. In many areas the results have been quite impressive. New home refrigerators use about one-third of the electricity they used in 1972 (Figure 4-1). Compact fluorescent lights use about 25 percent of the electricity of the incandescent bulbs they replace. Automobiles use roughly 60 percent of the gasoline they did in 1972 per mile driven. These individual technological improvements have resulted in significant reductions in energy use (Figure 4-2).

Several new and innovative technologies offer expanded opportunities to improve our energy efficiency. For example, advanced sensors and controls enable more efficient operation of buildings and factories, and allow equipment and lights to be turned off or dimmed when not in use. Hybrid vehicles use power electronics and battery storage to get more out of every gallon of gasoline consumed, and provide the ability to double vehicle mileage. Cogeneration of electricity and heat and combined heat and power allow for the productive use of much of the waste heat from electricity production, which accounts for about two-thirds of the energy used to produce electricity.

Figure 4-2
The U.S. Economy Has Become More Energy Efficient



The amount of energy used by the United States in relation to its economic output has steadily declined since the early 1970s.

Source: U.S. Department of Energy, Energy Information Administration.

District Energy St. Paul—A Combined Heat and Power Plant

District Energy St. Paul, Inc., is a combined heat and power plant that can operate on natural gas, oil, or clean-burning coal that is mixed with wood chips. These wood wastes come from downed trees, trimmings, and branches. District Energy has been able to keep its rates stable because it is able to rely on a diverse fuel supply. District Energy serves about 75 percent of all building space in the city. Nearly 150 large buildings and 3,200 residential units use the system. It is the largest system of its kind in the nation.

Recommendation:

★ The NEPD Group recommends that the President direct the Secretary of Energy to conduct a review of current funding and historic performance of energy efficiency research and development programs in light of the recommendations of this report. Based on this review, the Secretary of Energy is then directed to propose appropriate funding of those research and development programs that are performance-based and are modeled as public-private partnerships.

Consumer Choices

The two most important factors in consumers' decisions about purchasing an energy efficient product are price and the life of the product. When energy prices are high, consumers tend to weigh energy efficiency more heavily. Unless consumers are informed about the price of energy, they may not have the incentive to select the most energy efficient product.

Consumers do not receive timely signals about rising electricity costs in order to make adjustments to their energy use and efficiency. When consumers' peak costs are averaged with off-peak costs, the higher cost of peak electricity supplies is masked. As a result, consumers may not recognize the benefits of investing in technologies that best target peak consumption.

Some energy efficiency improvements are easiest and most cost effective to undertake when first building new factories, cars, equipment, appliances, and buildings. Some energy-using equipment, like computers, are used for only a few years before being replaced. Other equipment is used from five to twenty years, such as home appliances, home electronics, and lighting systems. Some capital stock, such as buildings and boilers, can last a half a century or more.

The average car now lasts fourteen years, and newer cars have even more longevity. Vehicle efficiency improvements require significant technological changes. Development of new-car production models requires at least three to four years, which limits the rate at which new technologies can enter the market. Making fundamental changes, such as switching to the use of a fuel cell, would take even longer. Once those new vehicles are in the showroom, it then takes several more years before they constitute any sizable percentage of total vehicles.

In a typical U.S. home, appliances are responsible for about 20 percent of the energy bills. Refrigerators, freezers, clothes washers, dryers, dishwashers, and ranges and ovens are the primary energy-using appliances in most households. Taking steps to save energy while using these appliances, and replacing old inefficient appliances with modern ones can save money.

Some efficiency improvements are easiest and most cost-effective to undertake when first building new factories, cars, equipment, appliances and buildings.

The federal government established a mandatory program in the 1970s requiring that certain types of new appliances bear a label to help consumers compare the energy efficiency of various products. Under this program, all refrigerators, freezers, clothes washers, and dishwashers are sold with yellow Energy Guide labels to indicate their energy efficiency. These labels provide an estimated annual operating cost of the appliance, and also indicate the cost of operating the models with the highest annual operating cost and the lowest annual operating cost. By comparing a model's annual operating cost with the operating cost of the most efficient model, you can compare their efficiencies. This labeling program ensures that consumers have the information they need to make the right decisions when they purchase major home appliances. However, Energy Guide labels are not currently required for some products, such as kitchen ranges, microwave ovens, clothes dryers, on–demand water heaters, portable space heaters, and lights.

The federal government not only ensures consumers have information on the energy efficiency of major home appliances. It also promotes the most energy efficient products through the Energy Star program, a joint program run by the Department of Energy and the Environmental Protection

In April 2001, the Sustainable Buildings Industry Council showcased a net-zero-energy home featuring passive solar design strategies, an integrated photovoltaic system, domestic solar hot water, high-efficiency lights and appliances, and a host of sustainable, market-ready components and systems.
Sustainable Buildings Industry Council

A 48-story skyscraper at the corner of Broadway and 42nd Street in New York City has a photovoltaic skin that uses thin-film PV panels to replace traditional glass cladding material. The PV curtain wall extends from the 35th to the 48th floors on the south and east walls of the tower, making it a highly visible part of the New York City skyline.
U.S. Department of Energy, National Renewable Energy Laboratory

Agency. Energy Star is only awarded to appliances that significantly exceed minimum energy efficiency standards. The Energy Star program does not extend to all products. Energy efficiency would be further promoted if the Energy Star program were expanded to a broader range of products.

Recommendation:

★ The NEPD Group recommends that the President direct the Secretary of Energy to promote greater energy efficiency.

- Expand the Energy Star program beyond office buildings to include schools, retail buildings, health care facilities, and homes.
- Extend the Energy Star labeling program to additional products, appliances, and services.
- Strengthen Department of Energy public education programs relating to energy efficiency.

Energy efficiency can also be improved by the establishment of minimum energy efficiency standards. Congress enacted legislation in 1987 and 1988 to establish minimum energy efficiency standards for many major appliances. These standards apply to manufacturers, not consumers. Appliance manufacturers must produce products that meet the minimum level of energy efficiency. These rules do not affect the marketing of products manufactured before the standards went into effect, and any products made beforehand can be sold. The new standards will stimulate energy savings that benefit the consumer, and reduce fossil fuel consumption, thus reducing air emissions.

These laws established minimum energy efficiency standards for many appliances, including refrigerators, refrigerator-freezers, freezers, room air conditioners, fluorescent lamp ballasts, and incandescent reflector lamps, clothes dryers, clothes washers, dishwashers, kitchen ranges, and ovens, pool heaters, and water heaters. The Energy Policy Act of 1992 added standards for fluorescent and incandescent reflector lamps, plumbing products, electric motors, and commercial water heaters, and heating, ventilation, and air conditioning systems. Under current law, the Department of Energy can raise the minimum energy efficiency standards for these appliances if certain criteria are met, such as cost, technological feasibility, and the impact on competition among appliance manufacturers. In addition, the Department can set energy efficiency standards for appliances not covered by these laws.

Recommendation:

★ The NEPD Group recommends that the President direct the Secretary of Energy to take steps to improve the energy efficiency of appliances.

- Support appliance standards program for covered products, setting higher standards where technologically feasible and economically justified.
- Expand the scope of the appliance standard program, setting standards for additional appliances where technologically feasible and economically justified.

Energy Efficiency

Government Agencies

As the largest energy consumer in the nation, the U.S. government's cost- and energy-saving opportunity is enormous. In 1999, the government consumed nearly 1.1 percent of all U.S. energy and spent nearly $8 billion for its vehicles, operations, and its nearly 500,000 buildings.

The federal government has reduced its energy use in buildings by about 30 percent from 1990 levels, largely by installing energy efficient technologies (Figure 4-3). It has reduced its energy use for vehicles and equipment by 35 percent. Some of these improvements are attributable to the Department of Energy, whose Federal Energy Management Program helps government agencies reduce their energy and water use, manage their utility costs, and promote renewable energy.

Recommendations:

★ The NEPD Group recommends that the President direct heads of executive departments and agencies to take appropriate actions to conserve energy use at their facilities to the maximum extent consistent with the effective discharge of public responsibilities. Agencies located in regions where electricity shortages are possible should conserve especially during periods of peak demand.

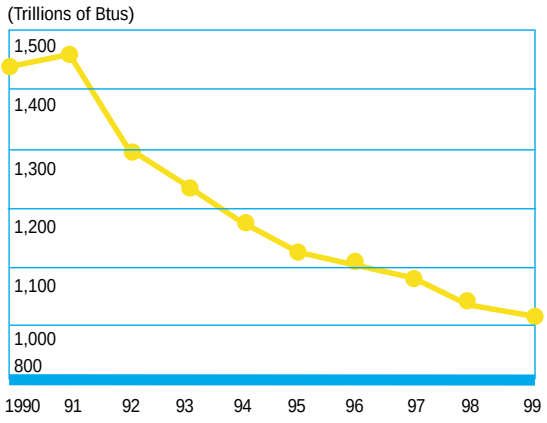
- Agencies should report to the President, through the Secretary of Energy, within 30 days of the conservation actions taken.

State and local governments have unique opportunities for energy savings in schools, transportation, state buildings, and building codes. For example, the Texas School Energy Management Program could save school districts as much as $100 million in energy costs every year by helping school districts evaluate their energy needs and resources. Similarly, Wisconsin's Energy Initiative is working with utilities to make basic changes to public buildings. By installing new lighting fixtures and taking other steps, Wisconsin estimates that it will save $60 million in state spending on energy over ten years.

Residential and Commercial Buildings

There are significant opportunities to improve the energy efficiency of buildings and homes through technologies and better practices. For existing homes, immediate options for improving efficiency include reducing air infiltration with caulking and weather stripping, installing modern thermostats, sealing ductwork, and adding insulation. These steps can reduce the 40 percent share of residential energy bills that

Figure 4-3
The U.S. Government is Reducing Its Energy Consumption



During the 1990s, energy use in federal buildings decreased by about 30 percent.

Source: U.S. Department of Energy, Energy Information Administration.

Pulte Homes

Building America—Pulte Homes

Pulte Homes Southwest Division has used technical assistance from the Department of Energy's Building America program to create what one residential expert calls "the best production house in the world," which won the 2001 National Association of Home Builders' Energy Value Award. In Tucson, Phoenix, and Las Vegas, Pulte Homes has worked with the Department of Energy to redesign the energy features of its basic models.

Using advanced insulation techniques, highly efficient equipment and windows, and right-sized heating and cooling systems, the homes look the same, but perform so well they use half the energy for heating and cooling at virtually no increase in construction costs.

The whole building/systems engineering approach used in the Building America program allows builders to add more insulation and more efficient windows while reducing the size of the heating and cooling equipment. The trade-off means no added cost to the builder, better value for the buyer, reduced electric load for the utility, and improved affordability.

go toward heating and cooling. Additional savings are possible when efficient appliances are purchased or major home renovations are undertaken. Installing a new, more efficient gas furnace can save up to 20 percent annually on natural gas. New buildings offer the greatest energy efficiency opportunities and can be designed to be both more comfortable and more efficient, cutting heating and cooling costs by close to 50 percent.

In commercial buildings, typically the quickest, most cost effective way to increase energy efficiency is to replace the lighting systems. Sensors help to avoid 24-hour operation of lights and equipment that are only used for a portion of the day. As with homes, advances in windows, heating and air conditioning systems, overall building designs, and equipment and appliances present significant energy saving opportunities.

Many families and businesses can face obstacles to realizing energy cost reductions.

Insufficient Information

Monthly energy bills generally report only total electricity or natural gas used, leaving families and businesses unsure about which energy services are most responsible for their energy use, and which investments could best help them reduce their costs. In addition, consumers may be unsure about the credibility of the energy-saving claims of individual manufacturers, salesmen, and designers. This incomplete information causes imperfections in the marketplace that hinder purchases of efficient technologies that would actually save families and businesses money.

Lack of Availability

Frequently, the most energy efficient products cost more and are not widely available, especially in smaller communities. Builders who would like to construct more efficient homes and businesses face the same problem at the wholesale level. For example, to keep costs down, builders are less likely to install top-of-the-line,

highly efficient products. The less expensive and generally less efficient products are heavily stocked and deeply discounted due to volume ordering. The decisions made about the energy efficiency of buildings and homes are not usually made by the consumer who will ultimately pay the energy bills. The incentive is for the builders to choose the material that poses the least cost to the builder, which is not necessarily the most energy efficient choice.

Lack of Automation

People often walk out of their offices and homes with the lights on and the air conditioner running. Turning off unused appliances, electronics, and lights is not always easy. Lack of automation (e.g., daylight sensors) means that conservation mostly depends on people turning off switches. Some appliances and electronics, such as stereos, video tape players, and televisions, continue to use electricity even after they are turned off.

Higher Initial Costs

Efficient products often cost more than less efficient versions, especially when they are first introduced to the market. Unless consumers can verify the resulting savings, they may be reluctant to pay the additional costs. Businesses that adopt labeling programs that spell out energy savings may be more successful in selling a more efficient, yet initially more expensive product. Higher initial costs can be particularly difficult for the purchaser or builder of a new home or office building.

Industry and Agriculture

Six industries consume three-quarters of all industrial energy: lumber and paper; chemicals; petroleum refining; primary metals; food processing; and stone, clay, and glass. Improved energy efficiency in these energy-intensive industries yields even larger improvements in overall productivity, product quality, safety, and pollution prevention. Manufacturing companies generally obtain their largest savings from improved efficiency of motors (motors account for 54 percent of electricity use in manufacturing) and from improved steam and hot-water systems. Many companies can reduce energy needs further by cogenerating their electricity and heat for steam.

High energy prices during the 1970s and early 1980s caused many farmers to find ways to reduce their energy costs, such as by switching from gasoline-powered to more fuel efficient diesel-powered engines and by adopting conservation tillage practices.

Energy use for U.S. agriculture grew during the 1960s and 1970s, peaking in 1978. High energy prices during the 1970s and early 1980s caused many farmers to find ways to reduce their energy costs, such as by switching from gasoline-powered to more fuel-efficient diesel-powered engines, adopting conservation tillage practices, shifting to larger multiprocessor machines, and using energy saving methods for drying and irrigating crops. These measures helped farmers reduce their energy use by 41 percent from 1978 to 1998, while agricultural output grew by about 40 percent over the same period.

Farmers can reap additional energy savings as they replace old machinery with more energy efficient equipment. Furthermore, farmers can adopt more advanced practices, such as precision farming, that optimize the use of machines, chemicals, and fertilizers to achieve energy savings. New seed varieties can also reduce energy-intensive chemical requirements.

Despite the opportunity for increased energy efficiency, the industrial and agricultural sectors face several obstacles. Because many manufacturing and farming operations are highly specialized, they need specific information on energy-saving opportunities to effectively respond to energy price signals and supply problems.

Cogeneration

In 1998, Malden Mills Industries, a textile manufacturer employing 2,300 workers in Lawrence, Massachusetts, installed a state-of-the-art combined heat and power (CHP) facility. The system uses two 4.3 MW industrial gas turbines, retrofitted with ceramic combustion liners, that were developed as part of the Department of Energy's Advanced Turbine Systems program, and that enable higher operating temperatures and lower emissions. The CHP system saves Malden Mills more than $1 million annually. The liners have accumulated more than 9,500 hours of successful operation and have cut emissions of nitrogen oxides and carbon monoxide to less than 15 parts per million.

In order for manufacturing or agriculture to switch to more efficient energy products and practices, significant costs are incurred due to production delays, waste and spoilage, and labor costs. As a result, manufacturers and farmers tend to use readily available and reliable equipment when upgrading, instead of untested, newer products and approaches.

Because of their large needs for both heat and electricity, businesses find combined heat and power (CHP) systems particularly attractive. However, replacing old, inefficient boilers with highly efficient CHP systems may add a number of new regulatory requirements (such as air permits), but does not offer the same tax depreciation incentives the tax code grants to power plants.

Recommendations:

★ The NEPD Group recommends that the President direct the Secretary of the Treasury to work with the Congress on legislation to encourage increased energy efficiency through combined heat and power (CHP) projects by shortening the depreciation life for CHP projects or providing an investment tax credit.

★ The NEPD Group recommends that the President direct the Administrator of the Environmental Protection Agency (EPA) to work with local and state governments to promote the use of well-designed CHP and other clean power generation at brownfield sites, consistent with the local communities' interests. EPA will also work to clarify liability issues if they are raised at a particular site.

★ The NEPD Group recommends that the President direct the EPA Administrator to promote CHP through flexibility in environmental permitting.

Conservation can be improved by car pooling, telecommuting, increasing public transit choices, and pricing highway use during periods of peak demand.

Transportation

Transportation plays a key role in a growing U.S. economy, comprising 16 percent of GDP in 1998, 10.5 percent of total employment, and 27 percent of total U.S. energy consumption. Trucks and automobiles account for over three-fourths of the sector's petroleum use, with the remainder attributable to rail, ship, air, and pipeline systems. Mass transit ridership has increased by 21 percent since 1996. Automobiles today use roughly 60 percent of the gasoline they did in 1972 per mile driven, due in part to new technology, such as better engine and design controls, improved transmission, weight reduction, and improved aerodynamics. Despite the adoption of more efficient transportation technologies, average fuel economy for passenger vehicles has remained relatively flat for ten years and is, in fact, at a twenty-year low, in large part due to the growth and popularity of low-fuel-economy pickup trucks, vans, and sport utility vehicles (Figure 4-4).

Recommendation:

★ The NEPD Group recommends that the President direct the Secretary of Transportation to:

- Review and provide recommendations on establishing Corporate Average Fuel Economy (CAFE) standards with due consideration of the National Academy of Sciences study to be released in July 2001. Responsibly crafted CAFE standards should increase efficiency without negatively impacting the U.S. automotive industry. The determination of future fuel economy standards must therefore be addressed analytically and based on sound science.
- Consider passenger safety, economic concerns, and disparate impact on the U.S. versus foreign fleet of automobiles.
- Look at other market-based approaches to increasing the national average fuel economy of new motor vehicles.

Opportunities for reducing oil demand in the transportation sector include increasing conservation, vehicle efficiency, and alternative fuels. Conservation can be improved by car pooling, telecommuting, and increasing transit choices. For example, an increase in the average fuel economy of the on-road vehicle fleet by three miles per gallon would save one million barrels of oil a day, or about half of the global shortfall between supply and demand that triggered the oil price increases since 1998. In addition, fuel conservation can be further improved by technologies to reduce congestion.

A recent analysis indicates that the fuel economy of a typical automobile could be enhanced by 60 percent by increasing engine and transmission efficiency and reducing vehicle mass by about 15 percent. Several promising efficiency technologies are being presented to the U.S. market. For example, some automobile manufacturers have already introduced hybrid vehicles, and others have announced that they will introduce hybrid vehicles within the next several years. Advanced lightweight materials offer up to 6 percent improvement in mileage for each 10 percent reduction in body weight. Although promising, it may be many years before hybrids become a substantial part of the automotive fleet.

Recommendations:

★ The NEPD Group recommends that the President direct the Secretary of Transportation to review and promote congestion mitigation technologies and strategies and to work with the Congress on legislation to implement these strategies.

★ The NEPD Group recommends that the President direct the Secretary of the Treasury to work with Congress on legislation to increase energy efficiency with a tax credit for fuel-efficient vehicles. The NEPD Group recommends that a temporary, efficiency-based income tax credit be available for purchase of new hybrid or fuel cell vehicles between 2002 and 2007.

Higher Initial Production Costs

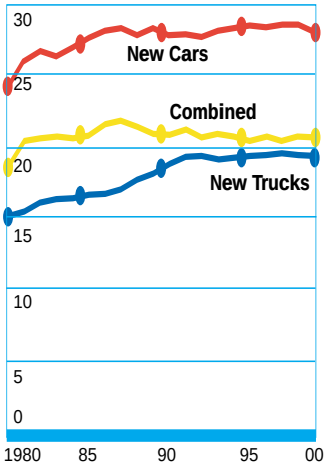
Because of the large economies of scale in automobile manufacturing, new technologies with limited early production runs often enter the market at higher initial costs. In this highly competitive international market, higher initial production costs can be a significant impediment to the introduction of new technologies. Unless U.S. automakers can remain competitive with their overseas counterparts, it is unlikely they will invest in new, more efficient technologies. Vehicle efficiency technologies, such as advanced engines, fuel cells, and cutting-edge electronic drive-train technologies, will become widely available only when component costs are reduced or demand is increased.

Hybrid Vehicles

The engine of a conventional gasoline vehicle is typically sized for the small amount of time the driver spends accelerating to enter the freeway, to pass another car, or to climb a hill. Most of the time it operates at less than 20 percent efficiency. An attractive alternative is to use a hybrid system that allows the engine to operate at peak efficiency, and get a boost from a battery when entering the freeway or climbing a hill. Not only does this system allow improved performance from a smaller engine, but the energy usually lost in stopping the car can be recovered and stored in the battery.

What does this mean to the average American? Significantly improved fuel economy and reduced emissions.

Figure 4-4
Fuel Efficiency of Light Vehicles Has Remained Flat
(Miles per Gallon)



Despite the adoption of more efficient transportation technologies, U.S. average fuel economy has been flat for 10 years. In large part, this is due to the growth of low-fuel-economy pickup trucks, vans, and sport utility vehicles.

Source: U.S. Department of Energy, Energy Information Administration.

Summary of Recommendations

Using Energy Wisely: Increasing Energy Conservation and Efficiency

★ The NEPD Group recommends that the President direct the Office of Science and Technology Policy and the President's Council of Advisors on Science and Technology to review and make recommendations on using the nation's energy resources more efficiently.

★ The NEPD Group recommends that the President direct the Secretary of Energy to conduct a review of current funding and historic performance of energy efficiency research and development programs in light of the recommendations of this report. Based on this review, the Secretary of Energy is then directed to propose appropriate funding of those research and development programs that are performance-based and are modeled as public-private partnerships.

★ The NEPD Group recommends that the President direct the Secretary of Energy to promote greater energy efficiency.

- Expand the Energy Star program beyond office buildings to include schools, retail buildings, health care facilities, and homes.
- Extend the Energy Star labeling program to additional products, appliances, and services.
- Strengthen Department of Energy public education programs relating to energy efficiency.

★ The NEPD Group recommends that the President direct the Secretary of Energy to improve the energy efficiency of appliances.

- Support the appliance standards program for covered products, setting higher standards where technologically feasible and economically justified.
- Expand the scope of the appliance standards program, setting standards for additional appliances where technologically feasible and economically justified.

★ The NEPD Group recommends that the President direct heads of executive departments and agencies to take appropriate actions to conserve energy use at their facilities to the maximum extent consistent with the effective discharge of public responsibilities. Agencies located in regions where electricity shortages are possible should conserve especially during periods of peak demand. Agencies should report to the President, through the Secretary of Energy, within 30 days on the conservation actions taken.

★ The NEPD Group recommends that the President direct the Secretary of the Treasury to work with Congress to encourage increased energy efficiency through combined heat and power (CHP) projects by shortening the depreciation life for CHP projects or providing an investment tax credit.

★ The NEPD Group recommends that the President direct the Administrator of the Environmental Protection Agency (EPA) to work with local and state governments to promote the use of well-designed CHP and other clean power generation at brownfields sites, consistent with the local communities' interests. EPA will also work to clarify liability issues if they are raised at a particular site.

★ The NEPD Group recommends that the President direct the EPA Administrator to promote CHP through flexibility in environmental permitting.

★ The NEPD Group recommends that the President direct the Secretary of Transportation to:

- Review and provide recommendations on establishing Corporate Average Fuel Economy (CAFE) standards with due consideration of the National Academy of Sciences study to be released in July 2001. Responsibly

crafted CAFE standards should increase efficiency without negatively impacting the U.S. automotive industry. The determination of future fuel economy standards must therefore be addressed analytically and based on sound science.
- Consider passenger safety, economic concerns, and disparate impact on the U.S. versus foreign fleet of automobiles.
- Look at other market-based approaches to increasing the national average fuel economy of new motor vehicles.

★ The new NEPD Group recommends that the President direct the Secretary of Transportation to review and promote congestion mitigation technologies and strategies and work with Congress on legislation to implement these strategies.

★ The NEPD Group recommends that the President direct the Secretary of the Treasury to work with Congress on legislation to increase energy efficiency with a tax credit for fuel-efficient vehicles. The NEPD Group recommends that a temporary, efficiency-based income tax credit be available for purchase of new hybrid fuel cell vehicles between 2002 and 2007.

★ The NEPD Group recommends that the President direct all agencies to use technological advances to better protect our environment.
- The Administration remains committed to investing in Intelligent Transportation Systems (ITS) and encourages the private sector to invest in ITS applications. This Department of Transportation (DOT) program funds the development of improved transportation infrastructure that will reduce congestion, such as traveler information/navigation systems, freeway management, and electronic toll collection. ITS applications reduce fuel associated with travel.
- The Administration remains committed to the DOT's fuel-cell-powered transit bus program, authored by the Transportation Equity Act for the 21st Century (TEA-21). This program demonstrates the viability of fuel-cell power plants for transit bus applications.
- The Administration remains committed to the Clean Buses program. TEA-21 establishes a new clean fuel formula grant program, which provides an opportunity to accelerate the introduction of advanced bus propulsion technologies into the mainstream of the nation's transit fleet.

★ The NEPD Group recommends that the President direct the EPA and DOT to develop ways to reduce demand for petroleum transportation fuels by working with the trucking industry to establish a program to reduce emissions and fuel consumption from long-haul trucks at truck stops by implementing alternatives to idling, such as electrification and auxiliary power units at truck stops along interstate highways. EPA and DOT will develop partnership agreements with trucking fleets, truck stops, and manufacturers of idle-reducing technologies (*e.g.*, portable auxiliary packs, electrification) to install and use low-emission-idling technologies.

★ The NEPD Group recommends that the President direct the Secretary of Energy to establish a national priority for improving energy efficiency. The priority would be to improve the energy intensity of the U.S. economy as measured by the amount of energy required for each dollar of economic productivity. This increased efficiency should be pursued through the combined efforts of industry, consumers, and federal, state, and local governments.

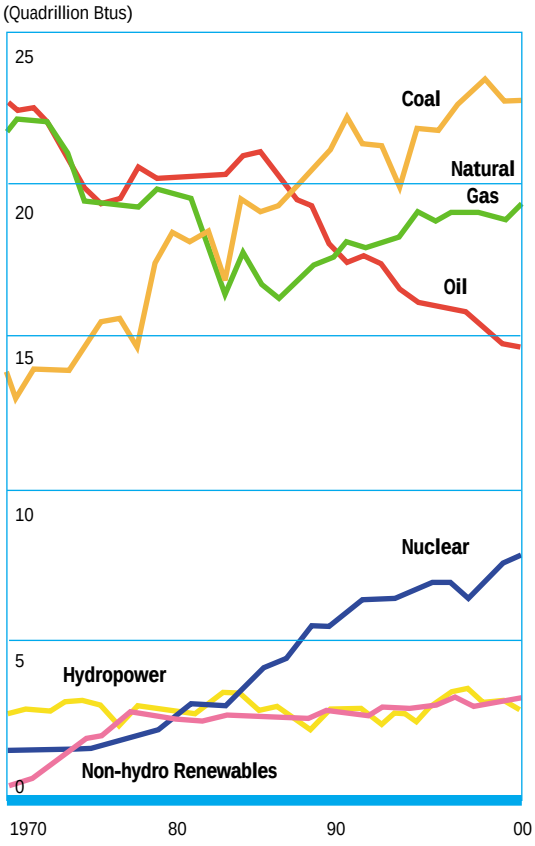
★ The NEPD Group recommends that the President direct the EPA Administrator to develop and implement a strategy to increase public awareness of the sizable savings that energy efficiency offers to homeowners across the country. Typical homeowners can save about 30 percent (about $400) a year on their home energy bill by using Energy Star-labeled products.

Energy for a New Century

Increasing Domestic Energy Supplies

America's energy strength lies in the abundance and diversity of its energy resources, and in its technological leadership in developing and efficiently using these resources. Our nation has rich deposits of coal, oil, and natural gas. The United States is the third-largest oil-producing nation in the world, despite a thirty-year decline in domestic production. While our economy runs primarily on fossil fuels, we also have long experience with hydropower and nuclear energy. We are pursuing the ability to further capture the energy of sunlight, the heat of the earth, and the power of wind.

Figure 5-1
U.S. Energy Production: 1970–2000



Production of coal, the nation's most abundant fuel source, exceeded 1 billion tons in 2000. Electricity generation accounted for about 90 percent of U.S. coal consumption last year.

Source: U.S. Department of Energy, Energy Information Administration.

Economic factors will help determine the future development of our nation's energy sources. These factors will be shaped not only by conservation, energy demand, and the cost of energy development, but also by the regulations that federal, state, and local governments put in place to balance energy needs with legitimate competing aims, including the protection of the environment. A number of factors will make it difficult to increase domestic energy production in response to the growing demand for energy: economic and technological factors associated with depletion of the fossil fuel resource base in the U.S.; regulatory uncertainty; limitations on access to federal lands with high potential for new discoveries; infrastructure constraints, such as electricity transmission and gas pipeline bottlenecks; and conflicts with legitimate land use, environmental, and other public policy goals.

The United States has significant domestic energy resources, and remains a major energy producer. Between 1986 and 2000, production of coal, natural gas, nuclear energy, and renewable energy increased. However, these increases have been largely offset by declines in oil production (Figure 5-1).

U.S. Department of the Interior, Minerals Management Service

Even with improved energy efficiency, the United States will need more energy supply. U.S. energy demand is projected to rise to 127 quadrillion Btus by 2020, even with significantly improved energy efficiency. However, domestic production is expected to rise to only 86 quadrillion Btus by 2020. The shortfall between projected energy supply and demand in 2020 is nearly 50 percent. That shortfall can be made up in only three ways: import more energy; improve energy efficiency even more than expected; and increase domestic energy supply.

The challenge for our nation is to use technology to maintain and enhance the diversity of our supplies, thus providing a reliable and affordable source of energy for Americans. These goals can and must be accomplished while maintaining our commitment to environmental protection.

Oil and Natural Gas

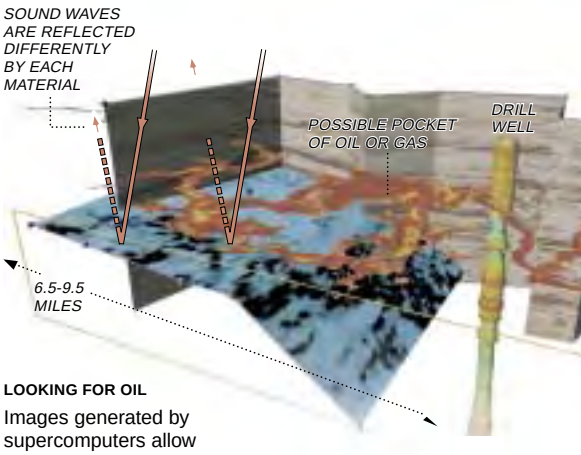
Oil and natural gas are the dominant fuels in the U.S. economy, providing 62 percent of the nation's energy and almost 100 percent of its transportation fuels. By 2020, the Energy Information Administration expects the United States will need about 50 percent more natural gas and one-third more oil to meet demand.

U.S. oil production is expected to decline over the next two decades. Over the same period, demand for natural gas will most likely continue to outpace domestic production. As a result, the United States will rely increasingly on imports of both natural gas and oil from Canada, and imports of oil and liquefied natural gas from producers across the globe.

21st Century Technology

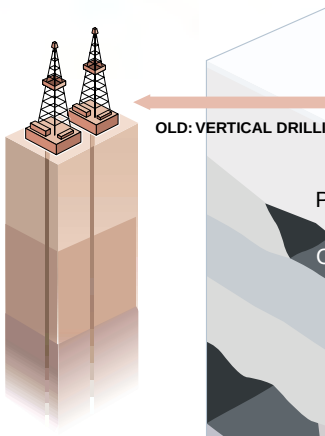
Remaining U.S. oil reserves are becoming increasingly costly to produce because much of the lower-cost oil has already been largely recovered. The remaining resources have higher exploration and production costs and greater technical challenges, because they are located in geologically complex reservoirs, (*e.g.*, deep water

Figure 5-2



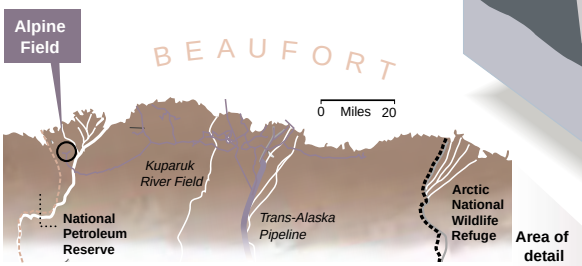
LOOKING FOR OIL

Images generated by supercomputers allow geologists to locate small pockets of oil or gas.



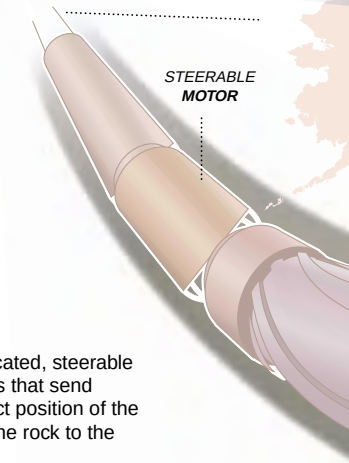
DRILLING TECHNOLOGY

Old drills were limited to a single vertical well, but newer wells can drill horizontally or spread in different directions to tap small pockets of oil.



TRANSPORTING THE OIL

A 14-inch pipeline connects the Alpine field to the Trans-Alaska Pipeline about 60 miles west of the Arctic National Wildlife Refuge, a site proposed for new drilling.



TRANSPORTING THE OIL

Today's drills are sophisticated, steerable machines with instruments that send information about the exact position of the drill bit and properties of the rock to the drilling team.

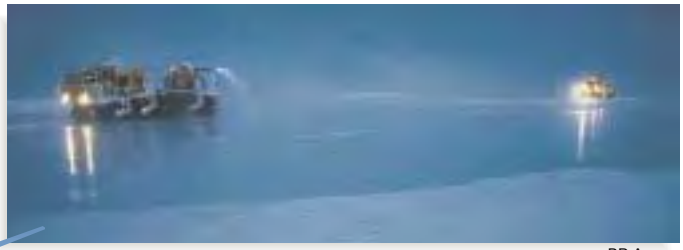
***DRILL BIT**: MADE OF STEEL AND/OR TUNGSTEN*

Sources: Phillips Petroleum Company, Chevron Corporation, BP Amoco, Magic Earth, Arctic Connections.

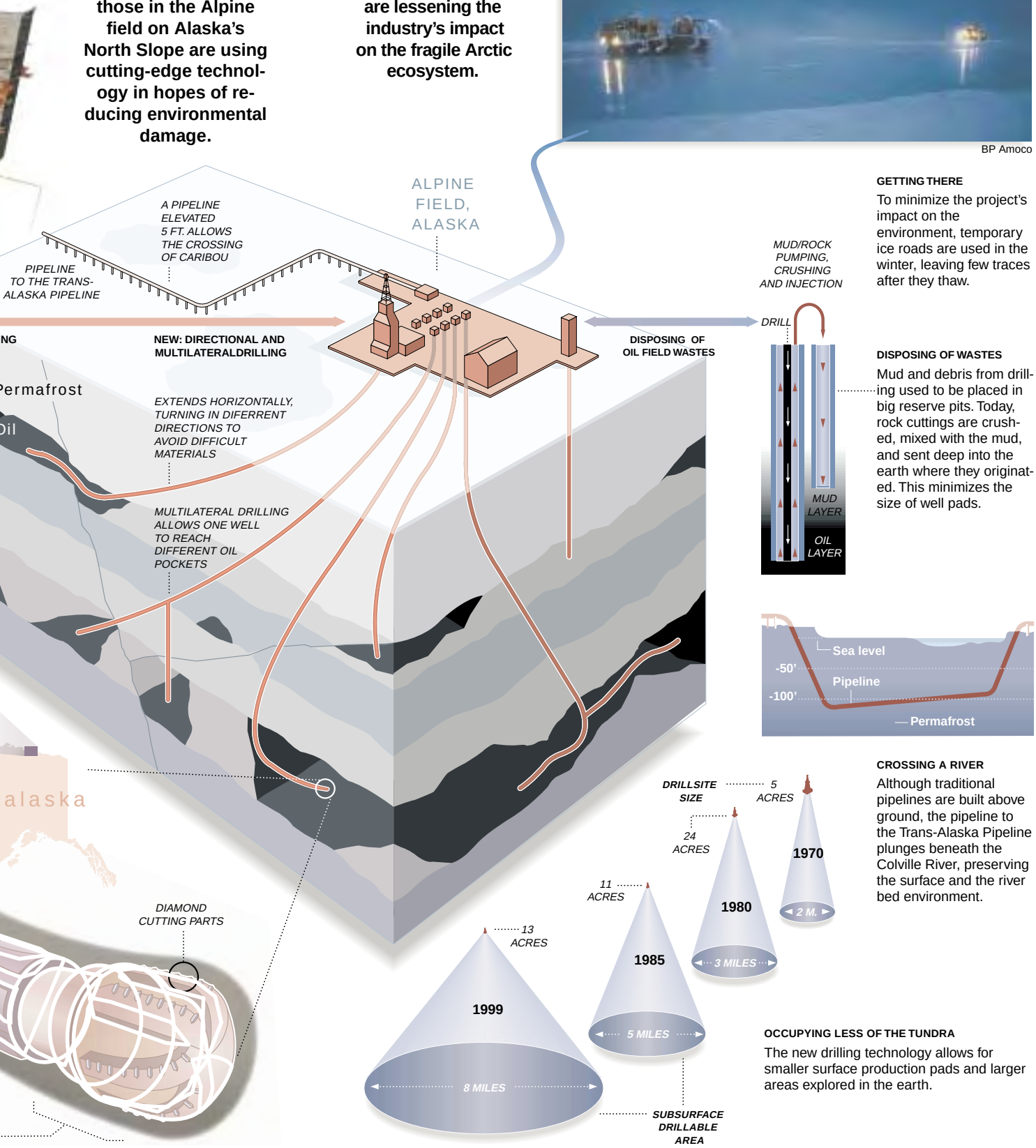
Using the Latest Drilling Technology to Reduce Environmental Damage

Oil drilling sites like those in the Alpine field on Alaska's North Slope are using cutting-edge technology in hopes of reducing environmental damage.

Recent advances are lessening the industry's impact on the fragile Arctic ecosystem.



BP Amoco



GETTING THERE

To minimize the project's impact on the environment, temporary ice roads are used in the winter, leaving few traces after they thaw.

DISPOSING OF WASTES

Mud and debris from drilling used to be placed in big reserve pits. Today, rock cuttings are crushed, mixed with the mud, and sent deep into the earth where they originated. This minimizes the size of well pads.

CROSSING A RIVER

Although traditional pipelines are built above ground, the pipeline to the Trans-Alaska Pipeline plunges beneath the Colville River, preserving the surface and the river bed environment.

OCCUPYING LESS OF THE TUNDRA

The new drilling technology allows for smaller surface production pads and larger areas explored in the earth.

Source: New York Times News Service

21st Century Technology: The Key to Environmental Protection and New Energy Production

Producing oil and gas from geologically challenging areas while protecting the environment is important to Americans and to the future of our nation's energy security. New technology and management techniques allow for sophisticated energy production as well as enhanced environmental protection. A technology evolution has occurred in the way oil and natural gas are found. The computer, three dimensional seismic technology, and other technologies have transformed the process from one based on "feel," to one highly dependent on the most advanced and sophisticated technology available. These technologies reduce cost and protect the environment.

Today's oil and gas exploration technology, for example, is boosting the success rate of pinpointing new resources. The results: fewer dry holes, reduced waste volumes, and a cleaner environment. Smaller, lighter drilling rigs coupled with advances in directional and extended-reach drilling significantly increase protection of the environment.

- Advanced, more energy efficient drilling and production methods:
  - — reduce emissions;
  - — practically eliminate spills from offshore platforms; and
  - — enhance worker safety, lower risk of blowouts, and provide better protection of groundwater resources.
- With each improvement in operational performance and efficiency, more oil and gas resources can be recovered with fewer wells drilled, resulting in smaller volumes of:
  - — cuttings;
  - — drilling muds and fluids; and
  - — produced waters.
- Modular drilling rigs, "slimhole" drilling, directional drilling, and other advances enable:
  - — production of oil and gas with increased protection to wetlands and other sensitive environments;
  - — reduced greenhouse gas emissions;
    and worker safety through the use of innovative best management practices.

Other examples of advanced technology include:

- 3-D seismic technology that enables geologists to use computers to determine the location of oil and gas before drilling begins, dramatically improving the exploration success rate;
- deep-water drilling technology that enables exploration and production of oil and gas at depths over two miles beneath the ocean's surface;
- high-powered lasers that may one day be used for drilling for oil and gas; and
- highly sophisticated directional drilling that enables wells to be drilled long horizontal distances from the drilling site.

:

and harsh environments).

While the resource base that supplies today's natural gas is vast, U.S. conventional production is projected to peak as early as 2015. Increasingly, the nation will have to rely on natural gas from unconventional resources, such as tight sands, deep formations, deep water, and gas hydrates. Also, many resources are in environmentally sensitive areas that require use of less intrusive technologies.

New technologies are being developed to reduce both the environmental effects and the economic costs of exploration for oil and gas. These exciting new technologies, like horizontal drilling and three-dimensional seismic technology allow for much greater precision and significantly less impact on the environment (Figure 5-2).

Small independent businesses account for 50 and 65 percent, respectively, of domestic petroleum and natural gas production in the lower 48 states. However, even when new technology is available, independent producers can lack the investment capital needed to apply the technology and be unable to cope with the increased economic and technical risks associated with harder-to-recover resources.

For example, most new gas wells drilled in the United States will require hydraulic fracturing. This is a common procedure used by producers to complete gas wells by stimulating the well's ability to flow increased volumes of gas from the reservoir rock into the wellbore. During a fracture procedure, fluid and a propping agent (usually sand) are pumped into the reservoir rock, widening natural fractures to provide paths for the gas to migrate to the wellbore. In certain formations, it has been demonstrated that the gas flow rate may be increased as much as twenty-fold by hydraulic fracturing. Each year nearly 25,000 oil and gas wells are hydraulically fractured.

The use of hydraulic fracturing in natural gas production from coal seams is one of the fastest-growing sources of gas production. This source will most likely face added controls, and costs to ensure that disposal (by re-injection or discharge) of production waters is done in an environmentally sensitive manner.

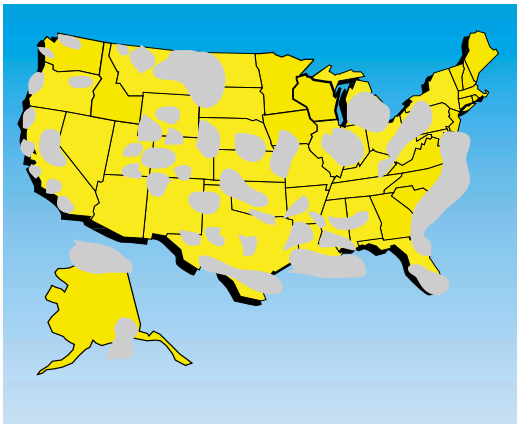
For each of these issues, opportunities exist to better coordinate, improve performance, and meet America's energy, public health, safety and environmental goals.

Recommendation:

★ The NEPD Group recommends that the President direct the Secretaries of Energy and the Interior to promote enhanced oil and gas recovery from existing wells through new technology.

Anywhere from 30 to 70 percent of oil, and 10 to 20 percent of natural gas, is not recovered in field development. It is estimated that enhanced oil recovery projects, including development of new recovery techniques, could add about 60 billion barrels of oil nationwide through increased use of existing fields (Figure 5-3).

Figure 5-3
Major U.S. Oil and Gas Fields



The United States is the most mature oil-producing region in the world, and much of our easy-to-find resource base has been delpeted. Advanced exploration and production technologies of the past two decades have played a key role in recovering additional oil and natural gas from existing fields.

Source: U.S. Department of Energy, Energy Information Administration.

Public Lands Leasing

The federal government owns about 31 percent of the nation's land, so it can have a major role in increasing energy production in appropriate places. A large portion of U.S. energy resources are contained in these federal lands and offshore areas. Public lands provide nearly 30 percent of

Small independent businesses account for 50 and 65 percent, respectively, of domestic petroleum and natural gas production in the lower 48 states.

annual national energy production, and are estimated to contain a substantial majority of the nation's undiscovered domestic energy resources.

Portions of federal onshore and offshore lands are off-limits to oil and gas exploration and development. Access is restricted for a variety of reasons, including administrative land withdrawals for competing land uses, such as national defense or water projects; and stipulations affecting surface occupancy, use, and timing for environmental compatibility.

Recommendations:

★ The NEPD Group recommends that the President direct the Secretary of the Interior to examine land status and lease stipulation impediments to federal oil and gas leasing, and review and modify those where opportunities exist (consistent with the law, good environmental practice, and balanced use of other resources).

- Expedite the ongoing Energy Policy and Conservation Act study of impediments to federal oil and gas exploration and development.
- Review public lands withdrawals and lease stipulations, with full public consultation, especially with the people in the region, to consider modifications where appropriate.

★ The NEPD Group recommends that the President direct the Secretary of the Interior to consider economic incentives for environmentally sound offshore oil and gas development where warranted by specific circumstances: explore opportunities for royalty reductions, consistent with ensuring a fair return to the public where warranted for enhanced oil and gas recovery; for reduction of risk associated with production in frontier areas or deep gas formations; and for development of small fields that would otherwise be uneconomic.

Offshore

Congress has designated about 610 million acres off limits to leasing on the Outer Continental Shelf (OCS), which contains large amounts of recoverable oil and gas resources. These Congressional moratoria have been expanded by Presidential action through 2012, effectively confining the federal OCS leasing program to the central and western Gulf of Mexico, a small portion of the eastern Gulf, existing leases off California's shore, and areas off of Alaska.

Concerns over the potential impacts of oil spills have been a major factor behind imposition of the OCS moratoria. For areas that are available for possible development, it is projected that with advanced technology, we could recover 59 billion barrels of oil and 300 trillion cubic feet of natural gas. This type of exploration and production from the OCS has an impressive environmental record. For example, since 1985, OCS operators have produced over 6.3 billion barrels of oil, and have spilled only 0.001 percent of production. Naturally occurring oil seeps add about 150 times as much oil to the oceans. Additionally, about 62 percent of OCS energy production is natural gas, which poses little risk of pollution.

For those areas that are available for potential coastal zone and OCS exploration and production activity, businesses must comply with a variety of federal and state statutes, regulations, and executive orders. Aspects of these, under the Coastal Zone Management Act and the Outer Continental Shelf Lands Act and their regulations, attempt to provide for responsible development while considering important environmental resources. However, effectiveness is sometimes lost through a lack of clearly defined requirements and information needs from federal and state entities, as well as uncertain deadlines during the process. These delays and uncertainties can hinder proper energy exploration and production projects.

The Deep Water Royalty Relief Act of 1995, granting variable royalty reductions for new leases in deep water, contributed to a significant increase in deep-water leasing in the central and western Gulf over the last five years. The opportunities created in deep water help spur the development of new

technologies and infrastructure for this frontier area. However, substantial economic risks remain to investment in deep water and continued incentives could help draw investment in other countries. Similar incentives could spur development in other technological frontiers, such as deep gas, or make possible continued production from both offshore and onshore fields near the end of their economic life.

Recommendation:

★ The NEPD Group recommends that the President direct the Secretaries of Commerce and Interior to re-examine the current federal legal and policy regime (statutes, regulations, and Executive Orders) to determine if changes are needed regarding energy-related activities and the siting of energy facilities in the coastal zone and on the Outer Continental Shelf (OCS).

Arctic Outer Continental Shelf

It is estimated there are significant undiscovered resources in the two planning areas of the Arctic OCS. Geologists estimate that there are approximately 22.5 billion barrels of oil and 92 trillion cubic feet of natural gas in the Arctic OCS. The Beaufort Sea Planning Area encompasses approximately 65 million acres. Active leases within the Beaufort Sea Planning Area represent only 0.4 percent of the total acreage, and only 5 percent of the leased acreage is being actively pursued for development and production. The Chukchi Sea Planning Area encompasses approximately 63.7 million acres, none of which is currently leased.

Lease offerings totaling 58 million acres over the past twenty years have resulted in 34 exploratory wells. Two oil discoveries are now moving toward production, but economic factors have delayed several others. These discoveries have estimated recoverable reserves of more than 260 million barrels of oil. This is another area where periodic, well-scheduled lease sales can help contribute to national energy production.

The high-technology oil industry requires an educated, technologically sophisticated work force. Many workers left the industry in the mid-1980s because of job insecurity caused by price volatility. The lack of an experienced work force today may limit the amount and increase the cost of future exploration and production activity.

U.S. Department of Energy

Recommendation:

★ The NEPD Group recommends that the President direct the Secretary of the Interior continue OCS oil and gas leasing and approval of exploration and development plans on predictable schedules.

Onshore

North Slope Oil and Gas

The Alaska North Slope is a promising area for discovery of additional reserves to increase our domestic production of oil and natural gas. Currently, state lands on Alaska's North Slope provide about 17 percent of U.S. oil production. Oil and gas development in the Arctic, however, needs to be done in an environmentally responsible manner, using new technology and relying upon on the best available scientific information. Such technology is making it possible to explore and develop oil and gas with significantly less impact on the environment. Areas with potential for oil and gas development are the National Petroleum Reserve–Alaska (NPR–A), the Arctic Outer Continental Shelf, and the Arctic National Wildlife Refuge (ANWR).

National Petroleum Reserve–Alaska

The National Petroleum Reserve–Alaska lies between the Brooks Range and the Arctic Ocean. The U.S. Geological Survey (USGS) estimates a high potential for oil and gas resources in the NPR–A, with a mean estimate of 2.1 billion barrels of oil and 8.5 trillion cubic feet of gas. A leasing program was designed and initiated in 1999 for the northeast sector of NPR–A, resulting in the award of 133 leases covering 900,000 acres. Eight exploratory wells have been completed in the past two years, and additional exploratory wells are expected this coming winter.

Recommendation:

★ The NEPD Group recommends that the President direct the Secretary of the Interior to consider additional environmentally responsible oil and gas development, based on sound science and the best available technology, through further lease sales in the National Petroleum Reserve-Alaska. Such consideration should include areas not currently leased within the Northeast corner of the Reserve.

Arctic National Wildlife Refuge

The Alaska National Interest Lands Conservation Act expanded ANWR from 9 million acres to 19 million acres, and designated 8 million acres as wilderness. Congress specifically left open the question of management of a 1.5-million-acre Arctic Coastal Plain area of ANWR because of the likelihood that it contains significant oil and gas resources. Section 1002 of the Act directed the Department of the Interior to conduct geological and biological studies of the Arctic Coastal Plain, "the 1002 Area," and to provide to Congress the results of those studies with recommendations on future management of the area. Section 1003 of the Act prohibits leasing of the 1002 Area until authorized by an act of Congress.

In 1987, after more than five years of biological baseline studies, surface geological studies, and two seasons of seismic exploration surveys, the Department of the Interior recommended to Congress that the 1002 Area be leased for oil and gas exploration and production in an environmentally sensitive manner. In 1995, both the Senate and the House passed legislation containing a provision to authorize leasing in the 1002 Area, but the legislation was vetoed.

In May 1998, the USGS issued revised estimates of oil and gas resources in the 1002 Area. The 1998 USGS assessment shows an overall increase in estimated oil resources when compared to all previous government estimates. The estimate reaffirms the 1002 Area's potential as the single most promising prospect in the United States. The total quantity of recoverable oil within the entire assessment area is estimated to be between 5.7 and 16 billion barrels (95 percent and 5 percent probability range) with a mean value of 10.4 billion barrels. The mean estimate of 10.4 billion barrels is just below the amount produced to date from North America's largest field, Prudhoe Bay, since production began 23 years ago. Peak production from ANWR could to be between 1 and 1.3 million barrels a day and account for more than 20 percent of all U.S. oil production. ANWR production could equal 46 years of current oil imports from Iraq.

Technological improvements over the past 40 years have dramatically reduced industry's footprint on the tundra, minimized waste produced, and protected the land for resident and migratory wildlife. These advances include the use of ice roads and drilling pads, low-impact exploration approaches such as winter-only exploration activities, and extended reach and through-tubing rotary drilling. These technologies have significantly reduced the size of production-related facilities on the North Slope. Estimates indicate that no more than 2,000 acres will be disturbed if the 1002 Area of ANWR is developed. For purposes of comparison, ANWR is about the size of the state of South Carolina, whereas the developed area is estimated to be less than one-fifth the size of Washington D.C.'s Dulles International Airport.

Recommendation:

★ The NEPD Group recommends that the President direct the Secretary of the Interior to work with Congress to authorize exploration and, if resources are discovered, development of the 1002 Area of ANWR. Congress should require the use of the best available technology and should require that activities will result in no significant adverse impact to the surrounding environment.

Other Onshore Restrictions

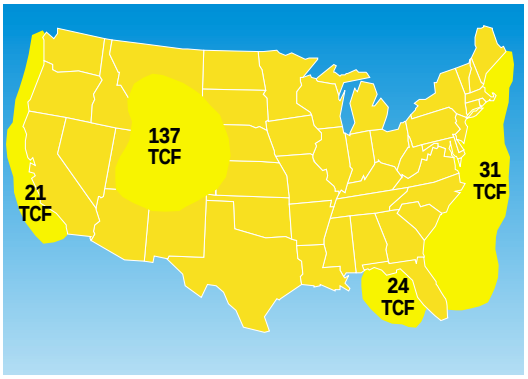
There is a significant potential for oil and gas resources on federal land in the lower 48 states as well. According to the most recent estimates from the USGS and the Minerals Management Service, oil resources underlying federal lands in the lower 48 states are estimated to be 4.1 billion barrels, and natural gas reserves are estimated to be 167 trillion cubic feet (Figure 5-4). Much of these potential resources have been placed off-limits or are subject to significant restrictions. For example, about 40 percent of the natural gas resources on federal land in the Rocky Mountain region have been placed off-limits.

The Department of the Interior initiated a study to examine the energy potential and restrictions on development on federal lands in the lower 48 states. In many cases, limits on oil and gas development are appropriate. However, improved technology has helped to reduce the impact of oil and gas development on the environment.

Exploration and Production

To meet increased natural gas demand in the coming decades, total wells drilled annually will need to double the 1999 level by 2020. Very few new onshore rigs have been built since the mid-1980s, because the oil field supply and service sectors have been hit especially hard by price volatility. Major additions to the offshore rig fleet will also be needed just to develop existing leases. The lack of an experienced work force may limit the speed and increase the cost of exploration and production activity.

Figure 5-4
Restricted Natural Gas Resource Areas in the U.S. Lower 48



Much of the nation's oil and gas resource base resides on federal lands or in federal waters. A large portion of this is not open to exploration and development. For example, an estimated 40 percent or 137 trillion cubic feet of potential natural gas resource in the Rockies is either closed to exploration (29 tcf) or is open to development under restrictive provisions (108 tcf).

Source: U.S.Department of Energy, Energy Information Administration.

Electricity

Electricity is an essential part of modern life. When supply fails to keep pace with demand, costs to consumers and businesses rise and reliability falls. The California experience demonstrates the crippling effect that electricity shortages and blackouts can have on a state or region. This summer, the possibility exists for more intense electricity shortfalls in the West, with additional problems possible in New York City and on Long Island.

Electricity demand is projected to grow sharply over the next twenty years. Based on current estimates, the United States will need about 393,000 MW of new generating capacity by 2020 to meet the growing demand. If the U.S. electricity demand continues to grow at the high rate it has recently, we will need even more generating capacity. To meet that future demand, the United States will have to build between 1,300 to 1,900 new power plants; that averages out to be more than 60 to 90 plants a year, or more than one a week.

Over the next few years, if the demand for electricity continues to grow as predicted, and if we fail to implement a

comprehensive energy plan that recognizes the need to increase capacity, we can expect our electricity shortage problems to grow. The result will be higher costs and lower reliability.

Electricity Restructuring

One of the most important energy issues facing the Administration and Congress is electricity restructuring. The electricity industry is going through a period of dramatic change. To provide ample electricity supplies at reasonable prices, states are opening their retail markets to competition. This is the most recent step in a long transition from reliance on regulation to reliance on competitive forces.

Changes in Wholesale Electricity Market

This transition from regulation to competition began in 1978 with enactment of the Public Utility Regulatory Policies Act, which promoted independent electricity generation. Open-access transmission policies adopted by the Federal Energy Regulatory Commission (FERC) in the late 1980s further promoted competition in wholesale power markets. Congress largely ratified these policies with enactment of the Energy Policy Act of 1992, which further promoted non-utility generation. FERC took another large step to promote competition with its open-access rule in 1996, which provided greater access to the transmission grid, the highway for interstate commerce in electricity.

Electricity demand is projected to rise sharply over the next twenty years. If we fail to build the 1,300–1,900 new power plants needed to increase generation and transmission capacity, current electricity shortages will become more frequent and more widespread.
U.S. Department of Energy

Changes in the Retail Electricity Market

Increased competition in wholesale power markets encourages states to open retail electricity markets. Under current law, FERC has jurisdiction over the wholesale power market, while states have jurisdiction over retail markets. Beginning in 1996, states began opening their retail markets to competition in order to lower electricity prices. Twenty-five states have opted to open their retail electricity markets to competition.

Most new electricity generation is being built not by regulated utilities, but by independent power producers. These companies assume the financial risk of investment in new generation, and their success rides on their ability to generate electricity at a low cost.

These dramatic changes affecting the industry led to important structural changes. Independent power producers, which were once infant industries, now dwarf many utilities. Utility mergers, which were once rare, are now commonplace. U.S. utilities have been purchased by foreign companies, and U.S. utilities have in turn purchased utilities abroad. While utilities had service areas that were limited to a single state or region, independent power producers are international companies that can build power plants across the globe. Many utilities that were once vertically integrated divested themselves of generation, either voluntarily or because of state law.

Pending Congressional Action

Since 1995, Congress has been grappling with electricity competition legislation. Initial efforts sought to require states to open their retail markets by a date certain. Subsequent efforts focused on promoting competition in electricity markets and complementing state retail competition plans. Under this

approach, federal legislation focused on core federal issues, including:

- regulation of interstate commerce;
- assuring open access to the interstate and international transmission system;
- enhancing reliability of the grid;
- lowering barriers to entry;
- reforming outdated federal electricity laws, such as the Public Utility Holding Company Act and Public Utility Regulatory Policies Act of 1978;
- reforming the role of federal electric utilities in competitive markets;
- protecting consumers; and
- clarifying federal and state regulatory jurisdictions.

Recommendations:

★ The NEPD Group recommends that the President direct the Secretary of Energy to propose comprehensive electricity legislation that promotes competition, protects consumers, enhances reliability, improves efficiency, promotes renewable energy, repeals the Public Utility Holding Company Act, and reforms the Public Utility Regulatory Policies Act.

★ The NEPD Group recommends the President encourage FERC to use its existing statutory authority to promote competition and encourage investment in transmission facilities.

California Electricity Crisis

The California electricity crisis is not a test of the merits of competition in electricity markets. Instead, it demonstrates that a poorly designed state retail competition plan can have disastrous results if electricity supply does not keep pace with increased demand. At heart, the California electricity crisis is a supply crisis. California allowed demand to outstrip supply, and did little to lower barriers to entry through reform of an inflexible siting process. The risk that the California experience will repeat itself is low, since other states have not modeled their retail competition plans on California's plan.

The California crisis also shows that state electricity markets do not stay neatly confined within legal and jurisdictional bounds. Due to regional interconnection, disastrous mistakes made by the State of California have dire effects on the entire West. California's failure to reform flawed regulatory rules affecting the market drove up wholesale prices. Actions such as forcing utilities to purchase all their power through volatile spot markets, imposing a single-price auction system, and barring bilateral contracts all contributed to the problems that California now faces.

Lessons Learned from Successful Deregulation

As stated previously, 25 states have decided to open their retail electricity markets. A comparison of the different approaches taken by California and other states demonstrates that competition will benefit consumers if implemented effectively. A better gauge of the potential for retail competition to lower prices can be found in Pennsylvania, where electricity prices have fallen significantly as a result of competition. There is also reason to believe that the plan in Texas will have similar success.

A major difference between the California experience and the approaches taken by Pennsylvania and Texas is that the latter states ensured they had adequate electricity supplies. Pennsylvania and Texas took steps to ensure that procedures for adding new power plants were efficient. Unlike California, which imports 25 percent of its electricity, Pennsylvania is a net exporter of power, and Texas imports almost no power from other states. For these reasons, Pennsylvania and Texas have ample electricity supply to meet demand, while California is confronting a serious supply shortage.

In addition, California required its utilities to divest themselves of much of their generation, unlike Pennsylvania and Texas. This action forced California utilities to rely much more heavily on buying power, at ever-increasing prices, instead of generating power themselves.

Another major difference is that Pennsylvania and Texas did not require their utilities to purchase electricity through volatile spot markets. This requirement, combined with frozen retail rates imposed by the State, forced California utilities to purchase power at much higher costs than could be passed along to the consumer. As a result, the California regulatory plan resulted in unreliable service, destroyed the financial health of the State's utilities, and drove one utility into bankruptcy.

The federal government does not site power plants; that is a responsibility of the states. For that reason, delays relating to the construction of new power plants are usually the result of state action. A number of federal agencies, such as the Environmental Protection Agency, the Department of Commerce, and the Department of the Interior, do issue air and other permits for generation facilities. Some of the concerns about permitting or review delays in other states can be similarly addressed by expediting processes. These agencies, pursuant to President Bush's Executive Order, have expedited permit-processing applications for energy production in California.

Some of the concerns about permitting or review delays in other states can be similarly addressed by expediting processes.For example, in 1999–2000, the time for issuing air permits (including the time for public participation) for turbines was reduced to three to four months (compared to the twelve months allowed by the regulations) for the majority of permit applications.

Fuels for Electricity Generation

Electricity is not a primary source of energy. It is generated by the use of primary energy sources (Figure 5-5). Coal, nuclear energy, natural gas and hydropower account for about 95 percent of total electricity generation, with oil and renewable energy contributing the remainder. Despite this healthy diversity of energy sources, each type of electricity resource is faced with constraints to maintaining or expanding its contribution to electricity production.

Coal

Coal is used almost exclusively to generate electricity. Coal power plants account for over 50 percent of all U.S. electricity generation, and over 80 percent of generation in twelve states in the Midwest, Southeast, and West. Coal electricity generation costs are low, and coal prices have proved remarkably stable. In 1999, the United States produced 1.1 billion tons of coal. Production of coal from federal and tribal lands, which has increased substantially in the past decade, accounted for 38 percent of this total.

Although coal is the nation's most abundant fossil energy source, production and market issues can affect the adequacy of supply. Production issues include the protection of public health, safety, property, and the environment, and the effectiveness of federal and state agencies implementing various laws governing coal mining. These issues have resulted in some coal resources becoming uneconomical to produce. Statutory, regulatory, and administrative difficulties also may limit or prevent the production of some coal resources. However, technological advances in cleaner coal technology have allowed for significant progress toward reducing these barriers. There are also opportunities to protect the environment while lowering costs through further improvements in technology.

Over the past decade, greater efficiencies, lower capital costs, fewer emissions and quicker start-up times have made power plants fueled by natural gas a more attractive choice for new coal generation. Recently, however, rising natural gas prices have renewed interest in building coal power plants.

Uncertainty about future environmental controls is of particular concern for companies that operate existing coal power plants. Regulations under development include a variety of measures requiring reductions in emissions of nitrogen oxide, sulfur dioxide, and mercury. In addition, rules related to discharges to streams and cooling-water intake structures, possible regulation of large-volume wastes as hazardous wastes,

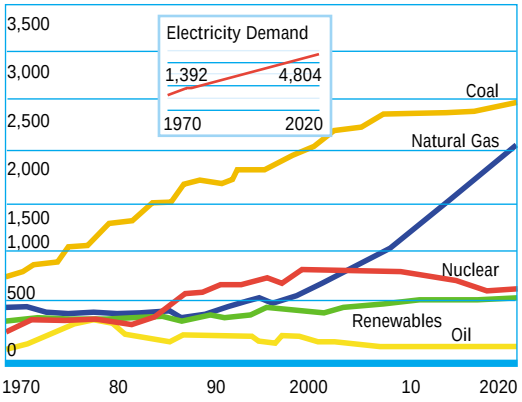
uncertainty over rules requiring air permits for certain modifications to power plants, and uncertainty over global and domestic efforts to reduce carbon dioxide emissions also play a role. This regulatory uncertainty discourages power producers from building coal power plants and is one reason the Unites States is relying so heavily on natural gas power generation to meet growing electricity demand.

Much of the current uncertainty has resulted because regulators do not weigh the cumulative impacts of their proposals. Compliance decisions by businesses concerning each new regulation must often be made without the benefit of clear information regarding additional requirements that may be imposed. More effective and economical compliance strategies are possible if companies know the full range of requirements with which they must comply.

If rising U.S. electricity demand is to be met, then coal must play a significant role. Under current policies, in the next two decades, nuclear electricity generation and hydropower are projected to decline. Natural gas electricity generation is projected to increase from about 16 to 36 percent of total generation, which would require the tripling of natural gas used for electricity generation. Significantly, this projected increase in natural gas generation assumes that coal electricity generation will continue to account for about 50 percent of U.S. electricity generation. If policies are adopted that sharply lower coal electricity generation, then the likely result is an even greater dependence on natural gas generation. This creates concern about the adequacy of natural gas supplies and policies.

Figure 5-5
Electricity Generation by Fuel: Current Trends

(Billions of Kilowatt-Hours)



Source: U.S. Department of Energy, Energy Information Administration

Clean Coal Technology

Technology has been and will continue to be a key to achieving our energy, economic, and environmental goals. In recent years, technological advancements through efforts of both the public and private sectors have led to substantial reductions in the cost of controlling sulfur dioxide and nitrogen oxide emissions, while the effectiveness of control systems increased significantly. The Department of Energy, through its Clean Coal Technology Program, has worked to provide effective control technologies. These nitrogen oxide and sulfur dioxide control technologies have moved into the utility marketplace and now provide a means to achieve cost effective regulatory compliance.

For example, most power plants that can use low nitrogen oxide burners have now installed them, and about 25 percent of all coal power plants have either ordered or installed selective catalytic reduction technology, which reduces nitrogen oxide emissions.

Technologies like fluidized-bed combustion and integrated gasification combined cycle have been developed that further reduce emissions. Fluidized-bed combustion is a low-emitting nitrogen oxide combustion technology that allows the use of fuels, such as coal pile washer waste, that were not formerly usable. Integrated gasification combined cycle is a relatively new technology that uses refinery waste as fuel.

Future coal electricity generation will need to meet new challenges to reduce emissions even further, especially mercury emissions. The Department of Energy is supporting efforts to develop more cost effective control technology. Indeed, the goal

Clean Coal Technology

Clean Coal Technology describes a category of technologies that allow for the use of coal to generate electricity while meeting environmental regulations at low cost.

- In the short term, the goal of the program is to meet existing and emerging environmental regulations, which will dramatically reduce compliance costs for controlled mercury, NOx, SO_2, and fine particulate at new and existing coal power plants.
- In the mid-term, the goal of the program is to develop low-cost, super-clean coal power plants, with efficiencies 50 percent higher than today's average. The higher efficiencies will reduce emissions at minimal costs.
- In the long term, the goal of the program is to develop low-cost, zero-emission power plants with efficiencies close to double that of today's fleet.

of these research, development, and demonstration programs is to develop and demonstrate coal power systems with near zero environmental emissions, while maintaining low production costs.

Recommendations:

★ The NEPD Group recognizes the importance of looking to technology to help us meet the goals of increasing electricity generation while protecting our environment. To that end, the NEPD Group recommends that the President direct the Department of Energy to continue to develop advanced clean coal technology by:

- Investing $2 billion over 10 years to fund research in clean coal technologies.
- Supporting a permanent extension of the existing R&D tax credit.
- Directing agencies to explore regulatory approaches that will encourage advancements in environmental technology.

★ The NEPD Group recommends that the President direct federal agencies to provide greater regulatory certainty relating to coal electricity generation through clear policies that are easily applied to business decisions.

Nuclear Energy

Nuclear energy accounts for 20 percent of all U.S. electricity generation, and more than 40 percent of the electricity generation in ten states in the Northeast, the South, and the Midwest. Despite the closure of several less efficient plants during the 1990s, the 103 U.S. nuclear energy plants currently operating produce more electricity today than at any time in history.

There are a number of reasons why nuclear energy expansion halted in the 1980s. Regulatory changes implemented after the Three Mile Island incident in 1979 lengthened the licensing period to an average of fourteen years, resulting in large cost overruns. Increased public concern about the safety of nuclear energy after the accident often resulted in active opposition to proposed plants. As a result, the last completed nuclear energy plant in the United States was ordered in 1973.

Since the 1980s, the performance of nuclear energy plant operations has substantially improved. While U.S. nuclear energy plants once generated electricity only around 70 percent of the time, the average plant today is generating electricity close to 90 percent. This improved performance has lowered the cost of nuclear generation, which is now competitive with other sources of electricity (Figure 5-6).

There is potential for even greater generation from existing nuclear energy plants. Experts estimate that 2,000 MW could be added from existing nuclear power plants by increasing operating performance to 92 percent. In addition, about 12,000 MW of additional nuclear electricity generation could be derived from uprating U.S. nuclear power plants, a process that uses new technologies and methods to increase rated power levels without decreasing safety. However, modifications to uprate plants can be expensive and require extensive licensing review and approval by the Nuclear Regulatory Commission (NRC). Another way to increase nuclear generation from existing plants is through license renewal. Many nuclear utilities are planning to extend the operating license of existing nuclear plants by twenty years, and the licenses of as many as 90 percent of the currently operating nuclear plants may be renewed.

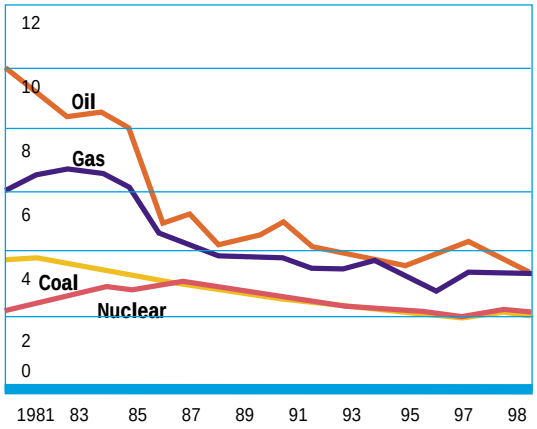
The nuclear energy industry is closely regulated by the NRC, which provides rigorous oversight of the operation and maintenance of these plants. This oversight includes a comprehensive inspection program that focuses on the most significant potential risks of plant operations and features full-time resident inspectors at each plant, as well as regional inspectors with specialized expertise. The NRC has made great strides to provide greater regulatory certainty while maintaining high safety standards.

The installation of new design features, improvements in operating experience, nuclear safety research, and operator training have all contributed to the strong safety record of the nuclear energy industry. Since the Three Mile Island incident in 1979, the nuclear industry's safety record has significantly improved. This safety record has been achieved through a defense-in-depth philosophy accomplished by way of engineering design, quality construction, safe operation, and emergency planning. This philosophy provides for diverse and redundant systems to prevent accidents from occurring, as well as multiple safety barriers to mitigate the effects of accidents in the highly unlikely event they do occur.

Over the last several years, utilities have begun purchasing nuclear plants from other operators as the industry undergoes consolidation. Several nuclear utilities have merged, creating management teams with extensive expertise in running and maintaining nuclear plants. These mergers are impeded by tax rules relating to the transfer of decommissioning funds.

Utilities are also considering nuclear energy as an option for new generation. The NRC has certified three standardized nuclear power plant designs, and Congress enacted legislation in 1992 to reform the nuclear licensing process. Under this process, a utility can apply for a combined construction and operating license for one of these standardized designs in a streamlined process. This reformed licensing process provides for site permits—a way to resolve siting issues early in the process. Building new generators on existing sites avoids many complex issues associated with building plants on new sites. Many U.S. nuclear plant sites were designed to host four to six reactors, and most operate only two or three; many sites across the country could host additional plants.

Figure 5-6
Nuclear Generation is Competitively Priced
(1998 Cents per Kilowatt-Hour)



Note: Fuel costs are included.é
Source: Utility Data Institute via the Nuclear Energy Institute.é

Advanced reactor technology promises to improve nuclear safety. One example of an advanced reactor design is the gas-cooled, pebble-bed reactor, which has inherent safety features. The industry has an interest in this and other advanced reactor designs.

The federal government must also provide for the safe disposal of nuclear waste. At present, nuclear waste continues to be stored at local plant sites. The Department of Energy is over a decade behind schedule for accepting nuclear waste from utilities, but has made progress toward characterization of the Yucca Mountain, Nevada site. Construction of an exploratory studies facility has been completed, a viability assessment was published, and recently scientists placed their extensive research about Yucca Mountain on the record for public scrutiny. However, key regulatory standards to protect public health and the environment at the repository have not been issued.

The Administration will continue to study the science to determine whether to proceed with the consideration of this site as the location for the repository. If the Administration decides to proceed, the Department of Energy must file a license application with the NRC. No waste will be sent to any location until the NRC determines it to be safe.

Other countries have developed different approaches for nuclear waste disposal. For example, the French, British and Japanese rely on reprocessing, an in-

Calvert Cliffs is the first U.S. nuclear plant to receive a renewed license from the Nuclear Regulatory Commission. The renewal will allow the plant to continue producing environmentally sound electricity for an additional twenty years.
CONSTELLATION ENERGY GROUP

dustrial approach that separates nuclear waste into usable fuel and highly concentrated waste. While this approach does not obviate the need for geologic disposal of nuclear waste, it could significantly optimize the use of a geologic repository. There is growing interest in new technology known as accelerator transmutation, which could be used in combination with reprocessing to reduce the quantity and toxicity of nuclear waste.

Recommendations:

★ The NEPD Group recommends that the President support the expansion of nuclear energy in the United States as a major component of our national energy policy. Following are specific components of the recommendation:

- Encourage the Nuclear Regulatory Commission (NRC) to ensure that safety and environmental protection are high priorities as they prepare to evaluate and expedite applications for licensing new advanced-technology nuclear reactors.
- Encourage the NRC to facilitate efforts by utilities to expand nuclear energy generation in the United States by uprating existing nuclear plants safely.
- Encourage the NRC to relicense existing nuclear plants that meet or exceed safety standards.
- Direct the Secretary of Energy and the Administrator of the Environmental Protection Agency to assess the potential of nuclear energy to improve air quality.
- Increase resources as necessary for nuclear safety enforcement in light of the potential increase in generation.
- Use the best science to provide a deep geologic repository for nuclear waste.
- Support legislation clarifying that qualified funds set aside by plant owners for eventual decommissioning will not be taxed as part of the transaction.
- Support legislation to extend the Price–Anderson Act.

★ The NEPD Group recommends that, in the context of developing advanced nuclear fuel cycles and next generation technologies for nuclear energy, the United States should reexamine its policies to allow for research, development and deployment of fuel conditioning methods (such as pyroprocessing) that reduce waste streams and enhance proliferation resistance. In doing so, the United States will continue to discourage the accumulation of separated plutonium, worldwide.

★ The United States should also consider technologies, in collaboration with international partners with highly developed fuel cycles and a record of close cooperation, to develop reprocessing and fuel treatment technologies that are cleaner, more efficient, less waste-intensive, and more proliferation-resistant.

Hydropower

Although hydropower generation accounts for only about 7 percent of overall U.S. electricity generation, the following states depend heavily on this source of energy: Idaho, Washington, Oregon, Maine, South Dakota, California, Montana, and New York.

Hydropower generation has remained relatively flat for years. The most significant constraint on expansion of U.S. hydropower generation is physical; most of the best locations for hydropower generation have already been developed. Potential does remain for some increases in hydropower generation, and capacity can be optimized by adding additional turbines and increasing efficiency at existing facilities.

Also, the amount of hydropower generation depends upon the quantity of available water. A drought can have a devastating effect on a region that depends on hydropower. In fact, this year's water availability has been a contributing factor in California's electricity supply shortages. The amount of hydropower generation depends upon the quantity of available water. A drought can have a devastating effect on a region that depends on hydropower. In fact, this year's water availability has been a contributing factor in California's electricity supply shortages.

The Federal Energy Regulatory Commission is required to incorporate mandatory conditions proposed by different state and federal resource agencies into hydropower licenses. Decision-making authority in the licensing process is diffused among a host of federal and state agencies, all of which are pursuing different statutory missions. The hydropower licensing process is prolonged, costly, and poses regulatory uncertainty. The challenge is to efficiently and effectively balance national interests in natural resource and environmental preservation with energy needs.

Recommendation:

★ The NEPD Group recognizes there is a need to reduce the time and cost of the hydropower licensing process. The NEPD Group recommends that the President encourage the Federal Energy Regulatory Commission (FERC) and direct federal resource agencies to make the licensing process more clear and efficient, while preserving environmental goals. In addition, the NEPD Group recognizes the importance of optimizing the efficiency and reliability of existing hydropower facilities, and will encourage the Administration to adopt efforts toward that end.

- Support administrative and legislative reform of the hydropower licensing process.
- Direct federal resource agencies to reach interagency agreement on conflicting mandatory license conditions before they submit their conditions to FERC for inclusion in a license.
- Encourage FERC to adopt appropriate deadlines for its own actions during the licensing process.

Natural Gas

Currently, natural gas provides about 16 percent of U.S. electricity generation. Seven states obtain over one-third of their generation from natural gas (Rhode Island, new York, Delaware, Louisiana, Texas, California, and Alaska). Perhaps more importantly, natural gas-fired electricity is projected to constitute about 90 percent of capacity additions between 1999 and 2020. The amount of natural gas used in electricity generation is projected to triple by 2020.

Ensuring the long-term availability of adequate, reasonably priced natural gas supplies is a challenge. Low gas prices in 1998 and 1999 caused the industry to scale back gas exploration and production activity. Since 2000, the North American natural gas market has remained tight due to strong demand and diminished supplies. Last year, natural gas prices quadrupled, which resulted in substantially higher prices for electricity generated with natural gas.

While the largest barriers to expanded natural gas electricity generation relate to production and pipeline constraints, there are several other barriers. Environmental regulations affect the use of gas for electricity generation. Although natural gas electric plants produce fewer emissions than coal-fired power plants, they still emit nitrogen oxides, carbon dioxide and small amounts of toxic air emissions.

Oil

While oil fuels only about 3 percent of total U.S. electricity generation, it is the dominant source of electricity generation in Hawaii, and provides over 20 percent of the generation in Massachusetts, Connecticut, Delaware, Maine, and Florida. Over the next twenty years, market conditions are expected to reduce today's level of oil electricity generation by about 80 percent.

Renewable Energy

Hydropower is, to date, the most successful form of renewable energy. However, some forms of renewable energy generation—wind, geothermal, and biomass—have the potential to make more significant contributions in coming years, and the cost of most forms of renewable energy has declined sharply in recent years. The most important barrier to increased renewable energy production remains economic; nonhydropower renewable energy generation costs are greater than other traditional energy sources. The following chapter discusses renewable and alternative energy in greater detail.

High-tech power plants, like this combined cycle plant, are signaling a new age in electric power generation. The capability to co-produce electricity and a slate of fuels and chemicals makes the technology economically attractive to a broad range of industrial applications.
Tampa Electric Company

Summary of Recommendations
Energy for a New Century: Increasing Domestic Energy Supplies

★ The NEPD Group recommends that the President direct the Secretaries of Energy and the Interior to promote enhanced oil and gas recovery from existing wells through new technology.

★ The NEPD Group recommends that the President direct the Secretary of Energy to improve oil and gas exploration technology through continued partnership with public and private entities.

★ The NEPD Group recommends that the President direct the Secretary of the Interior to examine land status and lease stipulation impediments to federal oil and gas leasing, and review and modify those where opportunities exist (consistent with the law, good environmental practice, and balanced use of other resources).

- Expedite the ongoing Energy Policy and Conservation Act study of impediments to federal oil and gas exploration and development.
- Review public lands withdrawals and lease stipulations, with full public consultation, especially with the people in the region, to consider modifications where appropriate.

★ The NEPD Group recommends that the President direct the Secretary of the Interior to consider economic incentives for environmentally sound offshore oil and gas development where warranted by specific circumstances: explore opportunities for royalty reductions, consistent with ensuring a fair return to the public where warranted for enhanced oil and gas recovery; for reduction of risk associated with production in frontier areas or deep gas formations; and for development of small fields that would otherwise be uneconomic.

★ The NEPD Group recommends that the President direct the Secretaries of Commerce and Interior to re-examine the current federal legal and policy regime (statutes, regulations, and Executive Orders) to determine if changes are needed regarding energy-related activities and the siting of energy facilities in the coastal zone and on the Outer Continental Shelf (OCS).

★ The NEPD Group recommends that the President direct the Secretary of the Interior continue OCS oil and gas leasing and approval of exploration and development plans on predictable schedules.

★ The NEPD Group recommends that the President direct the Secretary of the Interior to consider additional environmentally responsible oil and gas development, based on sound science and the best available technology, through further lease sales in the National Petroleum Reserve-Alaska. Such consideration should include areas not currently leased within the Northeast corner of the Reserve.

★ The NEPD Group recommends that the President direct the Secretary of the Interior work with Congress to authorize exploration and, if resources are discovered, development of the 1002 Area of ANWR. Congress should require the use of the best available technology and should require that activities will result in no significant adverse impact to the surrounding environment.

★ The NEPD Group recommends that the President direct the Secretary of the Interior to work with Congress and the State of Alaska to put in place the most expeditious process for renewal of the Trans-Alaska Pipeline System rights-of-way to ensure that Alaskan oil continues to flow uninterrupted to the West Coast of the United States.

★ The NEPD Group recommends that the President direct the Secretary of Energy to propose comprehensive electricity legislation that promotes competition, protects consumers, enhances reliability, promotes renewable energy, improves efficiency repeals the Public Utility Holding Company Act, and reforms the Public Utility Regulatory Policies Act.

★ The NEPD Group recommends that the President encourage FERC to use its existing statutory authority to promote competition and encourage investment in transmission facilities.

★ The NEPD Group recognizes the importance of looking to technology to help us meet the goals of increasing electricity generation while protecting our environment. To that end, the NEPD Group recommends that the President direct the Department of Energy to continue to develop advanced clean coal technology by:

- Investing $2 billion over 10 years to fund research in clean coal technologies.
- Supporting a permanent extension of the existing research and development tax credit.
- Directing federal agencies to explore regulatory approaches that will encourage advancements in environmental technology.

★ The NEPD Group recommends that the President direct federal agencies to provide greater regulatory certainty relating to coal electricity generation through clear policies that are easily applied to business decisions.

★ The NEPD Group recommends that the President support the expansion of nuclear energy in the United States as a major component of our national energy policy. Following are specific components of the recommendation:

- Encourage the Nuclear Regulatory Commission (NRC) to ensure that safety and environmental protection are high priorities as they prepare to evaluate and expedite applications for licensing new advanced-technology nuclear reactors.
- Encourage the NRC to facilitate efforts by utilities to expand nuclear energy generation in the United States by uprating existing nuclear plants safely.
- Encourage the NRC to relicense existing nuclear plants that meet or exceed safety standards.
- Direct the Secretary of Energy and the Administrator of the Environmental Protection Agency to assess the potential of nuclear energy to improve air quality.
- Increase resources as necessary for nuclear safety enforcement in light of the potential increase in generation.
- Use the best science to provide a deep geologic repository for nuclear waste.
- Support legislation clarifying that qualified funds set aside by plant owners for eventual decommissioning will not be taxed as part of the transaction.
- Support legislation to extend the Price–Anderson Act.

★ The NEPD Group recommends that, in the context of developing advanced nuclear fuel cycles and next generation technologies for nuclear energy, the United States should reexamine its policies to allow for research, development and deployment of fuel conditioning methods (such as pyroprocessing) that reduce waste streams and enhance proliferation resistance. In doing so, the United States will continue to discourage the accumulation of separated plutonium, worldwide.

★ The United States should also consider technologies (in collaboration with international partners with highly developed fuel cycles and a record of close cooperation) to develop reprocessing and fuel treatment technologies that are cleaner, more efficient, less waste-intensive, and more proliferation-resistant.

★ The NEPD Group recognizes there is a need to reduce the time and cost of the hydropower licensing process. The NEPD Group recommends that the President encourage the Federal Energy Regulatory Commission (FERC) and direct federal resource agencies to make the licensing process more clear and efficient, while preserving environmental goals. In addition, the NEPD Group recognizes the importance of optimizing the efficiency and reliability of existing hydropower facilities and will encourage the Administration to adopt efforts toward that end.

- Support administrative and legislative reform of the hydropower licensing process.
- Direct federal resource agencies to reach interagency agreement on conflicting mandatory license conditions before they submit their conditions to FERC for inclusion in a license.
- Encourage FERC to adopt appropriate deadlines for its own actions during the licensing process.

Nature's Power

Increasing America's Use of Renewable and Alternative Energy

A sound national energy policy should encourage a clean and diverse portfolio of domestic energy supplies. Such diversity helps to ensure that future generations of Americans will have access to the energy they need.

Renewable energy can help provide for our future needs by harnessing abundant, naturally occurring sources of energy, such as the sun, the wind, geothermal heat, and biomass. Effectively harnessing these renewable resources requires careful planning and advanced technology. Through improved technology, we can ensure that America will lead the world in the development of clean, natural, renewable and alternative energy supplies.

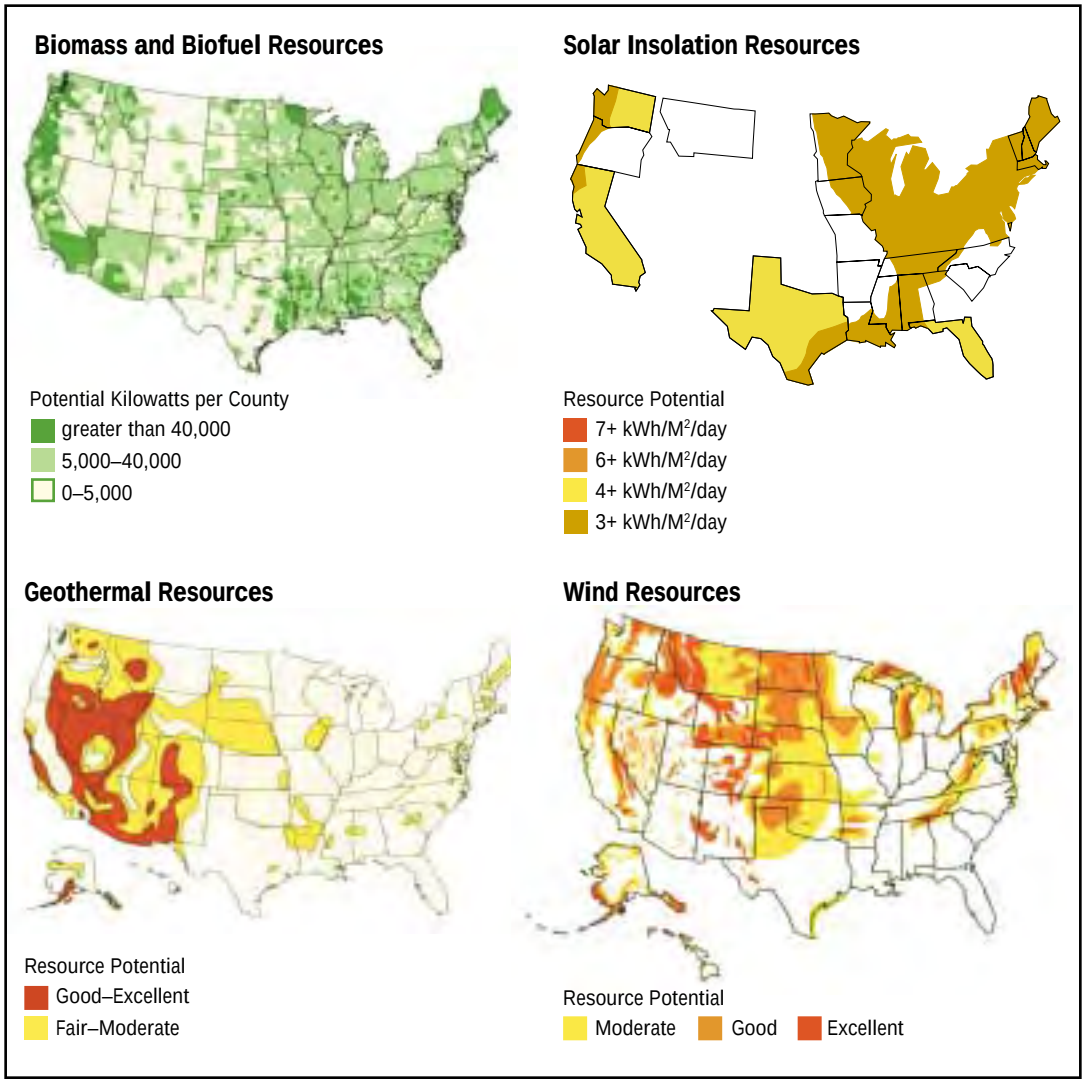
Renewable and alternative energy supplies not only help diversify our energy portfolio; they do so with few adverse environmental impacts. While the current contribution of renewable and alternative energy resources to America's total electricity supply is relatively small—only 9 percent—the renewable and alternative energy sectors are among the fastest growing in the United States. Non-hydropower only account for 2 percent of our electricity needs. However, electricity generation from non-hydropower renewable energy grew by nearly 30 percent in the 1990s. Continued growth of renewable energy will continue to be important in delivering larger supplies of clean, domestic power for America's growing economy.

Renewable energy resources tap naturally occurring flows of energy to produce electricity, fuel, heat, or a combination of these energy types. One type of renewable energy, hydropower, has long provided a significant contribution to the U.S. energy supply and today is competitive with other forms of conventional electricity. However, there is limited growth potential for hydropower. Non-hydropower renewable energy is generated from four sources: biomass, geothermal, wind, and solar (Figure 6-1). The United States has significant potential for renewable resource development. These nondepletable sources of energy are domestically abundant and often have less impact on the environment than conventional sources. They can provide a reliable source of energy at a stable price, and they can also generate income for farmers, landowners, and others who harness them.

Renewable hydropower has long provided a significant contribution to the U.S. energy supply. Today, hydropower is competitive with other forms of conventionally generated electricity.

Figure 6-1

U.S. Resource Potential for Renewable Energy



Almost every state has the potential for wind energy and for biomass and biofuel production. The Southwest has the greatest potential for solar energy, and geothermal energy resources are most abundant in the West.

Source: U.S. Department of Energy, National Renewable Energy Laboratory.

Recommendation:

★ The NEPD Group recommends that the President direct the Secretaries of the Interior and Energy to re-evaluate access limitations to federal lands in order to increase renewable-energy production, such as biomass, wind, geothermal, and solar.

Alternative energy includes: alternative fuels that are transportation fuels other than gasoline and diesel, even when the type of energy, such as natural gas, is traditional; the use of traditional energy sources, such as natural gas, in untraditional ways, such as for distributed energy at the point of use through microturbines or fuel cells; and future energy sources, such as hydrogen and fusion.

Both renewable and alternative energy resources can be produced centrally or on a distributed basis near their point of use. Providing electricity, light, heat, or mechanical energy at the point of use diminishes the

need for some transmission lines and pipe lines, reducing associated energy delivery losses and increasing energy efficiency. Dis tributed energy resources may be renew able resources, such as biomass cogenera tion in the lumber and paper industry or rooftop solar photovoltaic systems on homes, or they may be alternative uses of traditional energy, such as natural gas microturbines.

Recommendations:

★ The NEPD Group supports the increase of $39.2 million in the FY 2002 budget amendment for the Department of Energy's Energy Supply account that would provide increased support for research and development of renewable energy resources.

★ The NEPD Group recommends that the President direct the Secretary of Energy to conduct a review of current funding and historic perfor mance of renewable energy and alternative energy research and development programs in light of the recommendations of this report. Based on this review, the Secretary of Energy is then directed to propose appropriate funding of those research and development programs that are performance-based and are modeled as public-private partnerships.

Microturbines

Microturbines are small combustion turbines approximately the size of a refrigerator with outputs of 25 to 500 kilowatts. Microturbines can be used to power a home or small business. This technology has evolved largely from automotive and truck turbochargers, auxiliary power units for airplanes, and small jet engines.

Compared to other technologies for small-scale power generation, microturbines offer a number of significant advantages, including a small number of moving parts; compact size; lightweight, optimal effi ciency; lower emissions and electricity costs; and opportunities to use waste fuels. For these reasons, microturbines could easily capture a significant share of the distributed generation market.

Renewable Energy Technologies

Biomass

Biomass is organic matter that can be used to provide heat, make fuel, and gener ate electricity. Wood, the largest source of biomass, has been used to provide heat for thousands of years. Many other types of biomass are also used as an energy source, such as plants, residue from agriculture or forestry, and the organic component of mu nicipal and industrial wastes. Landfill gas is also considered a biomass source. Biomass resources can be replenished through culti- vation of what are known as energy crops, such as fast-growing trees and grasses.

Unlike other renewable energy sources, biomass can be converted directly into liquid fuels, called biofuels, to meet our transportation needs. The two most com mon biofuels are ethanol and biodiesel. Ethanol is made by fermenting any biomass that is rich in carbohydrates, such as corn. It is mostly used as a fuel additive to reduce a vehicle's emissions. Biodiesel is made us ing vegetable oils, animal fats, algae, or even recycled cooking greases. It can be used as a diesel additive to reduce emissions or in its pure form to fuel a vehicle. Beyond en ergy benefits, development of biomass ben efits rural economies that produce crops used for biomass, particularly ethanol and biomass electricity generation.

Biomass, like corn, that is rich in carbohydrates can be converted directly into biofuels to meet our transportation needs. The biofuel ethanol is mostly used as a fuel additive to reduce vehicles' smog-causing emissions. In June 1992, the Greater Peoria Mass Transit District began operating fourteen ethanol-powered buses along regular city routes.
U.S. Department of Energy

Biomass is also used to generate electricity. This is accomplished through the direct combustion of wood, municipal solid waste, and other organic materials; co-firing with coal in high efficiency boilers; or combustion of biomass that has been chemically converted into fuel oil. In the lumber and paper industries, wood scraps are sometimes directly fed into boilers to produce steam for their manufacturing processes or to heat their buildings. For that reason, renewable energy offers a particular advantage to the lumber and paper industry, and many analysts project the industry may soon become a net seller of electricity. Co-firing coal power plants with biomass has environmental benefits, since co firing can significantly reduce emissions. Biomass accounts for 76 percent of renewable electricity generation and 1.6 percent of total U.S. electricity supply.

Even gas for generating electricity can be produced from biomass. Gasification systems use high temperatures to convert biomass into a gas that is used to fuel a turbine. The decay of biomass in landfills also produces methane, a gas that can be captured and burned in a boiler to produce steam for electricity generation or for industrial processes. Using methane emissions increases electricity supplies, reduces pollution from landfills and reduces greenhouse gas emissions. The technologies to collect and use landfill methane to generate electricity are already in the market. However, they have not been successfully integrated at present due to the perceived higher risk of new technologies.

The Geysers in northern California is the world's largest producer of renewable geothermal power. The dry-steam field has successfully produced power since the early 1960s, when Pacific Gas & Electric installed the first 11-megawatt plant. Today, nearly 2,000 megawatts are on line – enough energy to supply the electricity needs of San Francisco and Oakland.
Pacific Gas & Electric

Recommendation:

★ The NEPD Group recommends that the President direct the Secretary of the Treasury, to work with Congress on legislation to expand the section 29 tax credit to make it available for new landfill methane projects. The credit could be tiered, depending on whether a landfill is already required by federal law to collect and flare its methane emissions due to local air pollution concerns.

Geothermal

Geothermal energy is the use of steam and hot water generated by heat from the Earth to perform work. Some geothermal power plants use steam or hot water from a natural underground reservoir to power a generator. Others use hot water to provide direct heat for residential and other buildings, and for other applications.

The most readily accessible resources for geothermal power generation in the United States are located in the West, Alaska, and Hawaii. A wide array of high technology geological, geochemical, and geophysical techniques are used to locate geothermal resources. In large measure, the technology for developing these resources has been adapted from the oil industry. Improvements in drill bits, drilling techniques, advanced instruments, and other technological advances have made energy production from geothermal resources increasingly efficient.

Geothermal accounts for 17 percent of renewable electricity generation and 0.3 percent of total U.S. electricity supply. However, the net installed capacity of U.S. geothermal power plants has increased significantly, from 500 MW in 1973 to 2,800 MW today.

Hot water near the surface of the Earth can also be used directly for heat. These direct-use applications include heat

ing buildings, growing plants in green houses, drying crops, heating water at fish farms, and several industrial processes, such as pasteurizing milk.

In addition, individual homeowners, farmers, and businesses can tap into geo thermal energy through geothermal heat pumps to heat and cool buildings. A geo thermal heat pump system consists of a heat pump, an air delivery system, a heat exchanger, and a system of pipes buried in the shallow ground near the building. In the winter, a heat pump removes heat from the heat exchanger and pumps that heat into the indoor air delivery system. In the sum mer, the process is reversed, and the heat pump moves heat from the indoor air into the heat exchanger. The heat removed from the indoor air during the summer can also be used to provide a free source of hot water. Geothermal heat pumps can be used almost anywhere in the United States, and can sig nificantly increase system efficiencies.

Recommendation:

★ The NEPD Group recommends that the President direct the Secretary of the Interior to determine ways to reduce the delays in geothermal lease process ing as part of the permitting review process.

Wind Energy

Wind energy has been used since at least 200 B.C. for grinding grain and pump ing water. By 1900, windmills were used on farms and ranches in the United States to pump water and, eventually, to produce electricity. Windmills developed into mod ern-day wind turbines.

Wind turbines are used for several ap plications. Wind power uses the naturally occurring energy of the wind for practical purposes like generating electricity, charg ing batteries, or pumping water. Large, modern wind turbines operate together in wind farms to produce electricity for utili ties. Small turbines are used by homeowners, farmers, and remote villages to help meet localized energy needs.

Wind turbines capture energy by using propeller-like blades that are mounted on a rotor. These blades are placed on top of high towers, in order to take advantage of the stronger winds at 100 feet or more above the ground. The wind causes the pro pellers to turn, which then turn the attached shaft to generate electricity. Wind can be used as a stand-alone source of energy or in conjunction with other renewable energy systems. Wind and natural gas hybrid sys tems are a promising approach that offers clean power to consumers.

Wind energy accounts for 6 percent of renewable electricity generation and 0.1 percent of total electricity supply. However, advances by research labs, universities, utilities, and wind energy developers have helped cut wind energy's costs by more than 80 percent during the last twenty years. The industry is poised for growth. In some parts of the country, electricity from wind power can be produced at prices that are comparable to other conventional en ergy technologies. The United States has many areas with abundant wind energy po tential, namely in the West, the Great Plains and New England.

Solar

Sunlight, or solar energy, can be used to generate electricity; heat water; and heat, cool, and light buildings. Photovoltaic (so lar cell) systems use semiconductor materi als similar to those used in computer chips to capture the energy in sunlight and to convert it directly into electricity. Photovol taic cells have been used in everything from

In 1996, the National Association of Home Builders constructed advanced townhouses featuring standing-seam roofs and other energy efficient materials and systems. The townhouse on the right differs from the others in that it has an integrated photovoltaic standing-seam roof that also produces electricity.
Tim Ellison, Energy Conversion Devices

the solar cells in calculators to the space station Freedom.

Another technology for harnessing the sun's energy is a concentrating solar power system, which uses the sun's heat to gener ate electricity. The sunlight is collected and focused with mirrors to create a high inten sity heat source that in turn can be used to generate electricity through a steam turbine or a heat engine.

Solar hot water systems use the sun to heat water for domestic or industrial use. Many large commercial buildings also use solar collectors for heat. A solar ventilation system can be used in cold climates to pre heat air as it enters a building. The heat from a solar collector can even be used to provide energy for cooling a building.

Some architects are using careful de sign and new optical materials to use sun light to reduce the need for traditional light ing and to cut down on heating and cooling costs. For example, materials that absorb and store the sun's heat can be built into the sunlit floors and walls. The floors and walls will store heat during the day and slowly re lease heat at night.

While solar energy technologies have undergone technological and cost improve ments and are well established in high value markets like remote power, satellites, communications, and navigational aids, continued research is needed to reduce costs and improve performance. Solar en ergy accounts for 1 percent of renewable electricity generation and 0.02 percent of total U.S. electricity supply.

Alternative Energy

Alternative Transportation Fuels

Alternative fuels are any transporta tion fuels made from a nontraditional source, including ethanol, biodiesel, and other biofuels. These can be made from biomass resources, including liquid fuels (e.g., ethanol, methanol, biodiesel) and gas eous fuels (e.g., hydrogen and methane). Biofuels are primarily used to fuel vehicles, but can also fuel engines or fuel cells for electricity generation. Alternative fuels also

Recommendations:

★ The NEPD Group recommends that the President direct the Administrator of the Environmental Protection Agency to develop a new renewable energy partnership program to help companies more easily buy renewable energy, as well as receive recognition for the environmental benefits of their purchase, and help consumers by promoting consumer choice programs that increase their knowledge about the environmental benefits of purchasing renewable energy.

★ The NEPD Group recommends that the President direct the Secretary of the Treasury to work with Congress on legislation to extend and expand tax credits for electricity produced using renewable technology, such as wind and biomass. The President's budget request extends the present 1.7 cents per kilowatt hour tax credit for electricity produced from wind and biomass; expands eligible biomass sources to include forest-related sources, agricultural sources, and certain urban sources; and allows a credit for electricity produced from biomass co-fired with coal.

★ The NEPD Group recommends that the President direct the Secretary of the Treasury to work with Congress on legislation to provide a new 15 percent tax credit for residential solar energy property, up to a maximum credit of $2,000.

★ The NEPD Group recommends that the President direct the Secretaries of the Interior and Energy to work with Congress on legislation to use an estimated $1.2 billion of bid bonuses from the environmentally responsible leasing of ANWR for funding research into alternative and renewable energy resources, including wind, solar, geothermal, and biomass.

Alternative Fuel Vehicles

Alternative fuel vehicles (AFVs) can run on methanol, ethanol, compressed natural gas, liquefied natural gas, propane, hydrogen, electricity, biodiesel, and natural gas. Today, more than 450,000 alternative vehicles are operating in the United States. Some of the barriers to using AFVs include:

Cost—For example, a Ford Crown Victoria that runs on compressed natural gas costs about $4,000 more than its gasoline counterpart.

Refueling Infrastructure—Refueling infrastructure is limited, which can make refueling inconvenient and travel options difficult.

Travel Distance—Ability to travel a long distance on a single volume of fuel. Al ternative fuels have an energy content lower than that of gasoline, which means that AFVs cannot travel as far as traditional vehicles on a single tank of fuel.

In the short term, natural gas and propane offer the greatest potential for market growth, especially in niche markets where lower fuel costs make them attractive, such as transit buses, school buses, shuttles, and other heavy-duty vehicles. Ethanol vehicles offer tremendous potential if ethanol production can be expanded. Electric vehicles could reach large numbers in the future if technology breakthroughs help bring costs down and increase driving distance. Fuel cell vehicles operating on com pressed hydrogen offer long-term potential. Compressed natural gas offers a distribu tion stepping-stone to a hydrogen-refueling infrastructure.

include traditional energy sources, such as natural gas and liquid propane that are tra ditionally not used as a transportation fuel.

Currently, there are approximately 450,000 alternative fuel vehicles in the United States, and more than 1.5 million flexible-fuel vehicles that can use gasoline or a mixture of ethanol and gasoline. Etha nol is made by converting the carbohydrate portion of biomass into sugar, which is then converted into ethanol through a fermenta tion process. Ethanol is the most widely used biofuel, and its production has in creased sharply since 1980, rising from 200 million gallons a year to 1.9 billion gallons. Today, many states are considering phasing out the use of MTBE (methyl tertiary butyl ether), an oxygenate additive for gasoline. If they do so, that will likely spur greater re liance on ethanol.

Each year, approximately 65 percent of the oil consumed in the United States is used for transportation. As a result, vehicle emissions have become the leading source of U.S. air pollution. However, recent ad vances in fuels and vehicle design are help ing increase fuel efficiency and reduce toxic substances discharged into the air.

Changes in the composition of trans portation fuels, such as gasoline and diesel fuels, are one way to improve vehicle per formance while reducing emissions and lowering oil consumption. Reformulated gasoline contains fuel additives such as ethanol to increase oxygen content, which reduces harmful emissions such as carbon monoxide. Low-sulfur gasoline reduces sul fur oxide emissions. New diesel fuels, some of which have lower sulfur contents or are produced from clean-burning natural gas, can help vehicles with diesel engines achieve lower emissions.

In addition to advanced transportation fuels, alternative fuels are being developed, such as biodiesel, electricity, ethanol, hydro gen, methanol, natural gas, and propane. These alternative fuels not only reduce de pendence on petroleum transportation fu els. They reduce or entirely eliminate harm ful emissions as well. With the exception of natural gas and propane, these fuels also have the potential of being generated from renewable resources, such as ethanol from corn. The federal government has promoted development of alternative fuels for many years and this program has helped to reduce U.S. reliance on oil-based fuels.

The evolution toward more efficient,

environmentally friendly transportation fu els has been mirrored by improvements in vehicle design, components, and materials. Alternative fuel vehicles, which can either switch between two fuels or run on a mix ture of two fuels such as gasoline and etha nol, are now available. Recent developments in both alternative fuel vehicles and petro leum-based vehicles, such as advances in engines, drive trains, and emission-control technologies, may double or triple the effi ciency of current vehicles. Some of these new technologies include hybrid electric ve hicles, which combine an engine with an electric motor, and fuel cells, which produce electricity by converting a fuel, generally hy drogen and oxygen, into water.

A number of issues drive the research and marketability of advanced alternative fuel vehicles and petroleum-based vehicles in the United States. The goal of reducing U.S. dependence on imported oil, combined with the link between vehicle emissions and air pollution, have prompted the develop ment of emissions and fuel economy stan dards for car manufacturers. In addition, federal, state, and local governments have enacted regulations, laws, and incentives de signed to reduce the number of vehicle miles traveled and to encourage businesses and individuals to purchase alternative fuel vehicles.

The success of the federal alternative fuels program has been limited, however. The current program focuses on mandating certain fleet operators to purchase alterna tive fueled vehicles. The hope was that this vehicle purchase mandate would lead to ex panded use of alternative fuels. That expec tation has not been realized, since most fleet operators purchase dual-fueled vehicles that operate on petroleum motor fuels. The Clean Air Act required the use of oxygen ates, such as MTBE (methyl tertiary butyl ether) and ethanol in fuel. These oxygenates account for 92 percent of alternative fuel use. Reforms to the federal alternative fuels program could promote alternative fuels use instead of mandating purchase of vehicles that ultimately run on petroleum fuels.

Recommendation:

★ The NEPD Group recommends that the President direct the Secretary of Treasury to work with Congress to continue the ethanol excise tax exemption.

Distributed Energy

Untapped opportunities for reducing energy demand loads could be realized by better integrating electricity supply systems and customers. Improved integration can produce a variety of benefits for tight en ergy markets, including reducing peak de mand loads, bypassing congested areas of transmission by placing new generating ca pacity closer to the consumer, and thus achieving greater overall system efficien cies.

Current electricity load management efforts are typically limited to cutting off in terruptible or nonfirm customers, appeals to the public to conserve, and brownouts. Some utilities are incorporating current generation metering, sensor, and control technologies to take the next step: selective reduction of individual energy-using appli ances. In some areas, residents can reduce their monthly bills by allowing the utility to electronically turn off selected appliances, such as water heaters, on a rotating basis. If this option is well managed, consumers are unaware of the temporary loss service, and critical systems continue to run unimpeded. Advanced integrated supply-and-demand load management controls also allow for widespread “demand auctions,” in which consumers can decide which energy ser vices to forego on which days.

Distributed energy resources describe a variety of smaller electricity-generating options well suited for placement in homes, offices, and factories, or near these facili ties. Distributed energy systems have the distinct advantage of being brought on line faster than new central power plants. While natural gas microturbines and solar roof panels are the most familiar types of distrib uted energy, other distributed energy re sources include: combined heat and power, stationary fuel cells, generation of

bioenergy from landfill methane recovery, and small wind systems. Photovoltaic solar distributed energy is a particularly valuable energy generation source during times of peak use of power.

Efficiency gains from distributed en ergy come from three sources. First, trans mission and distribution line losses (about 5 percent) are reduced because the energy is generally used near the source. Second, the co-location with consumption makes it more feasible to use waste heat, displacing otherwise needed natural gas or electricity for heating purposes. And, third, the co-lo cation with consumption allows for the in tegration of on-site energy efficiency and generating capabilities. For example, in the residential market, distributed energy appli cations can make possible the concept of the "net zero energy home," in which the overall level of energy produced at the home equals or exceeds the amount of en ergy used in the home.

Despite these advantages, a number of impediments and competing policy ob jectives discourage the wider application of integrated electricity supply and demand solutions, many of which reflect the relative newness and lack of familiarity with these technologies.

For example, the lack of standards governing interconnection of distributed energy to the grid impedes development. The lack of standards prevents a uniformly effective means of getting excess distrib uted energy to the grid.

In addition, current air quality regula tions do not take into account the additional energy savings from many distributed en ergy technologies. Likewise, distributed en ergy systems purchased by consumers may receive different tax rates than those pur chased by traditional electricity producers.

Although distributed energy can alle viate distribution constraints, these systems often cannot be sited and permitted in a timely manner. For instance, land-use zon ing codes may not allow generating equip ment in association with residential or com mercial land uses, and building code offi cials may not know enough about solar roof systems to provide timely building permits.

As with energy efficiency equipment, load management integrating systems, both controls and distributed energy, have higher first costs associated with lower future en ergy bills.

Another barrier to development of dis tributed energy is the need for net metering, which enables consumers to install a small electricity project at their homes and sell the excess to the local utility, offsetting their purchases from the utility at other times. Net metering can lower the cost to consumers of distributed energy projects. Some consumers are reluctant to install dis tributed renewable energy resources be cause many regions do not have the regula tory framework under which consumers can sell energy back to the grid under a net metering system.

Future Energy Sources

As we look to the long-term future of alternative energy technologies, there is sig nificant promise in these technologies to meet an ever-growing portion of our nation's energy needs.

Hydrogen

In the long run, alternative energy technologies such as hydrogen show great promise. Hydrogen is the most common ele ment in the universe and can be made from water. Converting hydrogen into energy is compatible with existing energy technolo gies, such as fuel cells, engines, and com bustion turbines. The energy for extracting hydrogen could come from existing, tradi tional fuels, or it could be derived from re newable energy sources, such as solar, nuclear, and fossil, to achieve the cleanest possible energy cycle. Hydrogen can be converted into useful energy forms effi ciently and without detrimental environ mental effects. Unlike other energy sources, its production by-product is water.

In the future, hydrogen may be able to be used in furnaces and as a transportation fuel for automobiles, buses, trains, ships and airplanes. Hydrogen could also be con verted directly into electricity by fuel cells. Combustion of hydrogen with oxygen re sults in pure steam, which has many appli-

There is a significant promise in renewable technologies to meet an ever-growing portion of our nation's energy needs. Wind power has significant growth potential. The principal challenges to achieving this level of renewable energy generation are cost and market acceptance of renewable power technologies.
U.S. Department of Energy, National Renewable Energy Laboratory

cations in industrial processes and space heating. Moreover, hydrogen is an important industrial gas and raw material in numerous industries, such as computer, metallurgical, chemical, pharmaceutical, fertilizer and food industries.

An energy infrastructure that relies on hydrogen could enable much greater use of distributed energy systems. These systems are small, modular electricity generators that can be placed right where they are needed for heating, cooling, and powering offices, factories, and residences. Hydrogen fuel cells are a promising type of distributed energy system that can provide the exacting reliability needed for the high-tech industry.

Fuel cells can produce electricity and heat from hydrogen, natural gas, and petroleum fuels, and fuel gases derived from coal and biomass. What makes fuel cells unique is that they can use fuels without combustion, simply by chemical reactions, making them extremely clean and efficient.

Fuel cells were developed by the National Aeronautics and Space Administration to generate electricity, heat, and water in space vehicles. The first-generation fuel cells for stationary power applications entered the commercial market in 1995. This type of fuel cell is used to generate very high-quality electricity and heat with negligible emissions in commercial and industrial settings. It is most likely to be used in cases where users are willing to pay a premium for cleaner, more reliable power than is available from the commercial grid.

The second generation of stationary fuel cells is currently in the demonstration phase, including a combined fuel cell–turbine hybrid. These fuel cells are expected to be more efficient and cost less when used in similar distributed energy systems. Smaller fuel cells for residential units are also being developed, and some are in the demonstration phase.

Despite technical progress, high costs remain the main deterrent to widespread fuel cell use. Significant cost reductions must be achieved before fuel cells will be competitive with internal combustion engines, and the size and weight of fuel cell systems must be reduced even more to accommodate vehicle packaging requirements.

The primary challenge to using more hydrogen in our energy systems is the cost of producing, storing, and transporting it. A serious challenge confronting a move toward distributed energy is the transition away from centralized energy systems of supply and production. These challenges are not expected to be resolved overnight, but progress made in the last few years has already far surpassed the expectations of just a decade ago.

A significant amount of promising research and development has already been completed. The automobile industry is aggressively exploring the fuel cell as the future of the industry. Moreover, a new first generation class of distributed energy technologies are already hitting the market.

Fusion

Fusion—the energy source of the sun—has the long-range potential to serve as an abundant and clean source of energy. The basic fuels, deuterium (a heavy form of hydrogen) and lithium, are abundantly available to all nations for thousands of years. There are no emissions from fusion, and the radioactive wastes from fusion are short lived, only requiring burial and oversight for about 100 years. In addition, there is no risk of a melt-down accident because only a small amount of fuel is present in the system at any time. Finally, there is little risk of nuclear proliferation because special nuclear materials, such as uranium and plutonium, are not required for fusion energy. Fusion systems could power an energy supply chain based on hydrogen and fuel cells, as well as provide electricity directly.

Although still in its early stages of development, fusion research has made some advances. In the early 1970s, fusion research achieved the milestone of producing 1/10 of one watt of fusion power, for 1/100 of a second. Today the energy produced from fusion is 10 billion times greater, and has been demonstrated in the laboratory at powers over 10 million watts in the range of a second.

Internationally, an effort is underway in Europe, Japan, and Russia to develop plans for constructing a large-scale fusion science and engineering test facility. This test facility may someday be capable of steady operation with fusion power in the range of hundreds of megawatts.

Both hydrogen and fusion must make significant progress before they can be come viable sources of energy. However, the technological advances experienced over the last decade and the advances yet to come will hopefully transform the en ergy sources of the distant future.

Recommendation:

★ The NEPD Group recommends that the President direct the Secretary of Energy to develop next-generation technology—including hydrogen and fusion.

- Develop an education campaign that communicates the benefits of alternative forms of energy, including hydrogen and fusion.
- Focus research and development efforts on integrating current pro grams regarding hydrogen, fuel cells, and distributed energy.

Current Markets for Renewable and Alternative Energy

Advances in Technology

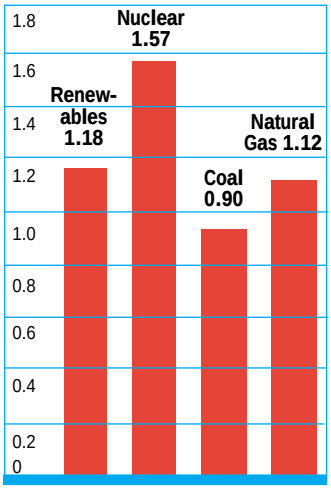
Non-hydropower renewable energy accounts for about 4 percent of current U.S. energy production, divided evenly be tween electricity generation and transpor tation fuels such as ethanol. Between 1990 and 1999, renewable energy generation grew by 29 percent, and renewable energy is projected to continue to grow (Figure 6-1). Renewable fuel consumption, includ ing ethanol for gasoline blending, is pro jected to grow at an average rate of 1.1 per cent a year through 2020. In 2020, 55 per cent of renewables are projected to be used for electricity generation and the rest for dispersed heating, industrial uses, and fuel blending.

The success of renewables is, in part, the result of over twenty years of research, development, and demonstration conducted by the public and private sectors. This work has dramatically improved these technolo gies and has reduced their costs by as much as 90 percent. For example:

- The Department of Energy (DOE), the National Renewable Energy Laboratory (NREL), and Alstom Energy Systems jointly created Advanced Direct-Contact Condens ers, which improve the efficiency and gener ating capacity of electric power plants by providing the best surface area for condens ing spent steam. This technological ad vance, tested in geothermal applications in California, can improve the efficiency of electricity production by 5 percent and capacity by 17 percent.
- United Solar Systems in Michigan pioneered the first commercial use of solar photovoltics as a building material. The triple-junction, thin-film technology is now sold as flexible solar panels, solar shingles for building roofs, and a peel-and-stick-on variety for standing seam metal roofs. United Solar is now building a larger manu facturing plant in Michigan that is five times the size of its existing manufacturing facil ity. DOE collaborates with United Solar on research and development helping over come hurdles in manufacturing. As a result, United Solar is able to provide unique solar electric products using a unique roll-to-roll manufacturing process.
- In partnership with DOE, NREL, Battelle Lab, Burlington Electric and others, Future Energy Resources Corporation of Norcross, Georgia, was able to build, test, and operate the world's first biomass gasifi cation system. The McNeil Plant, located in Burlington, Vermont, gasifies rather than combusts wood chips to power a gas boiler. The technology has shown itself to be com mercially viable, and is being considered worldwide by industries as a way of upgrad ing existing inefficient and aging boilers.

Improved renewable and alternative energy technologies are becoming increas ingly attractive to a number of energy com panies seeking to build new business oppor tunities for the future (Figure 6-3). Follow ing are a few examples:

Figure 6-1
Increases in U.S. Energy Production: 1990–1999



During the last decade, renewable energy sources contributed substantially to the growth in U.S. energy production, outpacing all fuel sources except for nuclear energy.

Source: U.S. Department of Energy, Energy Information Administration.

Table 6-2

Electricity Generated by Renewable Energy Sources: 1999

	Solar	Wind	Geothermal	Biomass	Hydropower
Current net summer capacity (MW)	350	2,600	2,870	6,170	79,130
Annual generation (millions of kWh)	940	4,460	13,070	36,570	312,000
Expected growth in generation (%)	PV: 19.3 Thermal: 21	5.3	3.3	3.0	-0.1
Cost (cents/kWh)	20	4–6	5–8	6–20	2–6

Renewable energy has become a significant source of electric power in the United States.

Note: Capacity, generation, and growth data do not include off-grid electricity, thermal, or other nonelectricity energy production, municipal solid waste, or methane from landfills.

Sources: U.S. Department of Energy, Energy Information Administration and Office of Power Technologies.

• FPL Group announced in January 2001 the construction of two major wind farms: a 300 MW facility on the Washington–Oregon border, and a 25.5 MW facility in Wisconsin. The company now has more than 1,000 MW of wind generating capacity in operation or under construction in seven states.

• CalEnergy Company has made renewable and alternative energy generation a central focus of its power portfolio. The company operates 1,300 MW of geothermal, natural gas, hydropower, and other power facilities in the U.S. and abroad, with another 750 MW currently under construction.

• General Motors, Ford, DaimlerChrysler, Texaco, BP/Amoco, and Shell are collectively spending between $500 million and $1 billion dollars a year on fuel cells, hydrogen storage, and infrastructure development for passenger vehicles. Ongoing bus demonstrations in the United States and Europe are expected to commercialize fuel cell power hydrogen buses in the next five years.

Because alternative and renewable energy resources can be used in so many different ways throughout the economy to produce so many combinations of energy types, their total use is often difficult to measure precisely. As of 1996, California alone had over 10 MW of installed distributed energy, a large increase in generating capacity during a period of otherwise limited growth in generation (Figure 6-3). In 1999, several types of renewable energy were used to produce electricity (Table 6-2).

On the transportation side, there are approximately 450,000 alternative fuel vehicles in the United States. Additionally, there are more than 1.5 million flexible-fuel vehicles that can use gasoline or a high mixture of ethanol and gasoline. These include the Ford Taurus, the DaimlerChrysler Caravan, and the General Motors S10 pickup. Ethanol is the most widely used biofuel, and its production is currently 1.9 billion gallons a year, representing a nearly ten-fold growth from about 200 million gallons a year in 1980.

Recommendation:

★ The NEPD Group recommends that the President direct the Secretary of the Treasury to work with Congress to develop legislation to provide for a temporary income tax credit available for the purchase of new hybrid or fuel-cell vehicles.

Hybrid Electric Vehicles

Hybrid electric vehicles (HEVs) combine the internal combustion engine of a conventional engine with the battery and electric motor of an electric vehicle, resulting in twice the fuel economy of conventional vehicles. This combination offers the extended range and rapid refueling that consumers expect from a conventional vehicle, with a significant portion of the energy and environmental benefits of an electric vehicle. The practical benefits of HEVs include improved fuel economy and lower emissions compared to conventional vehicles. The car's flexibility will mean convenient use for individuals as well as businesses.

Removing Barriers to Renewable and Alternative Energy Growth

Perhaps the greatest barrier to growth of renewable energy is cost. Currently, the cost of renewable energy generation fre

quently exceeds the costs of conventional electricity generation. In recent years, though, the costs of renewable energy have declined substantially. For example, the cost of wind energy has declined by more than 80 percent over the past twenty years and is increasingly competitive with con ventional electricity generation sources. Wind, biomass, and geothermal are all in creasingly competitive with conventional electricity generation.

The ability of these technologies to meet specific market needs is another fac tor in how quickly their market share will grow. These technologies and energy sources provide multiple benefits to the en ergy producer and the consumer. For ex ample, many of these technologies are modular and can be constructed rapidly, adding an immediate source of new power in areas that otherwise might face a short fall. Distributed renewable energy re sources can enhance the reliability and quality of power.

Cogeneration uses of waste products and heat can increase profits by reducing purchased electricity costs, as well as costs for process steam and heating or cooling. Several sectors, including lumber and paper, steel, and chemical manufacturing, are ex ploring the increased use of cogeneration. With the technological development of biom ass gasification, the lumber and paper indus try could become a seller of electricity.

Recommendation:

★ The NEPD Group recommends that the President direct the Adminis trator of the Environmental Protec tion Agency to issue guidance to encourage the development of well designed combined heat and power (CHP) units that are both highly efficient and have low emissions. The goal of this guidance would be to shorten the time needed to obtain each permit, provide certainty to industry by ensuring consistent implementation across the country, and encourage the use of these cleaner, more efficient technologies.

Renewable technologies can help pro vide insurance against price volatility. In ad dition, many renewable technologies can help industry achieve compliance with the Clean Air Act and other environmental regu lations. In some cases, renewables can be more readily located in urban areas whose air quality does not meet regulatory require ments.

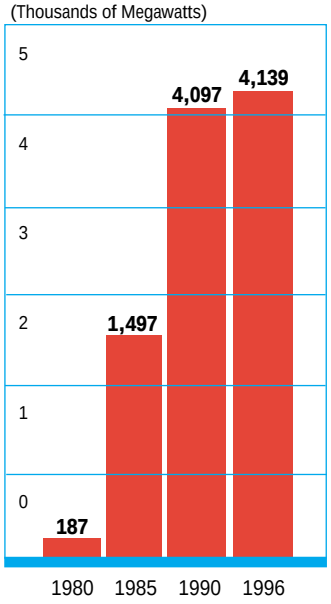
With the growth rate for non-hydro power renewable electricity generation more than doubling the expected growth in overall electricity capacity, these energy sources will play a more significant role in electricity markets in the next two decades. However, the extent to which these domes tic resources are successfully tapped will depend in large part on continued techno logical development.

For renewable and alternative energy to play a greater role in meeting our energy de mands, these sources of generation must be able to integrate into our existing distribution system. The tools that form the necessary in terface between distributed energy systems and the grid need to be less expensive, faster, more reliable, and more compact.

Promising technologies exist that will improve the transmission, storage, and reli ability of renewable energy. An example of recent technological success that will allow for increased access to all forms of energy, including renewable energy, is the high-tem perature superconducting underground power transmission cables that the Depart ment of Energy is developing in partnership with industry. These cables will allow a 300 percent increase in capacity without exca vation to lay new transmission lines. This summer, Detroit Edison is demonstrating this commercially viable high-temperature superconducting cable system in an applica tion that serves 14,000 customers.

Renewable and alternative energy technologies, such as wind energy and com bined heat and power could be significantly expanded, given today's technologies. They could be further expanded with added in vestment in technology. For example, wind energy could be developed that could be adapted to sites with lower wind speeds than is feasible today. Combined heat and

Figure 6-3
Growth in California's Renewable Energy Capacity

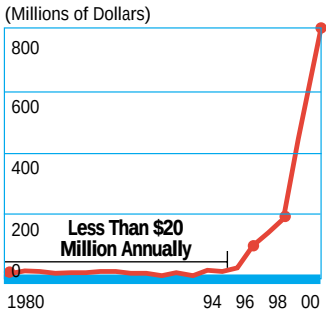


Source: U.S. Department of Energy, Energy Information Administration.

While solar energy technologies have undergone technological and cost improvements, and are well established in high value markets like remote power, satellites, communications, and navigational aids continued research is needed to reduce costs and improve performance.

U.S. Department of Energy

Figure 6-4
Investors Are Betting on Distributed Energy



In the last few years, surging venture capital investments showed strong support for distributed energy technologies.

Note: Data for 2000 are projected investments.
Source: Nth Power via the Economist, August 5, 2000.

power in buildings offers great potential for increased system efficiencies and lower costs. New developments in microturbine and fuel cell technologies are also highly promising. Performance improvements of other technologies, such as photovoltaic systems, would facilitate much wider use. In addition to technological performance, attention to several key market and regula tory constraints would accelerate the devel opment and use of renewable and alterna tive energy in the marketplace.

Because many renewable and alterna tive energy technologies do not fit into tra ditional regulatory categories, they are of ten subjected to competing regulatory re quirements or to requirements that were never designed to address them. For ex ample, much of the current Clean Air Act does not specifically address the use of new, more efficient renewable energy tech nologies. Consequently, the Act does not provide significant incentives for the devel opment of such technologies.

The lack of interconnection standards or guidelines for electricity supply and loads impedes the use of distributed energy tech nologies. As a result, developers of small re newable energy projects must negotiate in terconnection agreements on a site-by-site basis with local distribution companies that are often opposed to distributed energy projects because of the increased competi tion. Although a few states have established interconnection standards, there is no na tional standard to facilitate development of distributed energy (Figure 6-4).

New combined heat and power facili ties may face air permitting hurdles when they replace marginally dirty boilers. The Clean Air Act does not recognize the pollu tion prevention benefits of the increased ef ficiency of combined heat and power units. At the same time, these combined heat and power investments are taxed at the industry's tax rate, not at the rate they would receive if they were considered part of the utility sector for tax purposes.

In addition, modifications to permitting and siting requirements may be necessary to fa cilitate the incorporation of these technolo gies into buildings.

The infrastructure needed for increas ing the use of renewable and alternative en ergy varies considerably. In particular, the alternative fuels infrastructure lags far be hind the existing infrastructure for conven tional fuels. The lack of infrastructure for al ternative fuels is a major obstacle to con sumer acceptance of alternative fuels and the purchase of alternative fuel vehicles. It is also one of the main reasons why most al ternative fuel vehicles actually operate on petroleum fuels, such as gasoline and diesel. In addition, a considerable enlargement of ethanol production and distribution capac ity would be required to expand beyond their current base in the Midwest in order to increase use of ethanol-blended fuels.

The use of natural gas or electricity for vehicles requires enhancements to these distribution systems, such as compression stations for natural gas. While many alterna tive fuels can be shipped by pipeline, they may require separation within the pipeline to avoid mixing different energy products. Geographically dispersed renewable energy plants often face significant transmission barriers, including unfavorable grid sched ule policies and increased embedded costs.

Uncertainty regarding the tax treat ment of these technologies and energy sources can discourage long-term invest ment. Though existing tax credits provide an incentive for investing in some types of renewable energy, the limited scope of the credit and its frequent expiration discour ages investment.

Summary of Recommendations

Nature's Power: Increasing America's Use of Renewable and Alternative Energy

★ The NEPD Group recommends that the President direct the Secretaries of the Interior and Energy to re-evaluate access limitations to federal lands in order to increase renewable energy production, such as biomass, wind, geothermal, and solar.

★ The NEPD Group supports the increase of $39.2 million in the FY 2002 budget amendment for the Department of Energy's Energy Supply account that would provide increased support for research and development of renewable energy re sources.

★ The NEPD Group recommends that the President direct the Secretary of Energy to conduct a review of current funding and historic performance of renewable energy and alternative energy research and development programs in light of the recommen dations of this report. Based on this review, the Secretary of Energy is then directed to propose appropriate funding of those research and development programs that are performance-based and are modeled as public-private partnerships.

★ The NEPD Group recommends that the President direct the Secretary of the Treasury to work with Congress on legislation to expand the section 29 tax credit to make it available for new landfill methane projects. The credit could be tiered, depending on whether a landfill is already required by federal law to collect and flare its methane emissions due to local air pollution concerns.

★ The NEPD Group recommends that the President direct the Secretary of the Interior to determine ways to reduce the delays in geothermal lease processing as part of the permitting review process.

★ The NEPD Group recommends that the President direct the Administrator of the Environmental Protection Agency to develop a new renewable energy partnership program to help companies more easily buy renewable energy, as well as receive recognition for the environmental benefits of their purchase, and help consumers by promoting consumer choice programs that increase their knowledge about the environmental benefits of purchasing renewable energy.

★ The NEPD Group recommends that the President direct the Secretary of the Treasury to work with Congress on legislation to extend and expand tax credits for electricity produced using wind and biomass. The President's budget request extends the present 1.7 cents per kilowatt hour tax credit for electricity produced from wind and biomass; expands eligible biomass sources to include forest-related sources, agricultural sources, and certain urban sources; and allows a credit for electricity produced from biomass co-fired with coal.

★ The NEPD Group recommends that the President direct the Secretary of the Treasury to work with Congress on legislation to provide a new 15 percent tax credit for residential solar energy property, up to a maximum credit of $2,000.

★ The NEPD Group recommends that the President direct the Secretaries of the Interior and Energy to work with Congress on legislation to use an estimated $1.2 billion of bid bonuses from the environmentally responsible leasing of ANWR for funding research into alternative and renewable energy resources, including wind, solar, geothermal, and biomass.

★ The NEPD Group recommends that the President direct the Secretary of the Treasury to work with Congress to continue the ethanol excise tax exemption.

★ The NEPD Group recommends that the President direct the Secretary of Energy to develop next-generation technology—including hydrogen and fusion.
• Develop an education campaign that communicates the benefits of alternative forms of energy, including hydrogen and fusion.
• Focus research and development efforts on integrating current programs regarding hydrogen, fuel cells, and distributed energy.
• Support legislation reauthorizing the Hydrogen Energy Act.

★ The NEPD Group recommends that the President direct the Secretary of the Treasury to work with Congress to develop legislation to provide for a temporary income tax credit available for the purchase of new hybrid or fuel-cell vehicles be tween 2002 and 2007.

★ The NEPD Group recommends that the President direct the Administrator of the Environmental Protection Agency to issue guidance to encourage the development of well-designed combined heat and power (CHP) units that are both highly efficient and have low emissions. The goal of this guidance would be to shorten the time needed to obtain each permit, provide certainty to industry by ensuring consistent implementa tion across the country, and encourage the use of these cleaner, more efficient tech nologies.

America's Energy Infrastructure

A Comprehensive Delivery System

One of the greatest energy challenges facing America is the need to use 21st- century technology to improve America's aging energy infrastructure. Americans need a comprehensive, long-term solution to deliver energy to industry and consumers in a reliable and safe manner.

Our energy infrastructure is comprised of many components, such as the physical network of pipes for oil and natural gas, electricity transmission lines and other means for transporting energy to consumers. This infrastructure also includes facilities that turn raw natural resources into useful energy products. The rail network, truck lines, and marine transportation are also key components of America's energy infrastructure.

The energy industry has undergone major changes in the last two decades, and more are expected. These changes affect how our energy infrastructure operates. For example, while the electricity industry was once vertically integrated, it is increasingly separated into three isolated segments: generation, transmission, and distribution.

Our energy infrastructure has failed to keep pace with the changing requirements of our energy system. Domestic refining capacity has not matched increases in demand, requiring the United States to import refined products. Natural gas pipelines have not expanded sufficiently to meet demand. The electricity transmission system is constrained by insufficient capacity. Rail capacity was significantly increased during the 1970s when rail facilities were improved to move more coal. Since then, however, few additions to the coal transportation rail network have been built.

The United States needs to modernize its energy infrastructure. One sign of a lack of an energy policy in recent years has been the failure to maintain the infrastructure needed to move energy where it is needed most.

Electricity

The electricity infrastructure includes a nationwide power grid of long-distance transmission lines that move electricity from region to region, as well as the local distribution lines that carry electricity to homes and businesses. Electricity originates at power plants, which are primarily fueled by coal, nuclear, natural gas, water and, to a lesser extent, oil. Coal, natural gas and oil powered plants require a dependable transportation infrastructure to deliver the fuels necessary for the production of electricity. A transportation network for waste disposal is also necessary for power plants that create by products.

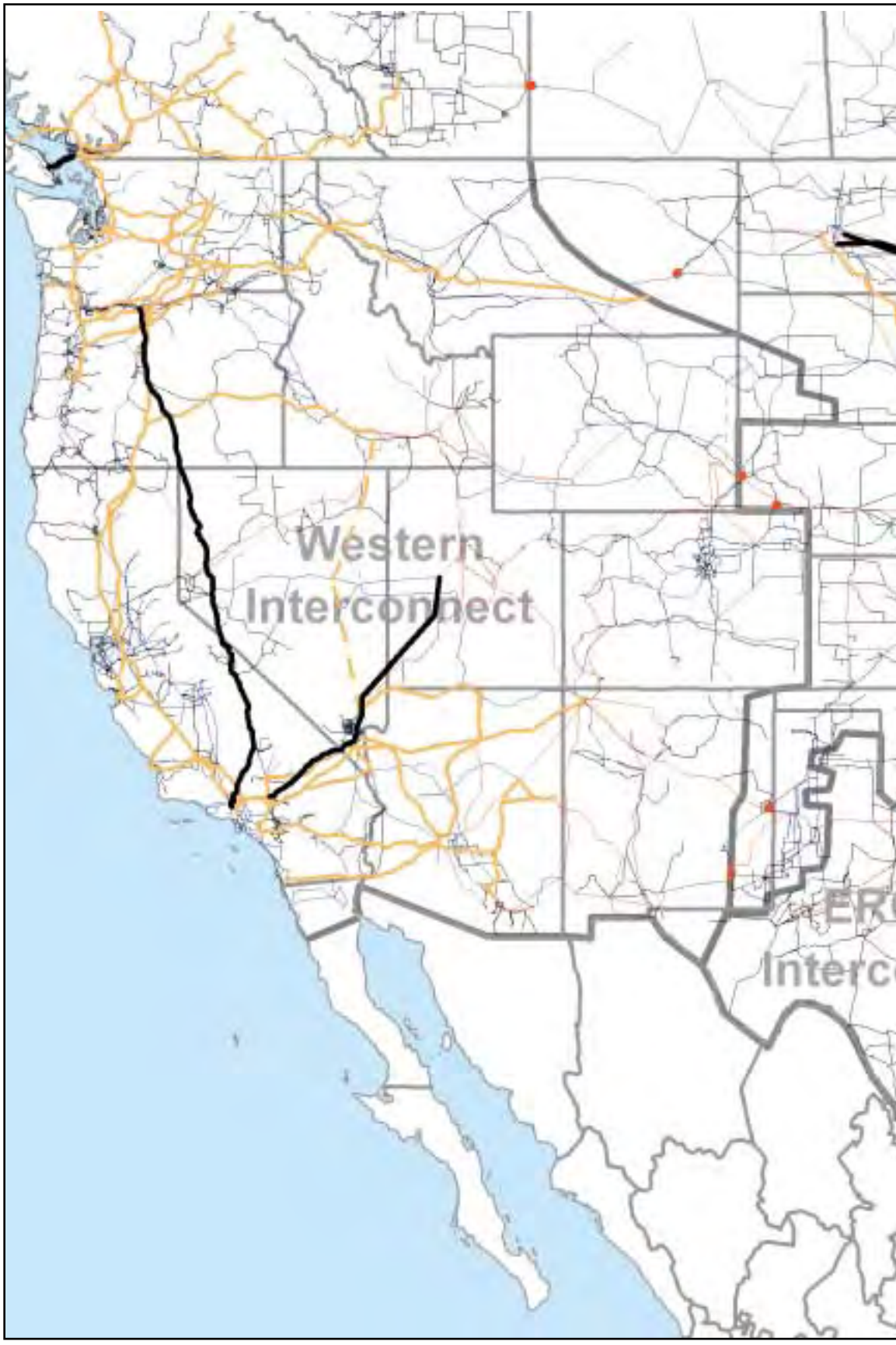
Restructuring

The electricity industry has undergone considerable changes in the last two decades. These changes affect how our electricity infrastructure operates. Major industry restructuring has separated once vertically integrated electric utilities that supplied generation, transmission, and distribution services into distinct entities. To facilitate competition at the wholesale level, in 1996, the Federal Energy Regulatory Commission (FERC) required transmission-owning utilities to "unbundle" their transmission and power marketing functions, and provide nondiscriminatory, open access to their transmission systems by other utilities

FIGURE 7-1
North American Transmission Lines

About 204,000 miles of long-distance transmission lines move power from region to region. The four integrated transmission grids serving North America are the Western Interconnection, Eastern Interconnection, Electric Reliability Council of Texas, and Province of Quebec.

Source: PA Consulting Group




Eastern
Interconnect
Legend
Below 230kv
230kv - 344kv
345kv - 499kv
500kv - 734kv
735kv - 999kv
AC-DC-AC Tie
DC Line
Dashed lines indicate proposed transmission lines
Prepared using RDI PowerMap data. Information on this map is believed to be accurate but is not guaranteed.

and independent power producers. At the retail level, some states have required utili ties to divest their generation assets as part of restructuring. These utilities currently supply only transmission and distribution services for customers who purchase elec tricity (i.e., generation services) from other firms. In addition, power marketers—who often do not own generation, transmission, or distribution facilities—buy and sell power on wholesale markets and market electricity directly to customers.

Electricity competition has led to sig nificant changes in the operation of the bulk power grid, which are the power plants and high-voltage transmission facilities that make up the wholesale power market. More electricity is being shipped longer distances over a transmission system that was initially designed only to provide limited power and reserve sharing among neighboring utilities. Electric utilities that were once solely re sponsible for ensuring that adequate gen eration was available to meet demand now purchase a substantial amount of the power they need from the wholesale market, rely ing on independent power producers to build and operate plants.

Electricity Generation

There are roughly 5,000 power plants in the United States, and they have a total generating capacity of nearly 800,000 mega watts. Over the past few years, there has been an explosion of "merchant" power plants proposed by independent power pro ducers seeking to sell into wholesale mar kets. In spite of this interest, a number of re gions of the country are experiencing capac ity shortages as a result of wholesale mar ket design problems and barriers to siting and building new power plants.

Over the next ten years, demand for electric power is expected to increase by about 25 percent, and more than 200,000 megawatts of new capacity will be required. However, under current plans electric trans mission capacity will increase by only 4 per cent. This shortage could lead to serious transmission congestion and reliability problems.

Transmission Grid

The United States does not have a na tional transmission grid. Instead, there are four integrated transmission grids serving North America: the Western Interconnec tion, Eastern Interconnection, Electric Reli ability of Council of Texas, and the Province of Quebec (Figure 7-1). These regional grids themselves are international, encom passing the United States, Canada, and part of Mexico.

Transactions between the four inte grated transmission grids are very limited because they are interconnected at only a few locations through interties, so for all practical purposes they can be viewed as separate transmission grids. The four inte grated transmission grids break down into a series of smaller regions, largely defined by transmission constraints. Altogether, 204,000 miles of transmission lines in North America move power from the point of gen eration to where electricity is needed. There are 157,810 miles of transmission lines in the United States. Transmission grid expan sions are expected to be slow over the next ten years, with additions totaling only 7,000 miles.

The transmission system is the high way system for interstate commerce in elec tricity. Transmission allows the sale of elec tricity between regions. In a particular re gion, transmission can be a substitute for generation, allowing that region to import power that otherwise would have to be gen erated within that region. In some cases, transmission expansion may be more cost effective than generation additions, allow ing a region better access to lower-cost gen eration.

Transmission constraints limit these power flows, and result in consumers pay ing higher prices for electricity. The electric ity price spikes in the Midwest in the sum mer of 1998 were caused in part by trans mission constraints limiting the ability of the region to import electricity from other regions of the country that had available electricity. During the summer of 2000, transmission constraints limited the ability to sell low-cost power from the Midwest to the South during a period of peak demand,

resulting in higher prices for consumers. Transmission capacity limits could result in price pressures and reliability problems this summer in California, Long Island, the Great Lakes, the Southeast, and New En gland (Figure 7-2).

Regional shortages of generating ca pacity and transmission constraints com bine to reduce the overall reliability of elec tric supply in the country and are reducing the quality of power delivered to end users. Power quality is becoming an increasingly important issue as our digital economy con tinues to grow.

One factor limiting reliability is the lack of enforceable reliability standards. Since 1968, the reliability of the U.S. trans mission grid has depended entirely on vol untary compliance with reliability stan dards. There is a broad recognition that vol untary adherence with reliability standards is no longer a viable approach in an increas ingly competitive electricity market. There is a need to provide for enforcement of mandatory reliability standards. Broad sup port has emerged for development of these standards by a self-regulating organization overseen by FERC.

Recommendations:

★ The NEPD Group recommends that the President direct the Secretary of Energy to work with FERC to improve the reliability of the interstate trans mission system and to develop legisla tion providing for enforcement by a self-regulatory organization subject to FERC oversight.

★ The NEPD Group recommends that the President direct the Secretary of Energy to expand the Department's research and development on trans mission reliability and superconduc tivity.

Transmission constraints were also a primary factor in blackouts in northern California, which imports power from both the Northwest and southern California. When resources are not available in the Northwest, electricity supply must come from southern California's Path 15 transmis sion route. Path 15 does not have sufficient capacity to provide all of the power needed in northern California.

Figure 7-2

Current Electric Power Bottlenecks

Transmission capacity limits could result in price pressures and reliability problems this summer in California, Long Island, the Great Lakes, the Southeast, and New England. The arrows in this figure de pict the locations and directions of current transmission congestion.

Source: North American Electric Reliability Council.

Recommendation:

★ The NEPD Group recommends that the President direct the Secretary of Energy to authorize the Western Area Power Administration to explore relieving the "Path 15" bottleneck through transmission expansion financed by nonfederal contributions.

Transmission constraints have been a persistent cause of price spikes in New York City in recent years. The New York Indepen dent System Operator (the grid operator in that state) estimates that the city will be short about 400 MW below their desired re serve margin of power during the summer peak. To fill this gap, the New York Power Authority is trying to install additional gen eration capacity in the city. Market-oriented approaches could also be used to create ad ditional capacity and alleviate some of the potential problems.

If transmission constraints are not re moved, the result can be higher prices and

lower reliability. There are various reasons why transmission constraints exist. One is the lack of sufficient investment in trans mission. Transmission investment has lagged dramatically over the past decade (Figure 7-3). There is a need to ensure that transmission rates create incentives for ad equate investment in the transmission sys tem, especially as restructuring leads to the creation of transmission companies whose only business is operation of transmission facilities. FERC recognizes this need and has expressed a willingness to consider in novative transmission pricing proposals.

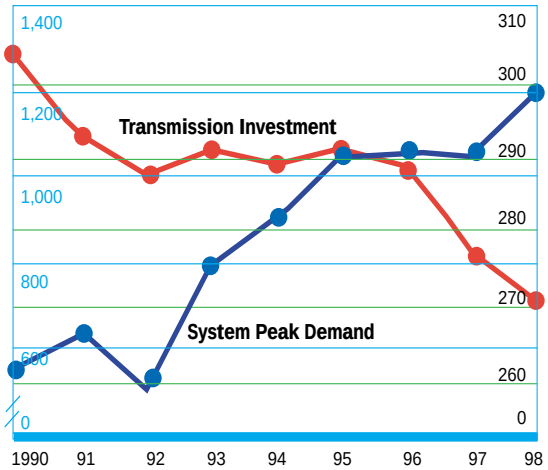
Another cause of transmission con straints is the siting process. Under current law, siting of transmission facilities is a re sponsibility of state governments, not the federal government, even though the trans mission system is not only interstate but also international, extending into both Canada and Mexico. This stands in stark contrast to siting of other interstate facili ties, such as natural gas pipelines, oil pipe lines, railroads, and interstate highways.

Federal law governing the responsibil ity for siting transmission facilities was written in 1935, nearly 80 years ago. At the time, transmission facilities were not inter-

Figure 7-3

U.S. Investment in New Electric Power Transmission

(Millions of 1990 Dollars)



Growth in peak demand for electricity has far outstripped investment in transmission capacity. As a result, transmission constraints could aggravate already limited supplies of power and could result in high prices in some areas of the country.

Source: PA Consulting Group, based on data from the UDI data base.

state, and there was virtually no interstate commerce in electricity. Congress did not anticipate the development of an interstate and international transmission system.

State decisions on where to locate transmission lines often do not recognize the importance of proposed transmission fa cilities to the interstate grid. For example, a recent decision by regulators in Connecticut to block a proposed transmission line to Long Island did not recognize the need for electricity on Long Island. Some state siting laws require that the benefits of a proposed transmission facility accrue to the indi vidual state, resulting in the rejection of transmission proposals that benefit an en tire region, rather than a single state.

Much has changed since 1935. The transmission system is the highway for in terstate commerce in electricity. Transmis sion constraints are resulting in higher prices for consumers and lower reliability. The siting process must be changed to re flect the interstate nature of the transmis sion system.

Recommendations:

★ The NEPD Group recommends that the President direct the appropriate federal agencies to take actions to re move constraints on the interstate transmission grid and allow our nation's electricity supply to meet the growing needs of our economy.

- Direct the Secretary of Energy, by December 31, 2001, to examine the benefits of establishing a national grid, identify transmission bottle necks, and identify measures to re move transmission bottlenecks.
- Direct the Secretary of Energy to work with FERC to relieve trans mission constraints by encouraging the use of incentive rate-making proposals.
- Direct the federal utilities to deter mine whether transmission expan sions are necessary to remove con straints. The Administration should review the Bonneville Power Administration's (BPA's) capital and

financing requirements in the context of its membership in a regional RTO, and if additional Treasury financing appears warranted or necessary in the future, the Administration should seek an increase in BPA's borrowing authority at that time.

- Direct the Secretary of Energy, in consultation with appropriate federal agencies and state and local government officials, to develop legislation to grant authority to obtain rights-of-way for electricity transmission lines, with the goal of creating a reliable national transmission grid. Similar authority already exists for natural gas pipelines in recognition of their role in interstate commerce.

Another cause of transmission constraints is limited access to federal lands. The federal government is the largest land owner in the United States and owns most of the land in some western states. Limited access to federal lands can block needed transmission expansion. A case in point is a transmission line being built from West Virginia to Virginia. Five years ago, the Department of Energy identified that line as critical to the reliability of the transmission system on the East Coast. Five years later, the line is still not complete. Improved access to federal land can help remove transmission constraints.

Rights-of-Way on Federal Lands

The Bureau of Land Management (BLM) estimates that 90 percent of the oil and natural gas pipeline and electric transmission rights-of-way in the western United States cross federal lands. These lands are principally lands managed by either the BLM or the U.S. Forest Service. Rights-of-way are authorized through an approval process that allows the public to comment on proposals to locate infrastructure items, like utility poles, on these rights-of way. As part of this process, proposals are examined for resource and other use conflicts, and a national interest test is applied prior to approval.

The BLM administers 85,000 rights-of-way, including 23,000 for oil and gas pipelines and 12,000 for electric transmission lines. It processes over 1,200 pipeline and electric system right-of-way applications a year, with an increase in applications of

The electric power infrastructure includes a nationwide "power grid" of long-distance transmission lines that move electricity from the point of generation to where the electricity is needed. Over the next ten years, U.S. demand for electric power is expected to increase by 25 percent, while transmission capacity is expected to increase by only 4 percent.

Virtually all natural gas in the United States is moved via pipeline. The current domestic natural gas transmission capacity of approximately 23 trillion cubic feet (tcf) will be insufficient to meet the projected 50 percent increase in U.S. consumption projected for 2020.

over 10 percent a year in recent years. The demand for additional energy and electric ity is expected to increase the need for rights-of-way across federal lands.

Other federal entities also deal with rights-of-way, each approaching the issue from a unique perspective. The National Park Service is authorized to grant leases and permits, but discourages rights-of-way corridors unless there are no practical alter natives. The U.S. Fish and Wildlife Service manages National Wildlife Refuge lands for wildlife and habitat values, and allows corri dors where they were pre-existing or are de termined to be compatible with the pur poses for which a refuge was established. The Bureau of Reclamation is authorized to grant rights-of-way over lands acquired or withdrawn for reclamation purposes, if compatible with authorized project pur poses. The Bureau of Indian Affairs and tribal governments are authorized to grant rights-of-way across both tribal and indi vidually owned Indian lands.

Pipelines

After being pumped from the ground in domestic oil fields, oil travels through gathering lines to pipelines, which bring it to refineries, where it is transformed into petroleum products like gasoline, diesel fuel, or heating oil. These products then travel through pipelines and tanker trucks to distribution outlets for purchase by con sumers. Natural gas must similarly travel from gas fields through gathering lines to processing facilities, and then into pipelines and local distribution lines to its final desti nation. These pipeline systems involve a complex infrastructure of their own, includ ing pump stations or compressor stations, and control systems that open and close valves and switch product flow through pipes, often with the use of computer tech nology.

Oil Pipelines

The two million miles of oil pipelines in the United States are the principal mode for transporting oil and petroleum products such as gasoline. They account for about 66 percent of domestic product movements (Figure 7-4). Increases in the demand for oil and changes in where it is supplied will lead to the need for more pipeline capacity.

Pipelines are less flexible than other forms of oil transport, because they are fixed assets that cannot be easily adjusted to changes in supply and demand. Once built, they are an efficient way to move pe troleum and petroleum products. A modest sized pipeline carries the equivalent of 750 tanker truckloads a day—the equivalent of a truckload leaving every two minutes, 24 hours a day, 7 days a week. Replacing the same pipeline with a railroad train of tank cars, carrying 2,000 barrels each, would re quire a 75-car train to arrive and be un loaded every day. Pipelines are relatively in expensive to operate and are generally quiet and safe. Ensuring pipeline safety requires careful management, as multiple products move through a single pipeline system at the same time.

Insufficient domestic pipeline capacity has caused peak-load problems in moving oil and petroleum products such as gasoline from one region of the country to another. For example, many energy analysts fore casted the possibility of a shortage last win ter in the upper Midwest of liquefied petro leum gas used for heating and for drying crops. Others were concerned about pos sible shortages of heating oil in New En gland.

Energy supply shortages can create operational difficulties for the pipelines themselves. The complex interrelationship

of our energy infrastructure is evident, since pipelines have been shut down for varying time periods due to regional elec tricity shortages.

For example, fuel supplies to Las Ve gas and Phoenix became dangerously low when blackouts in California shut down the main pipeline serving those areas. The Cali fornia Public Utilities Commission (CPUC) has granted a waiver of penalties to oil pipelines that have interruptible contracts for electricity to help ensure the uninter rupted flow of motor fuel supplies to Cali fornia. The California Energy Commission asked the CPUC to grant the waiver in or der to minimize the threat to public health due to disruptions of fossil fuel supplies. While the waiver of penalties does not guar antee that disruptions of power to petro leum product pipelines will not occur, it di minishes the threat by allowing disruptions to occur only when they are coordinated with the entire petroleum product delivery system, from refiner to pipeline to termi nals. Both Phoenix and Las Vegas would benefit from this decision because refiner ies and pipelines from California supply the two cities.

Much of the existing oil pipeline infra structure is old, requiring regular safety and environmental reviews to ensure its reliabil ity. The potential risk of pipeline accidents to human health and safety is of grave con cern. In June 1999, a petroleum product pipeline ruptured and caught fire in Bellingham, Washington. In addition to tragic loss of life, the pipeline's 18-month shutdown caused an economic hardship to the Seattle–Tacoma Airport and other local businesses that relied on the pipeline for aviation and diesel fuels. To avoid similar crises, the Department of Transportation, which has responsibility for pipeline safety, has adopted regulations and other risk man agement approaches to ensure safety in pipeline design, construction, testing, operation, maintenance, and emergency response.

Recommendation:

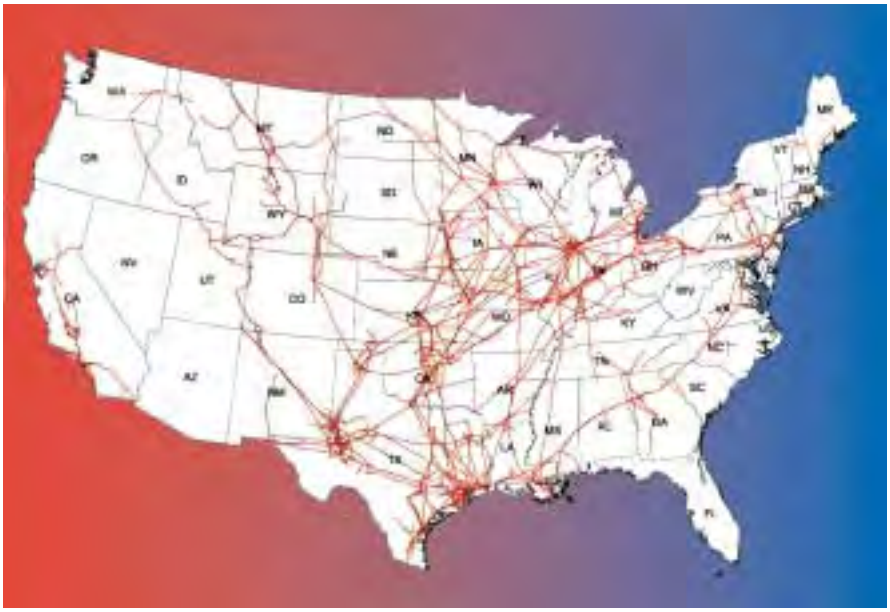
★ The NEPD Group recommends that the President direct the Secretary of the Interior to work with Congress and the State of Alaska to put in place the most expeditious process for renewal of the Trans-Alaskan Pipeline System rights-of-way to ensure that Alaskan oil continues to flow uninterrupted to the West Coast of the United States.

The Trans-Alaska Pipeline System is the single most important crude oil pipeline in the United States, and is perhaps the most regulated oil pipeline in the world. The pipeline system has carried nearly one-fifth of all domestically produced oil for the last two decades. Since beginning operations in 1977, it has transported more than 13 billion barrels of oil from Alaska's North Slope across 800 miles to the Port of Valdez. Since the pipeline began operation, only 0.00014 percent of the total amount of oil trans ported through it has been spilled.

The pipeline's federal grant and state lease for right-of-way expires in 2004 and will require renewal. That process will in-

Figure 7-4

U.S. Oil Pipelines



The two million miles of oil pipelines in the United States are the principal mode for transporting crude oil and refined products. They account for about 66 percent of domestic product movements.

Source: U.S. Department of Transportation, Office of Pipeline Safety.

Several federal agencies are authorized to grant rights-of-way for oil and gas pipeline and electric transmission systems on federal lands, and each approaches the issue from a unique perspective. Authorizing agencies include the Bureau of Land Management, the U.S. Forest Service the National Park Service, the U.S. Fish and Wildlife Service, the Bureau of Reclamation, and the Bureau of Indian Affairs.

volve a thorough review of compliance with federal laws and regulations, including those related to safety and environmental impacts. Because nearly 50 percent of the right-of-way is owned by the State of Alaska, they must also renew the applicable state permits. To commence the formal portion of the federal renewal process, regulations require a renewal application to be filed with the Alaska Office of the BLM of the Department of the Interior. To the extent possible, a single, joint federal/state approach should be considered.

Natural Gas Pipelines

Virtually all natural gas in the United States is moved via pipeline (Figure 7-5). The current domestic natural gas transmission capacity of approximately 23 trillion cubic feet (tcf) will be insufficient to meet the projected 50 percent increase in U.S. consumption projected for 2020.

Some parts of the country, such as California and New England, already face capacity shortages. Several pipeline operators have applied for permits to increase their delivery of natural gas to California, but right-of-way issues and local permitting delays have constrained the ability to transport natural gas to California, contributing to high prices. In addition, the natural gas pipeline connections from Canada are near capacity, so any greater U.S. reliance on Canadian natural gas will require increased pipeline capacity.

One of the largest known reserves of natural gas in the United States has been found in the Arctic, associated with the development of oil at Alaska's Prudhoe Bay. These known gas reserves, over 35 tcf, would make a significant long-term contribution to the nation's energy supplies if delivered to the lower 48 states. It is estimated there may be an additional 100 tcf on the North Slope of Alaska. Recently, as the energy supply situation has changed, interest has renewed in tapping into Alaska's natural gas supplies. Over the past year, the Alaska North Slope gas producers have been reviewing whether projected market conditions will make transportation of this natural gas economically feasible. The North Slope gas producers are scheduled to complete that review by the end of 2001.

Recommendation:

★ The NEPD Group recommends that the President direct the Secretaries of Energy and State, coordinating with the Secretary of the Interior and the Federal Energy Regulatory Commission, to work closely with Canada, the State of Alaska, and all other interested parties to expedite the construction of a pipeline to deliver natural gas to the lower 48 states. This should include proposing to Congress any changes or waivers of law pursuant to the Alaska Natural Gas Transportation Act of 1976 that may be required.

America needs the energy that Alaska's North Slope natural gas can provide. The Administration seeks to expedite the construction of a pipeline to deliver this natural gas to the lower 48 states.

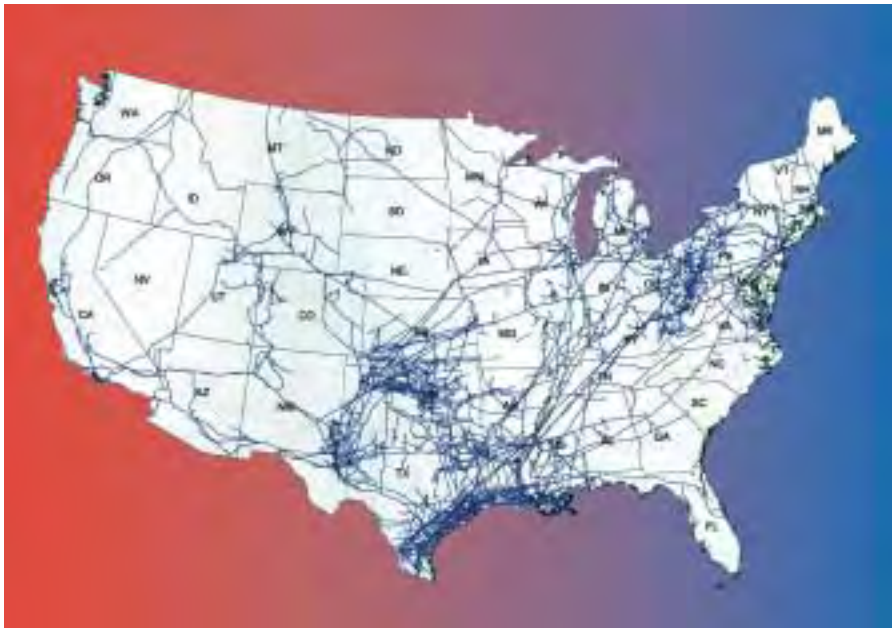
In addition to shortfalls in capacity, sources of natural gas have shifted from the Southwest to the deep water of the Gulf of Mexico, the Rocky Mountains, western Canada, and the Canadian Atlantic. At the same time, demand has shifted from the in dustrial Midwest to the growing population centers in the South and the West. An addi tional 263,000 miles of distribution pipe lines and 38,000 miles of new transmission pipelines will be necessary to meet in creased consumption and the new geo graphic realities of supply and demand.

Several factors complicate efforts to meet the need for increased pipeline capac ity, including encroachment on existing rights-of-way and heightened community resistance to pipeline construction. Cur rently it takes an average of four years to obtain approvals to construct a new natural gas pipeline. In some cases it can take much longer.

The projected growth in energy de mand has called into question whether regulatory actions and permitting processes can keep pace with the necessary construc tion of new facilities for storage and deliv ery. Consistent federal, state, and local gov ernment policies, and faster, more predict able regulatory decisions on permitting for oil and natural gas pipelines are needed to enable timely and cost-effective infrastruc ture development. The permitting process has a positive role in protecting the environ ment, public health, and safety by allowing all interested parties an opportunity to par ticipate effectively and fully in the delibera tions prior to the permit issuance.

Recent pipeline ruptures involving a natural gas pipeline near Carlsbad, New Mexico, and an underground natural gas storage facility near Hutchinson, Kansas, highlight the need to develop technologies and policies that protect people, environ ment, and the safety of the nation's energy infrastructure. The federal government has an important role in ensuring and improv ing the safety of these gas pipelines. New technologies need to be developed to im prove monitoring and assessment of system integrity, improve data quality for system planning, extend the serviceability and life of the national natural gas transmission and dis tribution network, provide safer transport of energy products, and lessen the impacts of the energy infrastructure on the environ ment.

Figure 7-5
U.S. Natural Gas Transmission Pipelines



Virtually all natural gas in the United States is moved via pipeline. The forecast of a doubling in the number of new natural gas wells drilled annually and an 80 percent increase in the number of active drilling rigs will require new pipelines.

Source: U.S. Department of Transportation, Office of Pipeline Safety.

Recommendations:

★ The NEPD Group recommends that the President support legislation to im prove the safety of natural gas pipelines, protect the environment, strengthen emergency preparedness and inspec tions and bolster enforcement.

★ The NEPD Group recommends that the President direct agencies to con tinue their interagency efforts to im prove pipeline safety and expedite pipe line permitting in an environmentally sound manner and encourage the Fed eral Energy Regulatory Commission to consider improvements in the regulatory process governing approval of interstate natural gas pipeline projects.

U.S. demand for refined petroleum products currently exceeds its domestic capacity to produce them. The refinery industry is now running at nearly 100 percent of capacity during the peak gasoline consumption season.

Oil Refineries

U.S. demand for refined petroleum products, such as gasoline and heating oil, currently exceeds our domestic capacity to produce them. The refinery industry is now running at nearly 100 percent of capacity during the peak gasoline consumption sea son and is producing record levels of needed products at other times. The excess demand has recently been met by increased imports.

The U.S. refining industry has experi enced a decade of low profitability and rates of return on investment. This has dis couraged investment in new refineries. In fact, almost 50 U.S. refineries closed over the last ten years, and no major refineries have been built in the last twenty-five years.

During the last ten years, overall refin ing capacity grew by about 1 to 2 percent a year as a result of expansion in the capacity of existing, larger refineries. Although there was a significant, sustained improvement in margins during 2000, those gains arose out of a very tight supply situation and high, vola tile prices. Industry consolidation has been a key response to this poor profitability.

The U.S. refining industry is also fac ing major infrastructure problems. While the industry expanded steadily through the 1970s, it went through a period of consoli dation after the oil shocks of 1973 and 1978. Ongoing industry consolidation, in an effort to improve profitability, inevitably leads to the sale or closure of redundant facilities by the new combined ownership. This has been particularly true of terminal facilities, which can lead to reductions in inventory and system flexibility. While excess capac ity may have deterred some new capacity investments in the past, more recently, other factors, such as regulations, have de terred investments.

Refiners are subject to significant en vironmental regulation and face several new clean air requirements over the next de cade. Refiners will face many clean fuel pro duction standards, which require the pro duction of many different kinds of gasoline and diesel fuel for different parts of the country. New Environmental Protection Agency rules will require refiners to pro duce gasoline and diesel fuel with signifi cantly lower sulfur content. New clean air requirements will benefit the environment, but will also require substantial capital in vestments and additional government per mits. The proliferation of distinct regional and state gasoline and diesel product stan dards, the significant permitting needed, and the downtime to make the needed physical and operational changes will chal lenge refiners and governments to effec tively coordinate in order to reduce the like lihood of supply shortfalls and price spikes.

Recommendation:

★ The NEPD Group recommends that the President direct the Administrator of the EPA to study opportunities to maintain or improve the environmen tal benefits of state and local "bou tique" clean fuel programs while ex ploring ways to increase the flexibility of the fuels distribution infrastructure, improve fungibility, and provide added gasoline market liquidity. In conclud ing this study, the Administrator shall consult with the Departments of En ergy and Agriculture, and other agen cies as needed.

Since 1990, refiners have met growing demand by increasing the use of existing equipment and increasing the efficiency and capacity of existing plants. Even with these efforts, however, refining capacity has be gun to lag behind peak summer demand. Price volatility and the cyclical nature of oil markets inhibit investment in supply infra structure. While investors can withstand market fluctuations for some commodities, large investments in oil exploration and de velopment—such as for drilling required to maintain a steady supply and the pipelines needed to bring supply to market—are of ten curtailed during times of low oil prices. The outcome of this lack of steady invest ment is less supply, higher prices, and the abandonment of marginal oil resources that may never be recovered.

Recommendations:-

★ The NEPD Group recommends that- the President direct the Administrator- of the Environmental Protection- Agency and the Secretary of Energy to- take steps to ensure America has ad - equate refining capacity to meet the- needs of consumers.-

- Provide more regulatory certainty to refinery owners and streamline the permitting process where pos sible to ensure that regulatory over lap is limited.
- Adopt comprehensive regulations (covering more than one pollutant and requirement) and consider the rules' cumulative impacts and benefits.

★ The NEPD Group recommends that the President to direct the Administra tor of the Environmental Protection Agency, in consultation with the Secre tary of Energy and other relevant agencies, to review New Source Re view regulations, including administra tive interpretation and implementa tion, and report to the President within 90 days on the impact of the regula tions on investment in new utility and refinery generation capacity, energy ef ficiency, and environmental protec tion.

- The NEPD Group recommends that the President direct the Attorney General to review existing enforce ment actions regarding New Source Review to ensure that the enforce ment actions are consistent with the Clean Air Act and its regula tions.

Energy Transportation Infrastructure

The infrastructure used to transport energy products includes ocean tankers; in land barges; specialized trucks for oil and refined products, such as gasoline and heat ing oil; railroad tank cars and coal cars; and the waterways, highways, and railroads upon which they travel. There is also a sub stantial inventory of river and oceanside port facilities that are used for moving en ergy materials.

Marine Transportation

Marine transportation of oil and re fined products accounts for nearly one-third of domestic shipments. Approximately 3.3 billion barrels of oil and petroleum products and 229 million short tons of coal move through the nation's ports and waterways every year.

There are three kinds of ship trans ports of domestic energy products. Tankers

Double-hulled tank barges provide distribution of petroleum products.

Nicole Leigh Reinauer and RTC 135

primarily carry Alaskan oil to the West Coast. Product tankers transport refined products from the Gulf of Mexico to the At lantic Coast, from the Gulf to the West Coast, and between ports within the West Coast. Tank barges provide coastwise distri bution of refined product imports, distribu tion from pipeline terminals, and inland dis tribution. In addition, 477 foreign tankers and 64 U.S. flag tankers deliver oil and pe troleum products to the United States. They deliver approximately 2.1 million barrels a day, for a total of 770 million barrels a year.

Ships are also used to import liquefied natural gas (LNG). With increasing demand for natural gas for electricity generation, there is a potential for substantial growth in the demand for LNG imports. From 1998 to 1999, the number of LNG carrier arrivals in Boston increased by 350 percent. In addi-- tion, mothballed terminals at Elba Island,- Georgia, and Cove Point, Maryland, may- reinitiate LNG imports by 2002.-

Winter storms, extended darkness, and ice formation disrupt barge and tanker movements. The U.S. Coast Guard's fleet of ice breakers has become an important component of the energy infrastructure for the New England, Mid-Atlantic, and Great Lakes regions.
U.S. Coast Guard

Unlike pipelines, water transportation requires the positioning of vessels to where cargoes are located. For example, it can take three weeks to move a tanker from the Gulf of Mexico to the West Coast. Conse quently, tanker markets do not respond quickly to temporary surges in demand, which typically result in price spikes.

Safety

In accordance with the Oil Pollution Act of 1990, a timeline has been established to replace all single-hulled vessels with double-hulled vessels. Many have already been replaced. Modern navigation and port services also help to prevent maritime oil spills. Spill-response technologies and coor dinated response plans are key to minimiz ing damage to property and the environ ment. Oil spill technology has improved dur ing the last decade and will continue to do so. Risk assessments, preparedness drills, and cleanup strategies are all necessary safeguards for transporting energy goods. As maritime transportation grows, port and waterway infrastructure, as well as the availability of accurate and timely naviga tion information, will continue to be impor tant for the safe, efficient delivery of energy.

New England's Dependence on Marine Transportation

New England has no refineries, and its small oil pipeline system is not connected to the interstate pipeline system. As a result, New England must rely on tanker and barge shipments of petroleum products from the south as well as direct imports from over seas. There is some question as to whether this distribution system is sufficient to meet the future needs of the region and, if not, what steps need to be taken to ensure fu ture economical, reliable energy supplies.

In recent years, lower national inven tories, market forces, and other factors have combined to create much lower inventories for petroleum products such as heating oil in the Northeast. A supply system with less capacity in reserve is more vulnerable to variations in product delivery, and is less ca pable of absorbing the disruptions in barge and tanker movements that inevitably come

with winter storms, extended darkness, and ice formation. A rapid change to colder weather affects both supply and demand: households need more fuel at the same time that harbors and rivers experience severe ice conditions.

For the New England and Mid-Atlantic seaboards, U.S. Coast Guard icebreakers have become an important component of the infrastructure necessary to provide energy to the region.

The Department of Energy established the Northeast Heating Oil Reserve to ensure heating oil supplies in the region. This emergency buffer can support a shortage for approximately ten days, which is the time required for ships to carry heating oil from the Gulf of Mexico to New York Harbor.

Even with the Reserve in place, marine transportation remains the only source of heating oil for the New England's winter months.

Recommendation:

★ The NEPD Group supports the President's budget proposal to provide $8 million to maintain the two-million-barrel Northeast Heating Oil Reserve. Operated by the private sector, the Reserve helps ensure adequate supplies of heating oil in the event that colder than normal winters occur in the Northeast United States.

Rail Transportation

Coal, which provides about 52 percent of America's electricity, is the most important single commodity carried by rail. Over the past ten years, the rail share of coal transportation has increased, primarily as a result of increases in low-sulfur western coal, which moves long distances over rail. In 1999, domestic railroads carried 68 percent of the nation's coal, and in 2000, they transported an average of 14.4 million tons of coal a week.

Transportation costs account for 30 to 50 percent of the final delivered price of coal to utilities. About 74 percent of U.S. low-sulfur coal reserves are located in Montana and Wyoming. Demand for clean coal from Wyoming's Powder River Basin is expected to increase because of its environmental benefits. However, rail capacity problems in the Powder River Basin have created a bottleneck in the coal transportation system.

With little excess capacity in the rail lines supporting the Powder River Basin, expected increases in demand could result in capacity shortfalls and delays in providing coal to power plants that are relying increasingly on "just-in-time" shipments to reduce inventory costs. Additionally, delays in other parts of the rail network, such as at key rail facilities, can undermine the efficiency and reliability of the system. There is a need to eliminate bottlenecks in the coal transportation system.

Infrastructure Security

The energy infrastructure is vulnerable to physical and cyber disruption that could threaten its integrity and safety. Disruptions could come from natural events, like geomagnetic storms and earthquakes, or could come from accidents, equipment failures, or deliberate sabotage. In addition, the nation's transportation and power infrastructures have grown increasingly complex and interdependent. Consequently, any disruption can have extensive consequences.

Transportation facilities have weathered relatively short interruptions in power as a result of natural disasters and accidents, with varying degrees of impact. In a few instances, they have experienced intermittent, lengthy outages that have affected not only primary systems, but integrated services as well, such as voice, data, Internet, and wireless networks that may be used to transmit control information. The growing reliance on computer technologies, automated monitoring and control systems, and electronic commerce makes the system more efficient and vibrant, but also requires a greater level of diligence and use of safeguards.

Accurate weather and climate forecasting can prevent millions of dollars in

damage to U.S. energy infrastructure. For example, the interaction of geomagnetic storms with the Earth's magnetic field can cause additional current to enter transmis sion lines, which at times has caused re gional grid collapse and has destroyed power plant electrical transformers. Given sufficient warning, the industry can initiate protective countermeasures, such as when several northeastern power plants shed 20 percent of their load during a July 2000 geo magnetic storm.

Improvements in forecasting can fur ther assist in the management of energy re sources and materials, can prevent power outages in many cases, and can accelerate restoration of power after outages that do occur. Also, data from extreme weather events can be used to design and build infra structure, such as transmission lines, pipe lines, and hydropower dams.

Summary of Recommendations

America's Energy Infrastructure: A Comprehensive Delivery System

★ The NEPD Group recommends that the President direct the Secretary of Energy to work with the Federal Energy Regulatory Commission (FERC) to improve the reliability of the interstate transmission system and to develop legislation provid ing for enforcement by a self-regulatory organization subject to FERC oversight.

★ The NEPD Group recommends that the President direct the Secretary of Energy to expand the Department's research and development on transmission re liability and superconductivity.

★ The NEPD Group recommends that the President direct the Secretary of Energy to authorize the Western Area Power Administration to explore relieving the "Path 15" bottleneck through transmission expansion financed by nonfederal contributions.

★ The NEPD Group recommends that the President direct the appropriate federal agencies to take actions to remove constraints on the interstate transmission grid and allow our nation's electricity supply to meet the growing needs of our economy.

- Direct the Secretary of Energy, by December 31, 2001, to examine the benefits of establishing a national grid, identify transmission bottlenecks, and identify mea sures to remove transmission bottlenecks.
- Direct the Secretary of Energy to work with FERC to relieve transmission con straints by encouraging the use of incentive rate-making proposals.
- Direct the federal utilities to determine whether transmission expansions are necessary to remove constraints. The Administration should review the Bonneville Power Administration's (BPA's) capital and financing requirements in the context of its membership in a regional RTO, and if additional Treasury fi nancing appears warranted or necessary in the future, the Administration should seek an increase in BPA's borrowing authority at that time.
- Direct the Secretary of Energy, in consultation with appropriate federal agencies and state and local government officials, to develop legislation to grant author ity to obtain rights-of-way for electricity transmission lines, with the goal of cre ating a reliable national transmission grid. Similar authority already exists for natural gas pipelines in recognition of their role in interstate commerce.

★ The NEPD Group recommends that the President direct the Secretary of the Interior to work with Congress and the State of Alaska to put in place the most expeditious process for renewal of the Trans-Alaskan Pipeline System rights-of-way to ensure that Alaskan oil continues to flow uninterrupted to the West Coast of the United States.

★ The NEPD Group recommends that the President direct the Secretaries of Energy and State, coordinating with the Secretary of the Interior and the Federal Energy Regulatory Commission, to work closely with Canada, the State of Alaska, and all other interested parties to expedite the construction of a pipeline to deliver natural gas to the lower 48 states. This should include proposing to Congress any changes or waivers of law pursuant to the Alaska Natural Gas Transportation Act of 1976 that may be required.

★ The NEPD Group recommends that the President support legislation to improve the safety of natural gas pipelines, protect the environment, strengthen emergency preparedness and inspections and bolster enforcement.

★ The NEPD Group recommends that the President direct agencies to continue their interagency efforts to improve pipeline safety and expedite pipeline permitting in an environmentally sound manner and encourage FERC to consider improvements in the regulatory process governing approval of interstate natural gas pipeline projects.

★ The NEPD Group recommends that the President direct the Administrator of the EPA to study opportunities to maintain or improve the environmental benefits of state and local "boutique" clean fuel programs while exploring ways to increase the flexibility of the fuels distribution infrastructure, improve fungibility, and provide added gasoline market liquidity. In concluding this study, the Administrator shall consult with the Departments of Energy and Agriculture, and other agencies as needed.

★ The NEPD Group recommends that the President direct the Administrator of the Environmental Protection Agency and the Secretary of Energy to take steps to ensure America has adequate refining capacity to meet the needs of consumers.

- Provide more regulatory certainty to refinery owners and streamline the permitting process where possible to ensure that regulatory overlap is limited.
- Adopt comprehensive regulations (covering more than one pollutant and requirement) and consider the rules' cumulative impacts and benefits.

★ The NEPD Group recommends that the President direct the Administrator of the Environmental Protection Agency, in consultation with the Secretary of Energy and other relevant agencies, to review New Source Review regulations, including administrative interpretation and implementation, and report to the President within 90 days on the impact of the regulations on investment in new utility and refinery generation capacity, energy efficiency, and environmental protection.

★ The NEPD Group recommends that the President direct the Attorney General to review existing enforcement actions regarding New Source Review to ensure that the enforcement actions are consistent with the Clean Air Act and its regulations.

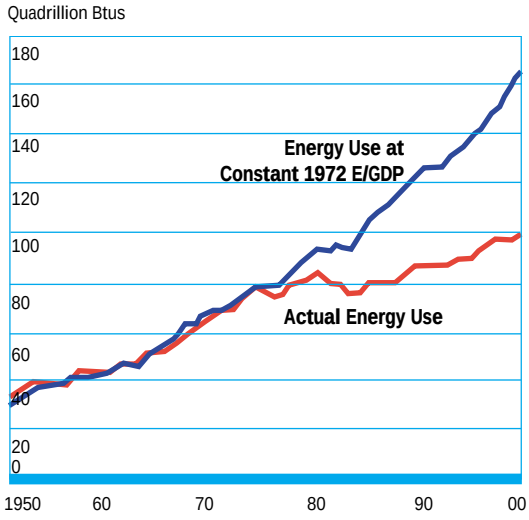
★ The NEPD Group supports the President's budget proposal to provide $8 million to maintain the two-million-barrel Northeast Heating Oil Reserve. Operated by the private sector, the Reserve helps ensure adequate supplies of heating oil in the event that colder than normal winters occur in the Northeast United States.

Strengthening Global Alliances

Enhancing National Energy Security and International Relationships

U.S. national energy security depends on sufficient energy supplies to support U.S. and global economic growth. Energy policies that have emphasized reliance on market forces have led to major energy security gains over the past two decades. Major improvements in exploration and production technology, as well as the trend toward opening new areas around the globe for exploration and development, have yielded significant dividends:

Figure 8-1
The U.S. Economy is More Energy Efficient (Energy Intensity)
Primary Energy Use



Improvements in energy efficiency since the 1970s have had a major impact in meeting national energy needs relative to new supply. If the intensity of U.S. energy use had remained constant since 1972, consumption would have been about 70 quadrillion Btus (74 percent) higher in 1999 than it actually was.

Source: U.S. Department of Energy, Energy Information Administration.

- The U.S. and world economies have diversified their sources of oil supplies, largely through increased production in the Western Hemisphere, the North Sea, and Africa.
- The world's fuel mix is also more diverse, primarily because of greater reliance on natural gas and nuclear power.
- The rate of growth in U.S. oil demand has slowed significantly since the first oil shocks of the 1970s because of more energy-efficient industries, structural changes in the economy, and greater efficiencies in vehicles, appliances, and buildings.

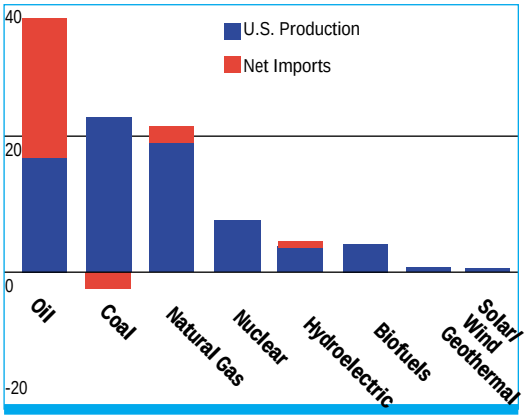
Since 1970, as the economy has shifted toward greater use of more efficient technologies, U.S. energy intensity (the amount of energy it takes to produce a dollar of GDP) has declined by 30 percent (Figure 8-1). However, energy use per person in the United States is expected to rise as is overall demand for energy.

Measures to enhance U.S. energy security by meeting this increased demand must begin at home. The first step toward a sound international energy policy is to use our own capability to produce, process, and transport the energy resources we need in an efficient and environmentally sustainable manner. Market solutions to limit the growth in our oil imports would reduce oil consumption for our economy and increase our economic flexibility in responding to any domestic or international disruption of oil or other energy supplies. The United States produces 72 of the 99 quadrillion British thermal snits (Btus) of

Figure 8-2

Sources of U.S. Fuel Consumption in 1999

(Quadrillion Btus)



The United States produced 72 of the 98 quadrillion Btus of energy that it consumed in 1999. We are self-sufficient in virtually all our energy resources, except oil, of which we import 52 percent of our net requirements, and natural gas, of which we import 15–16 percent net, primarily from Canada.

Source: U.S. Department of Energy, Energy Information Administration.

energy that it consumes (Figure 8-2). We are self-sufficient in virtually all our energy resources except oil, of which we import 52 percent of our net requirements, and natural gas, of which we import 15 to 16 percent of our net requirements, primarily from Canada.

We should not, however, look at energy security in isolation from the rest of the world. In a global energy marketplace, U.S. energy and economic security are directly linked not only to our domestic and international energy supplies, but to those of our trading partners as well. A significant disruption in world oil supplies could adversely affect our economy and our ability to promote key foreign and economic policy objectives, regardless of the level of U.S. dependence on oil imports.

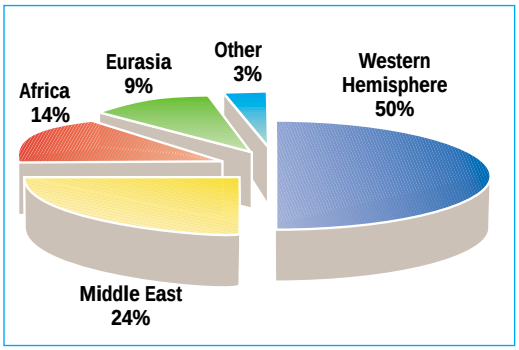
Our energy security also depends on an efficient domestic and international infrastructure to support all segments of the energy supply chain. We can strengthen our own energy security and the shared prosperity of the global economy by working cooperatively with key countries and institutions to expand the sources and types of global energy supplies. We can also advance these goals by increasing the efficiency of energy consumption, enhancing the transparency and efficient operation of energy markets, and strengthening our capacity to respond to disruptions of oil supplies. Energy is fundamental to economic growth, and we believe that economic growth and environmental protection can be mutually achieved.

We need to strengthen our trade alliances, to deepen our dialogue with major oil producers, and to work for greater oil production in the Western Hemisphere, Africa, the Caspian, and other regions with abundant oil resources. Greater cooperation with our allies in addressing the growth in oil demand in the transportation sector is particularly important, given the growing demand for oil and other energy resources. Significant economic and environmental benefits can be realized from increased energy efficiency and from the use of clean energy technologies. We need to ensure that our partners in the International Energy Agency (IEA) continue to meet their obligations for emergency supply reserves. Finally, we must continue to work with the IEA, the Asia-Pacific Economic Cooperation (APEC) forum, and others to encourage other large importers to consider measures to augment their oil reserves

Oil Imports and Global Reserves

The U.S. influence on overall world markets is substantial in terms of production and consumption. The United States is the world's second largest natural gas producer and its third largest oil producer. The United States consumes over 25 percent of the oil produced worldwide, slightly more than half of which it imports. Nevertheless, because the price of our domestic and imported oil is determined by a world market, our energy security interests transcend the source of our physical energy supplies (Figure 8-3). Given the large and projected growing volume of U.S. oil imports, our energy and economic security will increase if we take the steps necessary to realize America's potential as a major world oil and natural gas producer.

Figure 8-3
Regional Sources of U.S. Oil Imports in 2000



Slightly over half of the oil the United States imports every day comes from the Western Hemisphere. Canada, Venezuela, and Mexico account for the bulk (41%) of these imports.

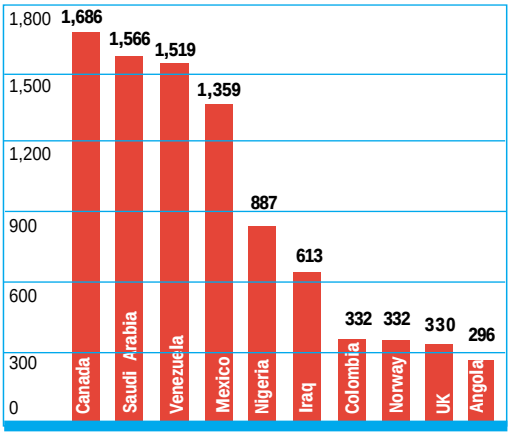
Source: US. Department of Energy, Energy Information Administration.

Recommendation:

★ The NEPD Group recommends- that the President make energy secu - rity a priority of our trade and foreign- policy.-

In 2000, nearly 55 percent of U.S. gross oil imports came from four countries: 15 percent from Canada, 14 percent each from Saudi Arabia and Venezuela, and 12 percent from Mexico (Figure 8-4). The se curity of U.S. energy supply is enhanced by several factors characterizing our diplo matic and economic relationships with our four top suppliers. These factors range from geographic proximity and free trade agree ments to integrated pipeline networks, re ciprocal energy-sector investments, shared security commitments, and, in all cases, long-term reliable supply relationships (Fig ure 8-5).

Figure 8-4
Top 10 Suppliers of U.S.Oil Imports in 2000



In 2000, nearly 55 percent of gross U.S. oil imports came from four leading suppliers: Canada (15%), Saudi Arabia (14%), Venezuela (14%), and Mexico (12%).

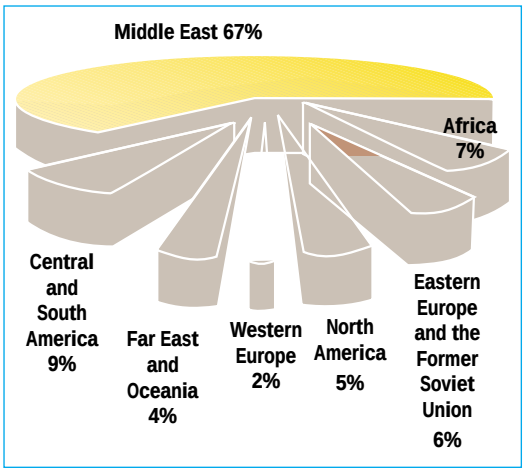
Source: U.S.Department of Energy, Energy Information Administration.-

Saudi Arabia and the Middle East Oil Supplies

By 2020, Gulf oil producers are pro jected to supply between 54 and 67 percent of the world's oil. Thus, the global economy will almost certainly continue to depend on the supply of oil from Organization of Petro leum Exporting Countries (OPEC) mem bers, particularly in the Gulf. This region will remain vital to U.S. interests. Saudi Arabia, the world's largest oil exporter, has been a linchpin of supply reliability to world oil markets.

Saudi Arabia has pursued a policy of investing in spare oil production capacity, diversifying export routes to both of its coasts, and providing effective assurances that it will use its capacity to mitigate the

Figure 8-5
Proven World Oil Reserves in January 2000



The world's proven crude oil reserves remain relatively concen trated. The Middle East holds 664 billion barrels, or roughly two-thirds of the world's conventional oil reserves, followed by the Western Hemisphere (14%) and Africa (7%).

Source: U.S. Department of Energy, Energy Information Administration.

Saudi Arabia has pursued a policy of investing in spare oil production capacity, diversifying export routes to both of its coasts, and providing effective assurances that it will use its capacity to mitigate the impact of oil supply disruptions in any region.
ARAMCO

impact of oil supply disruptions in any region (Figure 8-6). Algeria, Kuwait, Oman, Qatar, Saudi Arabia, the United Arab Emirates (UAE), Yemen, and other states in the region with which we maintain diplomatic relations have all, to some extent, opened their energy sectors to international investment. This development provides an important opportunity to further encourage foreign investment in these important energy-producing countries, thereby broadening our shared commercial and strategic interests. By any estimation, Middle East oil producers will remain central to world oil security. The Gulf will be a primary focus of U.S. international energy policy, but our engagement will be global, spotlighting existing and emerging regions that will have a major impact on the global energy balance.

Figure 8-6
Saudi Arabia Export Pipelines

Saudi Arabia, the world's largest oil supplier, maintains major oil export ports and storage capacity on both the Gulf and the Red Sea.

ARAMCO

Recommendation:

★ The NEPD Group recommends that the President support initiatives by Saudi Arabia, Kuwait, Algeria, Qatar, the UAE, and other suppliers to open up areas of their energy sectors to foreign investment.

Improving Market Transparency

The United States must work with oil producers to improve the transparency, timeliness, and accuracy of the data that guide global oil markets. A lack of timely and accurate data relating to both oil production and inventory levels has contributed to the price volatility witnessed in 2000. Discussions among the major oil producers and consumer countries should be designed to improve the transparency, accuracy, and timeliness of data that guide the market. In turn, enhanced data quality and increased data transparency will improve market efficiency. Refocusing that dialogue beyond short-term market developments to long-term issues of world economic growth, improving data quality, and addressing energy infrastructure is needed to maintain a smooth flow of energy from the wellhead to the consumer.

Recommendation:

★ The NEPD Group recommends that the President direct the Secretaries of State, Energy and Commerce work to improve dialogue among energy producing and consuming nations.

Promoting International Trade and Investment

Longstanding U.S. policy supports a liberalized global energy sector that is open to international trade and investment. The United States benefits from international investments at home that have increased our

energy sector's capacity and its infrastruc ture. Both producers and consumers will benefit from ensuring that the global energy infrastructure is sufficient and flexible to meet growing global demand.

American energy firms remain world leaders, and their investments in energy producing countries enhance efficiencies and market linkages while increasing envi ronmental protections. Expanded trade and investment between oil importing and ex porting nations can increase shared inter ests while enhancing global energy and eco nomic security. Promoting such investment will be a core element of our engagement with major foreign oil producers.

Recommendations:

★ The NEPD Group recommends that the President direct the Secretaries of State, Commerce and Energy to con tinue supporting American energy firms competing in markets abroad and use our membership in multilat eral organizations, such as the Asia-Pacific Economic Cooperation (APEC) forum, the Organization for Economic Cooperation and Develop ment (OECD), the World Trade Orga nization (WTO) Energy Services Ne gotiations, the Free Trade Area of the Americas (FTAA), and our bilateral relationships to implement a system of clear, open, and transparent rules and procedures governing foreign in vestment; to level the playing field for U.S. companies overseas; and to re duce barriers to trade and investment.

★ The NEPD Group recommends that the President direct the Secretaries of Commerce and Energy, and the U.S. Trade Representative, to support a sectoral trade initiative to expand in vestment and trade in energy-related goods and services that will enhance exploration, production, and refining, as well as the development of new technologies.

Reviewing and Reforming Sanctions

Economic sanctions include U.S. uni lateral sanctions as well as multilateral sanctions, such as United Nations (UN) Se curity Council Resolutions. Sanctions can advance important national and global se curity objectives and can be an important foreign policy tool, especially against na tions that support terrorism or seek to ac quire weapons of mass destruction. Never theless, sanctions should be periodically re viewed to ensure their continued effective ness and to minimize their costs on U.S. citizens and interests.

Recommendation:

★ The NEPD Group recommends that the President direct the Secretaries of State, Treasury, and Commerce to ini tiate a comprehensive review of sanc tions. Energy security should be one of the factors considered in such a re view.

Diversity of Supply

Concentration of world oil production in any one region of the world is a potential contributor to market instability, benefiting neither oil producers nor consumers. Peri odic efforts by OPEC to maintain oil prices above levels dictated by market forces have increased price volatility and prices paid by consumers, and have worked against the shared interests of both producers and con sumers in greater oil market stability. This remains a policy challenge, which we will meet over the longer term through a com prehensive energy policy that addresses both supply and demand, as well as through increased engagement with all our major suppliers. Greater diversity of world oil pro duction remains important.

Encouraging greater diversity of oil production and, as appropriate, transporta tion, within and among geographic regions has obvious benefits to all market partici pants. Technological advances will enable the United States to accelerate the diversifi cation of oil supplies, notably through deep-

The United States is helping developing countries use energy efficient technologies. Photovoltaic-powered pumps are being used in many wells throughout rural India for collecting potable water.

U.S. Department of Energy, National Renewable Energy Laboratory

water offshore exploration and production in the Atlantic Basin, stretching from off shore Canada to the Caribbean, Brazil, and West Africa. The Caspian Sea can also be a rapidly growing new area of supply.

The ongoing development of so-called "heavy oil" reserves in the Western Hemi sphere is an important factor that promises to significantly enhance global oil reserves and production diversity. Recent Canadian and Venezuelan success in making heavy oil deposits commercially viable suggests that they will contribute substantially to the di versity of global energy supply, and to our own energy supply mix over the medium to long term. Leading non-OPEC oil exporters, such as Mexico and Norway, remain critical to the diversity of global energy supply.

Growing levels of conventional and heavy oil production and exports from the Western Hemisphere, the Caspian, and Af rica are important factors that can lessen the impact of a supply disruption on the U.S. and world economies. Overall U.S. policies in each of these high-priority re gions will focus on improving the invest ment climate and facilitating the flow of needed investment and technology.

Bilateral energy working groups, such as the U.S.-Kazakhstan Oil, Gas and Com mercial Energy Working Group and the U.S.-Russian Oil and Gas Working Group, can improve the trade climate in high-prior ity countries. In addition to seeking new sources of oil, the United States is helping developing countries use energy efficient technologies to mitigate the environmental impacts of energy use, and to improve ac cess to energy resources.

WTO members are beginning to exam ine global trade in energy services. The United States has called on WTO members to open markets eligible for private partici pation in the entire range of energy ser vices, from exploration to the final cus tomer. The energy service proposal would attempt to ensure nondiscriminatory access to foreign providers of energy services. Equally important, the U.S. proposal sug gests that WTO members consider how to best create a pro-competitive regulatory en-

Figure 8-7

Canada–U.S. Natural Gas Pipelines: 2001

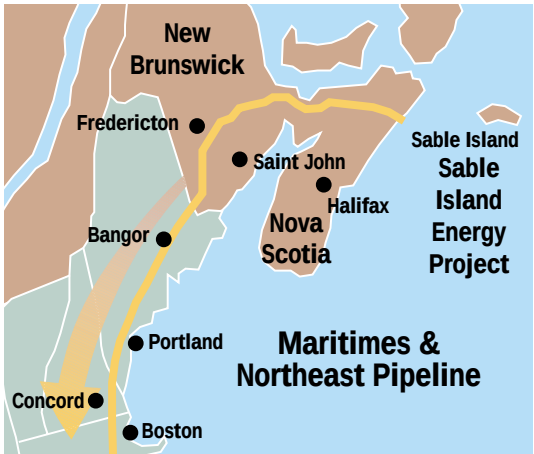
Canada–U.S. Oil Pipelines: 2001

An integrated network of oil and gas pipelines demonstrates the seamless nature of North American energy trade.

Sources: Lakehead Pipe Line Company, Inc., and Canadian Association of Petroleum Producers.

Figure 8-8

Maritimes and Northeast Pipeline: 2000



New England's geography made it the "last stop" for natural gas pipelines stretching thousands of miles across the continent from the South and the West. Consequently, the region became the most oil-dependent area in the country, particularly for home heating and electricity. With the January 1, 2000, inauguration of Atlantic Canada's Maritimes and Northeast Pipeline, New England is now at the beginning of the line for natural gas flowing across the border from Canada at Calais, Maine. Overall, the region's fuel mix is becoming increasingly diversified, with natural gas demand slated to increase by 2.4 percent a year through 2020.

Source: Maritimes and NorthEast Pipeline.

vironment for energy services, so that opaque or discriminatory regulatory prac tices do not undermine commitments to open their domestic markets to foreign ser vice providers. Such objectives can also be pursued in the FTAA and APEC.

Toward a North American Energy Framework

Increased U.S., Canadian, and Mexi can energy production and cooperation would enhance energy security and, through our economic links in the North America Free Trade Agreement (NAFTA) economy, fundamentally advance each country's economic security. As state and federal governments consider energy re forms, there will be a need to ensure com patible regulatory frameworks with our neighbors while recognizing differences in jurisdictions.

Canada

Canada's deregulated energy sector has become America's largest overall en ergy trading partner, and our leading for eign supplier of natural gas, oil, and elec tricity. Canada's sustainable development based energy strategies contribute to the health of the NAFTA economy and of our shared environment.

Canada provided 14 percent of U.S. natural gas supply last year. An integrated network of pipelines demonstrates the seamless nature of North American energy trade (Figure 8-7). Estimated natural gas deposits in Alaska and Northwest Canada exceed 70 trillion cubic feet, representing over three years of total U.S. consumption at present levels.

To advance shared economic and en vironmental objectives, the private sector is poised to develop the continent's northern gas reserves, with pipeline linkages be tween both countries. To the east, recent development of Canada's Atlantic offshore energy reserves has made significant strides, with major offshore natural gas and oil production now available. Canada's At lantic energy development is now providing previously untapped sources of clean-burn ing natural gas not only to Nova Scotia and New Brunswick but also to heating oil-de pendent New England (Figure 8-8).

Offshore oil platform near Campeche, Mexico. Mexico's large crude oil reserves—approximately 25 percent larger than our own proven reserves—makes it a likely source of increased oil production over the next decade.

U.S. EMBASSY, MEXICO CITY

Our large cross-border electricity trade flows in each direction. Our electric ity imports from Canada are derived largely from hydropower produced in eastern Canada, Canadian and American hydro power projects in the Pacific Northwest op erating pursuant to the Columbia River Treaty, and a nuclear power plant in New Brunswick. All of these sources provide im portant trade and clean air benefits, while allowing both countries to benefit from load sharing and integration. The reliability of the North American electricity grid can be enhanced yet further through closer coordi nation and compatible regulatory and juris dictional approaches.

Canada's oil trade, responding to mar ket signals, increased 4 percent worldwide and 10 percent with the United States last year. Estimates of Canada's recoverable heavy oil sands reserves are substantial, and new technologies are being deployed to de velop their potential. Production from these promising areas now approaches 600,000 barrels a day. Their continued development can be a pillar of sustained North American energy and economic security.

Mexico

Our energy relationship with Mexico reflects the increasingly interrelated charac ter of NAFTA economies and our contigu ous border. U.S. natural gas reserves, pipe-

Figure 8-9

Mexican Oil and Gas Resources: 2001

Mexico's large oil reserves—approximately 25 percent larger than U.S. proven reserves—make it a likely source of increased oil production over the next decade.

Source: U.S. Central Intelligence Agency.

lines, and industries are closer to the grow ing border area than some of Mexico's re serves. The United States is a net exporter of refined petroleum products and natural gas to Mexico, primarily through pipeline connections to northern Mexico. Mexico is a leading and reliable source of imported oil, and its large reserve base, approxi mately 25 percent larger than our own proven reserves, makes Mexico a likely source of increased oil production over the next decade (Figure 8- 9).

Mexico began exporting 50 megawatts of electricity from Baja to California in Janu ary 2001. However, the transmission infra structure on both sides of the border is in sufficient for greater flows of energy in ei ther direction without expansion. In the United States, our process for "Presidential Permitting" of cross-border infrastructure linkages needs to be updated and stream lined.

Mexico will make its own sovereign decisions on the breadth, pace, and extent to which it will expand and reform its electric ity and oil and gas capacities. Where the country has opened its energy sector to pri vate investment, such as in natural gas trans mission, distribution, and storage, invest ments have been made to our mutual ben efit. To the extent Mexico seeks to attract additional foreign investment consistent with its Constitution, which reserves explo ration and production rights to the Mexican government, the United States should ac tively encourage the U.S. private sector to consider market-based investments.

A carrier transports liquefied natural gas (LNG) from Trinidad and Tobago—our largest LNG supplier—to Boston harbor. LNG currently represents 16 percent of New England's natural gas supply.
CABOT LNG

Recommendations:

★ The NEPD Group recommends that the President direct the Secretaries of State, Commerce, and Energy to en gage in a dialogue through the North American Energy Working Group to develop closer energy integration among Canada, Mexico, and the United States and identify areas of co operation, fully consistent with the countries' respective sovereignties.

★ The NEPD Group recommends that the President direct the Secretaries of Energy and State, in consultation with the Federal Energy Regulatory Com mission, to review their respective oil, natural gas, and electricity cross boundary "Presidential Permitting" authorities, and to propose reforms as necessary in order to make their own regulatory regimes more compatible for cross-border trade.

★ The NEPD Group recommends that the President direct the Secretaries of Energy and State, coordinating with the Secretary of the Interior and the Federal Energy Regulatory Commis sion, to work closely with Canada, the State of Alaska, and all other inter ested parties to expedite the construc tion of a pipeline to deliver natural gas to the lower 48 states. This should include proposing to Congress any changes or waivers of law pursuant to the Alaska Natural Gas Transporta tion Act of 1976 that may be required.

South America: Latin America and the Caribbean

Latin America and the Caribbean are growing not only as major producing re gions, but also as major consumers of oil and natural gas. Trinidad and Tobago's pro gressive investment code has made it the hemisphere's largest exporter of LNG and the largest supplier of LNG to the United States in 2000. Unprecedented development of Central and South America's vast natural gas reserves—222.7 trillion cubic feet as of January 2000, illustrated by transcontinen tal pipelines linking Bolivia, Brazil, Argen tina, Chile, Paraguay, and Uruguay—in crease regional self-reliance, affirm eco nomic integration, aid the environment, and stem the growth in oil demand. Colombia has also become an important supplier of oil to the United States.

The United States, with Venezuela, is a co-coordinator of the Hemispheric En ergy Initiative process. In March 2001, a Summit of the Americas Hemispheric En ergy Ministerial meeting was hosted by the Government of Mexico. At the meeting, the region's energy ministers pledged to sup port integration and sustainable develop ment in the hemisphere, recognizing the need to foster stable and transparent regu latory frameworks. In April 2001, the thirty four democratically elected leaders of the Western Hemisphere met in Quebec City for the Third Summit of the Americas. They called for a renewed effort to strengthen the hemisphere's energy cooperation and integration.

U.S. Secretary of Energy Spencer Abraham listens to his colleagues at the Summit of the Ameri-cas Hemispheric Energy Ministerial meeting in Mexico City on March 9, 2001.

U.S. Embassy, Mexico City

Venezuela is the world's fifth largest oil exporter, and the third largest oil sup plier to the United States. Its energy indus try is increasingly integrated into the U.S. marketplace. Venezuela's downstream in vestments in the United States make it a leading refiner and gasoline marketer here. Growing U.S. and international investments in Venezuela's energy sector, particularly in its resource-rich heavy oil sector, are en hancing the country's ability to meet its de velopment goals and to keep pace with a growing world energy marketplace. Venezu ela is also moving to liberalize its natural gas sector, which will increase opportuni ties for foreign investment to expand Ven ezuelan natural gas production. These posi tive steps along with conclusion of a Bilat eral Investment Treaty, which is now being negotiated, would provide investors from both the United States and Venezuela incen tives for increased investment.

Brazil has long been a pioneer in the development of deep-water offshore oil and gas resources. Its world-class oil industry is now moving to become a partner with U.S. and international investors to more fully de velop its prolific offshore oil reserves. This welcome development will enhance hemi spheric energy production from well-estab lished sedimentary basins.

Recommendations:

★ The NEPD Group recommends that the President direct the Secretaries of State and Commerce to conclude ne gotiations with Venezuela on a Bilat eral Investment Treaty, and propose formal energy consultations with Bra zil, to improve the energy investment climate for the growing level of energy investment flows between the United States and each of these countries.

★ The NEPD Group recommends that the President direct the Secretaries of Energy, Commerce, and State to work through the Summit of the Americas Hemispheric Energy Initiative to de velop effective and stable regulatory frameworks and foster reliable supply sources of all fuels within the region.

Africa

Sub-Saharan Africa holds 7 percent of world oil reserves and comprises 11 percent of world oil production. Along with Latin America, West Africa is expected to be one of fastest-growing sources of oil and gas for the American market. African oil tends to be of high quality and low in sulfur, making it suitable for stringent refined product re quirements, and giving it a growing market share for refining centers on the East Coast of the United States.

In 2000, OPEC member Nigeria ex ported an average of 900,000 barrels of oil per day to the United States, out of its total production of 2.1 million barrels of oil per day. Nigeria, in partnership with the private sector, has set ambitious production goals as high as 5 million barrels of oil per day over the coming decade.

Angola's growing offshore oil indus try, with participation by U.S. and interna tional oil firms, is also a major source of growth. In 2000, Angola exported 300,000 barrels of oil per day out of its 750,000 bar rels of oil per day of total production to the United States, and is thought to have the potential to double its exports over the next ten years. Other significant exporters to the United States included Gabon and the Congo-Brazzaville.

The World Bank has supported Chad's efforts to begin ambitious oil development. This year an international consortium that includes U.S. firms began investing $3.5 bil lion in this pipeline from Chad to Cameroon, the largest infrastructure project in Africa to day. When complete, the pipeline will allow Chad to export up to 250,000 barrels of oil per day.

The U.S. Agency for International De velopment (USAID) has provided technical assistance in support of a West Africa Power Pool and associated pipeline project involving a number of U.S. oil companies, and is providing assistance for the creation of a regional regulatory framework that will enable Ghana and Nigeria to become major exporters of natural gas and electricity.

The West Africa Gas Pipeline is a 161 mile (1,000-kilometer), $400 million on shore/offshore natural gas pipeline connect ing Nigeria with Benin, Togo, and Ghana. The pipeline is being built by a consortium of companies, and includes financing by the U.S. Export-Import Bank.

Recommendations:

★ The NEPD Group recommends that the President direct the Secretaries of State, Energy, and Commerce to rein vigorate the U.S.-Africa Trade and Economic Cooperation Forum and the U.S.-African Energy Ministerial pro cess; deepen bilateral and multilateral engagement to promote a more recep tive environment for U.S. oil and gas trade, investment, and operations; and promote geographic diversification of energy supplies, addressing such is sues as transparency, sanctity of con tracts, and security.

★ The NEPD Group recommends that the President direct the Secretaries of State, Energy, and Commerce to re cast the Joint Economic Partnership Committee with Nigeria to improve the climate for U.S. oil and gas trade, investment, and operations and to ad vance our shared energy interests.

★ The NEPD Group recommends that the President direct the Secretaries of

State, Energy, and Commerce to support more transparent, accountable, and responsible use of oil resources in African producer countries to enhance the stability and security of trade and investment environments.

The Caspian

Proven oil reserves in Azerbaijan and Kazakhstan are about 20 billion barrels, a little more than the North Sea and slightly less than the United States. Exploration, however, is continuing, and proven reserves are expected to increase significantly.

For example, initial results of the exploration well at Kazakhstan's Kashagan field indicate the find is one of the most important in thirty years, and is comparable to Prudhoe Bay in size. Current exports from the region are only about 800,000 barrels of oil per day, in part due to limited export route options. However, potential exports could increase by 1.8 million barrels of oil per day by 2005, as the United States works closely with private companies and countries in the region to develop commercially viable export routes, such as the Baku-Tbilisi-Ceyhan (BTC) and Caspian Pipeline Consortium oil pipelines (Figure 8-10). Moreover, there is considerable optimism that exports could grow even more substantially in subsequent years because of positive prospects for new oil and gas finds as additional geologic structures undergo exploration, and the development of new export routes.

Foreign investors and technology are critical to rapid development of new commercially viable export routes. Such development will ensure that rising Caspian oil production is effectively integrated into world oil trade. U.S.-supported East–West pipeline routes will add substantial new oil transportation capacity to allow continued expansion of production and exports. Overland routes via pipeline, such as the planned BTC oil pipeline, will also help mitigate maritime risks in the crowded Bosporus Straits. To help countries prepare for increased oil production within the region, the United States is working with Black Sea and Caspian Sea border states to ensure that they develop adequate oil spill response capabilities.

Figure 8-10

Caspian Energy Export Pipelines: 2001

Several oil and natural gas pipeline projects are proposed for the Caspian area.

Source: U.S. Central Intelligence Agency.

Recommendations:

★ The NEPD Group recommends that the President direct the Secretaries of State, Commerce, and Energy to support the BTC oil pipeline as it demonstrates its commercial viability.

★ The NEPD Group recommends that the President direct the Secretaries of Commerce, State, and Energy to continue working with relevant companies and countries to establish the commercial conditions that will allow oil companies operating in Kazakhstan the option of exporting their oil via the BTC pipeline.

★ The NEPD Group recommends that the President direct the Secretaries of State, Commerce, and Energy to support the efforts of private investors and regional governments to develop the Shah Deniz gas pipeline as a way to help Turkey and Georgia diversify their natural gas supplies and help Azerbaijan export its gas via a pipeline that will continue diversification of secure energy supply routes.

★ The NEPD Group recommends that the President direct appropriate federal agencies to complete the current cycle of oil spill response readiness workshops and to consider further appropriate steps to ensure the implementation of the workshops' recommendations.

★ The NEPD Group recommends that the President direct the Secretary of State to encourage Greece and Turkey to link their gas pipeline systems to allow European consumers to diversify their gas supplies by purchasing Caspian gas.

★ The NEPD Group recommends that the President direct the Secretaries of Commerce, Energy, and State to deepen their commercial dialogue with Kazakhstan, Azerbaijan, and other Caspian states to provide a strong, transparent, and stable business climate for energy and related infrastructure projects.

Russia

Russia has about 5 percent of the world's proven oil reserves. In 2000, Russia produced an average of 6.7 million barrels of oil and natural gas liquids per day, making it both the world's third largest producer and second largest exporter at 4.2 million barrels of oil per day. Russia's oil production in 2000 represented an increase of 7 percent over 1999, the first increase since the dissolution of the Soviet Union. A similar rate of increase is projected for 2001. New fields are being developed, including those with U.S. and other foreign investors.

Nevertheless, substantial infrastructure investment is still needed, as well as legislation and a stable and reliable regime of contracting to finalize the Production Sharing Agreement (PSA) mechanism for private-sector participation and actions to improve the general investment climate. Russian oil firms are increasingly active on a global scale, with upstream and downstream investments in the Caspian, the United States, Africa, South Asia, and Europe, enhancing Russia's ability to develop its own and international oil reserves.

Russia holds 33 percent of the world's natural gas reserves, exporting a full 35 percent of its production to Europe and Central Asia in 1999. Russian natural gas exports can increase regional fuel diversification and advance environmental goals. With production declines now evident in existing fields, development of new reserves that require substantial new investments will be necessary.

Recommendations:

★ The NEPD Group recommends that the President direct the Secretaries of State, Commerce, and Energy to deepen the focus of the discussions with Russia on energy and the investment climate.

★ The NEPD Group recommends that the President direct the Secretaries of Commerce, State, and Energy to assist U.S. companies in their dialogue on the investment and trade climate with

Russian officials, to encourage reform of the PSA law and other regulations and related tax provisions, as well as general improvements in the overall investment climate. This will help ex pand private investment opportunities in Russia and will increase the inter national role of Russian firms.

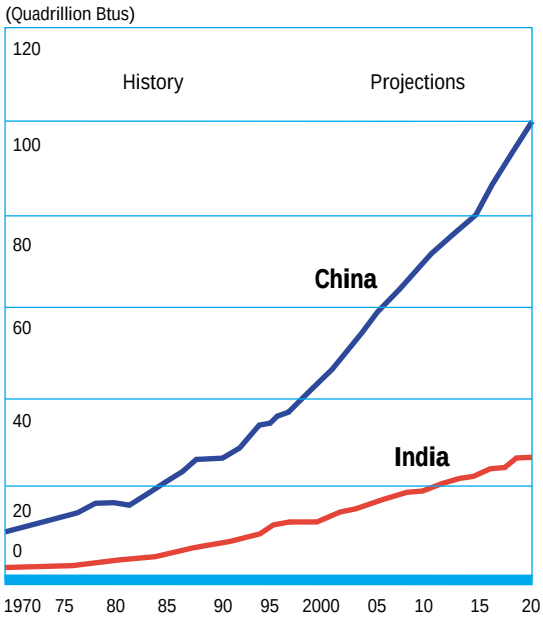
Asia

Asia holds less than 5 percent of world proven oil reserves, but accounts for more than 10 percent of oil production and about 30 percent of world oil consumption. The developing countries of the Pacific Rim are expected to increase their total petro leum imports by almost 43 percent between 1997 and 2020. The developing countries of Asia are expected to remain heavily depen dent on Middle East imports.

China is a critical player in global en ergy security issues, since its net oil im ports are expected to rise from approxi mately 1 million barrels of oil per day at present to possibly 5 to 8 million barrels of oil per day by 2020, with a predominant (over 70 percent) dependence on Middle East imports. China moved in the mid-1990s from being a net oil exporter to a net oil im porter.

About 7 percent of the world's proven natural gas reserves are located in Asia. Asian gas production represents about 11 percent of the world total, and consumption is less than 3 percent of world natural gas demand. Other natural gas producers, such as Malaysia, Myanmar, and Australia, are net gas exporters. Currently Japan, South Korea, and Taiwan are the major gas im porters in Asia. China, in addition to accel erating domestic exploration and develop ment of natural gas resources, is planning to import gas via pipeline from Central Asia. India, likewise, is considering several po tential LNG import projects (Figure 8-11).

Figure 8-11
Energy Consumption in China and India: 1970–2020



China and India account for the bulk of projected growth in oil demand in non-OECD countries.

Source: U.S. Department of Energy, Energy Information Administration.

Recommendations:

★ The NEPD Group recommends that the President direct the Secretaries of State, Commerce, and Energy to con tinue to work in the APEC Energy Working Group to examine oil market data transparency issues and the vari ety of ways petroleum stocks can be used as an option to address oil mar ket disruptions.

★ The NEPD Group recommends that the President direct the Secretaries of State and Energy to work with India's Ministry of Petroleum and Natural Gas to help India maximize its domestic oil and gas production.

Diversification of Fuel Mix

The growing demand for more fuel efficient technologies offers U.S. businesses significant trade and investment opportuni ties overseas, while addressing rising world oil demand. The United States supports a practical, market-based approach that en

courages the adoption of efficient technolo gies, including those relating to natural gas, nuclear energy, and renewable energy. This approach takes into account existing na tional and international programs and has the potential to energize both public action and private involvement. Introduction of these technologies abroad also supports U.S. national interests by reducing competi tion for the oil resources on which the glo bal economy continues to rely. Overall, the U.S. government's goal is to adopt policies that support innovative finance and market mechanisms that will provide U.S. busi nesses and consumers greater incentives to make more cost effective, energy efficient investment and consumption decisions.

Increased use of renewable energy technologies would improve U.S. energy se curity, yield global environmental benefits, improve social and economic stability in the developing world, and provide significant trade and investment opportunities to U.S. businesses. Promotion of clean energy tech nology exports can mitigate international dependence on oil supplies from volatile re gions, help lower energy costs for U.S. con sumers, bring U.S. firms greater access to large foreign markets, and enhance U.S. in tegration with global sources of innovation. In consultation with U.S. industry, the U.S. government is participating in efforts of the IEA, the G-8, the OECD, the United Nations, and multilateral development banks to for mulate effective strategies for accelerated market penetration of renewable energy technologies. Significant market penetra tion will depend on further reducing the costs of deploying these technologies.

The Clean Energy Technology Exports Working Group, a Federal interagency task force comprised of USAID and the Depart ments of Commerce and Energy, is creating a strategic plan that will provide a roadmap for future exports of U.S. clean energy tech nologies. Through its international trade programs, the Department of Commerce will showcase market-ready U.S. technolo gies that generate a cleaner environment and increase energy efficiency.

Recommendation:

★ The NEPD Group recommends that the President direct the Secretaries of Commerce, State, and Energy to pro mote market-based solutions to envi ronmental concerns; support exports of U.S. clean energy technologies and encourage their overseas develop ment; engage bilaterally and multilat erally to promote best practices; ex plore collaborative international basic research and development in energy alternatives and energy efficient tech nologies; and explore innovative pro grams to support the global adoption of these technologies.

Climate Change

The President is committed to ad dressing the issue of global climate change in a manner that protects our environment and economy. Toward this end, the Admin istration is undertaking a Cabinet-level re view of domestic and international policies for addressing this issue.

The United States invited other nations to re-examine global climate change issues, including technologies and market-based systems. Increasing our understanding of the most recent science and further research into the science of climate change will be es sential to developing the optimal strategy.

There is increasing awareness of glo bal competition for fossil fuels and their po tential threats to the global environment. The United States can diminish both risks by becoming more energy efficient at home, by working with other nations, and by en couraging developing countries to use the cleanest and most energy-efficient technolo gies. Through educational programs, the United States can encourage developing countries to use advanced U.S. energy tech nologies, energy management practices, and market-based policies. The United States is uniquely positioned to help emerging na tions build energy and institutional capacity and to finance energy-related activities and services. Doing so could prove to be a cost effective investment, for both the United States and emerging economies.

Recommendation:

★ The NEPD Group recommends that the President direct federal agencies to support continued research into global climate change; continue efforts to identify environmentally and cost-effective ways to use market mechanisms and incentives; continue development of new technologies; and cooperate with allies, including through international processes, to develop technologies, market-based incentives, and other innovative approaches to address the issue of global climate change.

Oil Consumption

Although U.S. energy security can be reinforced by domestic efforts to enhance supply and use energy more efficiently, growth in international oil demand will exert increasing pressure on global oil availability. Worldwide oil consumption is projected to grow by 2.1 percent a year over the next two decades. However, oil demand is projected to grow three times as fast in non-OECD countries as in OECD countries, which will increase worldwide competition for global oil supplies and put increased pressure on our shared environment. Accordingly, non-OECD countries' share of oil demand is expected to rise from 41 percent to 52 percent (Figure 8-12). China and India will be major contributors to this growth in demand and will rely heavily on imports to meet their needs. This growth will increase the stake that many developing countries have in ensuring access to significant energy resources, as well as their incentive to pursue energy efficiency.

Transportation has been responsible for nearly all the growth in OECD oil consumption over the last twenty years, and is projected to be the leading source of future growth in oil consumption through 2020. Transportation-related fuel consumption in the developing world is expected to more than double by 2020, growing at an annual average rate of 4 percent. Therefore, both OECD and developing countries will need to increase their focus on efficiencies in the transportation sector. The momentum to create market mechanisms supporting alternative-fuel vehicles will increase. Best practices that seek to reduce the cost of these technologies and to promote market penetration should be pursued. Without additional efforts to reduce this growth in consumption, the transportation sector's fuel needs will force an increasing dependence on oil in the developed and developing worlds.

Recommendations:

★ The NEPD Group recommends that the President seek to increase international cooperation on finding alternatives to oil, especially for the transportation sector.

★ The NEPD Group recommends that the President direct the Secretary of State to reinvigorate its dialogue with the European Union on energy issues, and resume the consultative process this year in Washington.

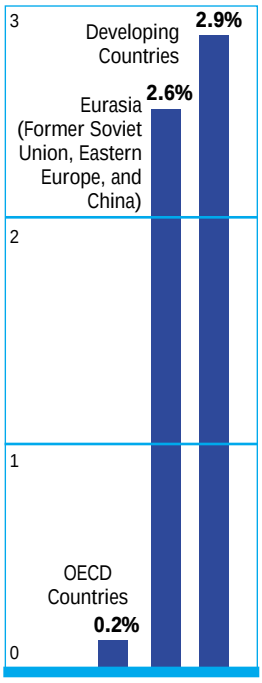
★ The NEPD Group recommends that the President promote a coordinated approach to energy security by calling for an annual meeting of G-8 Energy Ministers or their equivalents.

Emergency Preparedness for Oil Supply Disruption

U.S. and world exposure to oil supply disruptions increases as the size of strategic and commercial stocks relative to demand declines. This vulnerability is a result of rising global demand, tight supplies, and inadequate efforts to establish or expand oil stockpiles. Such a situation magnifies the importance of U.S. coordination with other members of the IEA, comprised of most OECD member governments. Each IEA member that is a net oil importer is required to hold stocks equal to 90 days or more of its net imports. The IEA maintains agreed mechanisms for coordinating the use of these stocks in responding to a physical supply disruption. Collectively, the net oil-importing members of the IEA currently hold

Figure 8-12
Projected Oil Consumption Rates in Three Economic Regions: 1999–2020

(Percent)

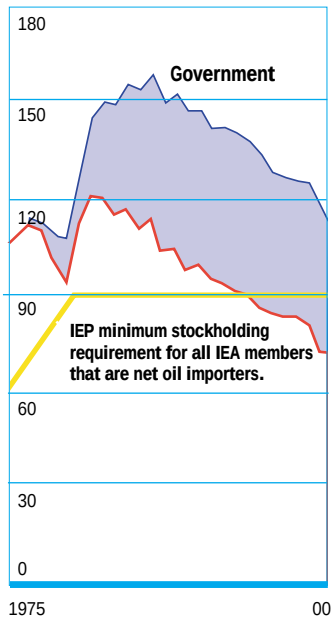


Over the next two decades, oil consumption in developing countries and Eurasia will grow three times faster than in the rest of the world.

Source: U.S. Department of Energy, Energy Information Administration.

Figure 8-13

Stocks of IEA Net Importers: 1975–2000



The International Energy Agency, of which the United States is a member, closely tracks the amount of strategic and commercial petroleum stocks maintained by its member states. The International Energy Program (IEP) Agreement "binds Participating Countries to make specific measures to meet any oil supply emergency and, over the long term, to reduce dependence on oil."

Source: International Energy Agency.

approximately 113 days worth of strategic and commercial stocks. U.S. stocks, which include both government and commercial stocks, are slightly above the IEA average. While this is more than required, it is far be low the peak coverage of 157 days reached in 1986. Moreover, several member states have fallen below the 90-day threshold (Fig ure 8-13).

The United States meets part of its IEA obligation through government-owned stocks held in the U.S. Strategic Petroleum Reserve (SPR). The SPR currently holds 541 million barrels of oil, which is enough to cover the loss of all U.S. imports for 54 days or a partial disruption for much longer. Close to 33 million barrels of oil will be de posited in the SPR by the fourth quarter of 2002, returning oil that had been "ex changed" out of the reserve last year. SPR oil can be withdrawn at a maximum rate of over 4 million barrels of oil per day initially and could reach the market within fifteen days of a Presidential directive. Because of increased net oil imports, the days of oil im port coverage provided by the SPR have de clined considerably over the past decade. In 1990, the SPR contained enough oil to com pensate for the loss of 82 days worth of U.S. imports—substantially more than today's 54-day supply. As domestic production and import patterns evolve, the Administration will work to inform Congress about chang ing coverage levels provided by the SPR. It should be noted that the United States also counts on the SPR as a national defense fuel reserve.

The oil market's day-to-day operation and its ability to respond to supply prob lems depend heavily on the availability of information on supply, demand, and price. The oil market volatility of the past two years has emphasized the need for more comprehensive and timely oil market infor mation.

Recommendations:

★ The NEPD Group recommends that the President reaffirm that the SPR is designed for addressing an imminent or actual disruption in oil supplies, and not for managing prices.

★ The NEPD Group recommend that the President direct the Secretary of Energy to work within the Interna tional Energy Agency (IEA) to ensure that member states fulfill their stock holding.

★ The NEPD Group recommends that the President direct the Secretary of Energy to encourage major oil-con suming countries that are not IEA members to consider strategic stocks as an option for addressing potential supply disruptions. In this regard, we should work closely with Asian econo mies, especially through APEC.

★ The NEPD Group recommends that the President direct the Secretary of Energy offer to lease excess SPR stor age facilities to countries (both IEA and non-IEA members) that might not otherwise build storage facilities or hold sufficient strategic stocks, consis tent with statutory authorities.

★ The NEPD Group recommends that the President, at such time that ex changed SPR barrels are returned to the SPR, should determine whether offshore Gulf of Mexico royalty oil de posits to the SPR should be resumed, thereby increasing the size of our re serve.

★ The NEPD Group recommends that the President direct the Secretary of Energy to work closely with Congress to ensure that our SPR protection is maintained.

★ The NEPD Group recommends that the President direct the Secretary of Energy to work with producer and consumer country allies and the IEA to craft a more comprehensive and timely world oil data reporting system.

Summary of Recommendations

Strengthening Global Alliances: Enhancing National Energy Security and International Relationships

★ The NEPD Group recommends that the President make energy security a priority of our trade and foreign policy.

★ The NEPD Group recommends the President support initiatives by Saudi Arabia, Ku wait, Algeria, Qatar, the UAE, and other suppliers to open up areas of their energy sec tors to foreign investment.

★ The NEPD Group recommends that the President direct the Secretaries of State, En ergy and Commerce work to improve dialogue among energy producing and consuming nations.

★ The NEPD Group recommends that the President direct the Secretaries of State, Commerce, and Energy to continue supporting American energy firms competing in markets abroad and use our membership in multilateral organizations, such as the Asia-Pacific Economic Cooperation (APEC) forum, the Organization for Economic Coopera tion and Development (OECD), the World Trade Organization (WTO) Energy Services Negotiations, the Free Trade Area of the Americas (FTAA), and our bilateral relation ships to implement a system of clear, open, and transparent rules and procedures gov erning foreign investment; to level the playing field for U.S. companies overseas; and to reduce barriers to trade and investment.

★ The NEPD Group recommends that the President direct the Secretaries of Commerce and Energy, and the U.S. Trade Representative, to support a sectoral trade initiative to expand investment and trade in energy-related goods and services that will enhance ex ploration, production, and refining, as well as the development of new technologies.

★ The NEPD Group recommends that the President direct the Secretaries of State, Treasury, and Commerce to initiate a comprehensive review of sanctions. Energy secu rity should be one of the factors considered in such a review.

★ The NEPD Group recommends that the President direct the Secretaries of State, Commerce, and Energy to engage in a dialogue through the North American Energy Working Group to develop closer energy integration among Canada, Mexico, and the United States and identify areas of cooperation, fully consistent with the countries' re spective sovereignties.

★ The NEPD Group recommends that the President direct the Secretaries of Energy and State, in consultation with the Federal Energy Regulatory Commission, to review their respective oil, natural gas, and electricity cross-boundary "Presidential Permitting" authorities, and to propose reforms as necessary in order to make their own regulatory regimes more compatible for cross-border trade.

★ The NEPD Group recommends that the President direct the Secretaries of Energy and State, coordinating with the Secretary of the Interior and the Federal Energy Regulatory Commission, to work closely with Canada, the State of Alaska, and all other interested parties to expedite the construction of a pipeline to deliver natural gas to the lower 48 states. This should include proposing to Congress any changes or waivers of law pursuant to the Alaska Natural Gas Transportation Act of 1976 that may be required.

★ The NEPD Group recommends that the President direct the Secretaries of State and Commerce to conclude negotiations with Venezuela on a Bilateral Investment Treaty, and propose formal energy consultations with Brazil, to improve the energy invest ment climate for the growing level of energy investment flows between the United States and each of these countries.

★ The NEPD Group recommends that the President direct the Secretaries of Energy, Commerce, and State to work through the Summit of the Americas Hemispheric En ergy Initiative to develop effective and stable regulatory frameworks and foster reli able supply sources of all fuels within the region.

★ The NEPD Group recommends that the President direct the Secretaries of State, Energy, and Commerce to reinvigorate the U.S.-Africa Trade and Economic Coopera tion Forum and the U.S.-African Energy Ministerial process; deepen bilateral and mul tilateral engagement to promote a more receptive environment for U.S. oil and gas trade, investment, and operations; and promote geographic diversification of energy supplies, addressing such issues as transparency, sanctity of contracts, and security.

★ The NEPD Group recommends that the President direct the Secretaries of State, Commerce, and Energy to support more transparent, accountable, and responsible use of oil resources in African producer countries to enhance the stability and security of trade and investment environments.

★ The NEPD Group recommends that the President direct the Secretaries of State, Commerce, and Energy to support the BTC oil pipeline as it demonstrates its commer cial viability.

★ The NEPD Group recommends that the President direct the Secretaries of Com merce, State, and Energy to continue working with relevant companies and countries to establish the commercial conditions that will allow oil companies operating in Kazakhstan the option of exporting their oil via the BTC pipeline.

★ The NEPD Group recommends that the President direct the Secretaries of State, Commerce, and Energy to support the efforts of private investors and regional govern ments to develop the Shah Deniz gas pipeline as a way to help Turkey and Georgia di versify their natural gas supplies and help Azerbaijan export its gas via a pipeline that will continue diversification of secure energy supply routes.

★ The NEPD Group recommends that the President direct appropriate federal agen cies to complete the current cycle of oil spill response readiness workshops and to consider further appropriate steps to ensure the implementation of the workshops' recommendations.

★ The NEPD Group recommends that the President direct the Secretary of State to encourage Greece and Turkey to link their gas pipeline systems to allow European consumers to diversify their gas supplies by purchasing Caspian gas.

★ The NEPD Group recommends that the President direct the Secretaries of Com merce, Energy, and State to deepen their commercial dialogue with Kazakhstan, Azerbaijan, and other Caspian states to provide a strong, transparent, and stable business climate for energy and related infrastructure projects.

★ The NEPD Group recommends that the President direct the Secretaries of State, Commerce, and Energy to deepen the focus of the discussions with Russia on energy and the investment climate.

★ The NEPD Group recommends that the President direct the Secretaries of Com merce, State, and Energy to assist U.S. companies in their dialogue on the investment and trade climate with Russian officials, to encourage reform of the PSA law and other regulations and related tax provisions, as well as general improvements in the overall investment climate. This will help expand private investment opportunities in Russia and will increase the international role of Russian firms.

★ The NEPD Group recommends that the President direct the Secretaries of State, Commerce, and Energy to continue to work in the APEC Energy Working Group to ex amine oil market data transparency issues and the variety of ways petroleum stocks can be used as an option to address oil market disruptions.

★ The NEPD Group recommends that the President direct the Secretaries of State and Energy to work with India's Ministry of Petroleum and Natural Gas to help India maxi mize its domestic oil and gas production.

★ The NEPD Group recommends that the President direct the Secretaries of Com merce, State, and Energy to promote market-based solutions to environmental con cerns; support exports of U.S. clean energy technologies and encourage their overseas development; engage bilaterally and multilaterally to promote best practices; explore collaborative international basic research and development in energy alternatives and energy-efficient technologies; and explore innovative programs to support the global adoption of these technologies.

★ The NEPD Group recommends that the President direct federal agencies to support continued research into global climate change; continue efforts to identify environ mentally and cost-effective ways to use market mechanisms and incentives; continue development of new technologies; and cooperate with allies, including through inter national processes, to develop technologies, market-based incentives, and other inno vative approaches to address the issue of global climate change.

★ The NEPD Group recommends that the President seek to increase international co operation on finding alternatives to oil, especially for the transportation sector.

★ The NEPD Group recommends that the President direct the Secretary of State to re invigorate its dialogue with the European Union on energy issues, and resume the con sultative process this year in Washington.

★ The NEPD Group recommends that the President promote a coordinated approach to energy security by calling for an annual meeting of G-8 Energy Ministers or their equivalents.

★ The NEPD Group recommends that the President reaffirm that the SPR is designed for addressing an imminent or actual disruption in oil supplies, and not for managing prices.

★ The NEPD Group recommend that the President direct the Secretary of Energy to work within the International Energy Agency (IEA) to ensure that member states ful fill their stockholding.

★ The NEPD Group recommends that the President direct the Secretary of Energy to encourage major oil-consuming countries that are not IEA members to consider strate gic stocks as an option for addressing potential supply disruptions. In this regard, we should work closely with Asian economies, especially through APEC.

★ The NEPD Group recommends that the President direct the Secretary of Energy of fer to lease excess SPR storage facilities to countries (both IEA and non-IEA mem bers) that might not otherwise build storage facilities or hold sufficient strategic stocks, consistent with statutory authorities.

★ The NEPD Group recommends that the President, at such time that exchanged SPR barrels are returned to the SPR, should determine whether offshore Gulf of Mexico royalty oil deposits to the SPR should be resumed, thereby increasing the size of our reserve.

★ The NEPD Group recommends that the President direct the Secretary of Energy to work closely with Congress to ensure that our SPR protection is maintained.

★ The NEPD Group recommends that the President direct the Secretary of Energy to work with producer and consumer country allies and the IEA to craft a more compre hensive and timely world oil data reporting system.

CHAPTER ONE
Taking Stock: Energy Challenges Facing the United States

★ The NEPD Group recommends that the President issue an Executive Order to direct all federal agencies to include in any regulatory action that could significantly and adversely affect energy supplies, distribution, or use, a detailed statement on: (1) the energy impact of the proposed action, (2) any adverse energy effects that cannot be avoided should the proposal be implemented, and (3) alternatives to the proposed action. The agencies would be directed to include this statement in all submissions to the Office of Management and Budget of proposed regulations covered by Executive Order 12866, as well as in all notices of proposed regulations published in the Federal Register.

★ The NEPD Group recommends that the President direct the executive agencies to work closely with Congress to implement the legislative components of a national energy policy.

★ The NEPD Group recommends to the President that the NEPD Group continue to work and meet on the implementation of the National Energy Policy and explore other ways to advance dependable, affordable, and environmentally responsible production and distribution of energy.

Note: All recommendations in this report are subject to execution in accordance with applicable law. Legislation would be sought where needed. Also, any recommendations that involve foreign countries would be executed in accordance with the customs of international relations, including appropriate diplomatic consultation.

CHAPTER TWO
Striking Home The Impacts of High Energy Prices on Families, Communities, and Businesses

★ The NEPD Group recommends that the President direct the Secretary of Energy to ex plore potential opportunities to develop educational programs related to energy develop ment and use. This should include possible legislation to create public education aware ness programs about energy. Such programs should be long-term in nature, should be funded and managed by the respective energy industries, and should include information on energy's compatibility with a clean environment.

★ The NEPD Group recommends that the President take steps to mitigate impacts of high energy costs on low-income consumers. These steps would include:

- Strengthening the Low Income Home Energy Assistance Program by making $1.7 bil lion available annually. This is an increase of $300 million over the regular FY 2001 ap propriation.
- Directing the Secretaries of Interior and Health and Human Services to propose legis lation to bolster LIHEAP funding by using a portion of oil and gas royalty payments.
- Redirecting royalties above a set trigger price to LIHEAP, whenever crude oil and natural gas prices exceed that trigger price, as determined by the responsible agencies.

★ The NEPD Group recommends that the President increase funding for the Weatheriza tion Assistance Program by $1.2 billion over ten years. This will roughly double the spend ing during that period on weatherization. Consistent with that commitment, the FY 2002 Budget includes a $120 million increase over 2001. The Department of Energy will have the option of using a portion of those funds to test improved implementation approaches for the weatherization program.

★ The NEPD Group recommends that the President support legislation to allow funds dedicated for the Weatherization and State Energy Programs to be transferred to LIHEAP if the Department of Energy deems it appropriate.

★ The NEPD Group recommends the President recognize unique regional energy con cerns by working with the National Governors Association and regional governor associa tions to determine how to better serve the needs of diverse areas of the country.

★ The NEPD Group recommends the President direct FEMA to prepare for potential en ergy emergencies.

- FEMA should work with states' Offices of Emergency Management as they expand existing emergency operations plans to identify potential problems and address conse quences of the power shortages. FEMA should use its current Regional Incident Re porting System to identify any situations that might demand immediate attention.
- Using the structure of the already existing Federal Response Plan, FEMA should con duct Regional Interagency Steering Committee (RISC) meetings for states affected by the energy shortfalls. The RISC is a FEMA-led interagency committee comprised of agencies and departments that support the Federal Response Plan. Either an upcom ing, scheduled RISC meeting or a special-focus RISC meeting can be held to identify the short-term energy outlook, as well as any expected consequences, in each of the states during the peak summer season.

CHAPTER THREE

Protecting America's Environment: Sustaining the Nation's Health and Environment

★ The NEPD Group recommends that the President direct the Administrator of the Environmental Protection Agency (EPA) to propose multi-pollutant legislation. The NEPD Group recommends that the President direct the EPA Administrator to work with Congress to propose legislation that would establish a flexible, market-based program to significantly reduce and cap emissions of sulfur dioxide, nitrogen oxides, and mercury from electric power generators. Such a program (with appropriate measures to address local concerns) would provide significant public health benefits even as we increase electricity supplies.

- Establish mandatory reduction targets for emissions of three main pollutants: sulfur dioxide, nitrogen oxides, and mercury.
- Phase in reductions over a reasonable period of time, similar to the successful acid rain reduction program established by the 1990 amendments to the Clean Air Act.
- Provide regulatory certainty to allow utilities to make modifications to their plants without fear of new litigation.
- Provide market-based incentives, such as emissions trading credits to help achieve the required reductions.

★ The NEPD Group recommends the President direct the Secretary of the Interior to work with Congress to create the "Royalties Conservation Fund."

- This fund will earmark potentially billions of dollars in royalties from new oil and gas production in ANWR to fund land conservation efforts.
- This fund will also be used to eliminate the maintenance and improvements backlog on federal lands.

★ The NEPD Group recommends the President issue an Executive Order to rational ize permitting for energy production in an environmentally sound manner by directing federal agencies to expedite permits and other federal actions necessary for energy related project approvals on a national basis. This order would establish an inter agency task force chaired by the Council on Environmental Quality to ensure that federal agencies responsible for permitting energy-related facilities are coordinating their efforts. The task force will ensure that federal agencies set up appropriate mechanisms to coordinate federal, state, tribal, and local permitting activity in particu lar regions where increased activity is expected.

CHAPTER FOUR
Using Energy Wisely: Increasing Energy Conservation and Efficiency

★ The NEPD Group recommends that the President direct the Office of Science and Technology Policy and the President's Council of Advisors on Science and Technology to review and make recommendations on using the nation's energy resources more effi ciently.

★ The NEPD Group recommends that the President direct the Secretary of Energy to conduct a review of current funding and historic performance of energy efficiency re search and development programs in light of the recommendations of this report. Based on this review, the Secretary of Energy is then directed to propose appropriate funding of those research and development programs that are performance-based and are modeled as public-private partnerships.

★ The NEPD Group recommends that the President direct the Secretary of Energy to promote greater energy efficiency.

- Expand the Energy Star program beyond office buildings to include schools, re tail buildings, health care facilities, and homes.
- Extend the Energy Star labeling program to additional products, appliances, and services.
- Strengthen Department of Energy public education programs relating to energy efficiency.

★ The NEPD Group recommends that the President direct the Secretary of Energy to improve the energy efficiency of appliances.

- Support the appliance standards program for covered products, setting higher standards where technologically feasible and economically justified.
- Expand the scope of the appliance standards program, setting standards for ad ditional appliances where technologically feasible and economically justified.

★ The NEPD Group recommends that the President direct heads of executive depart ments and agencies to take appropriate actions to conserve energy use at their facilities to the maximum extent consistent with the effective discharge of public responsibili ties. Agencies located in regions where electricity shortages are possible should con serve especially during periods of peak demand. Agencies should report to the Presi dent, through the Secretary of Energy, within 30 days on the conservation actions taken.

★ The NEPD Group recommends that the President direct the Secretary of the Trea sury to work with Congress to encourage increased energy efficiency through combined heat and power (CHP) projects by shortening the depreciation life for CHP projects or providing investment tax credits.

★ The NEPD Group recommends that the President direct the Administrator of the En vironmental Protection Agency (EPA) to work with local and state governments to pro mote the use of well-designed CHP and other clean power generation at brownfields sites, consistent with the local communities' interests. EPA will also work to clarify li ability issues if they are raised at a particular site.

CHAPTER FOUR

★ The NEPD Group recommends that the President direct the EPA Administrator to promote CHP through flexibility in environmental permitting.

★ The NEPD Group recommends that the President direct the Secretary of Transporta tion to:

- Review and provide recommendations on establishing Corporate Average Fuel Economy (CAFE) standards with due consideration of the National Academy of Sciences study to be released in July 2001. Responsibly crafted CAFE standards should increase efficiency without negatively impacting the U.S. automotive indus try. The determination of future fuel economy standards must therefore be ad dressed analytically and based on sound science.
- Consider passenger safety, economic concerns, and disparate impact on the U.S. versus foreign fleet of automobiles.
- Look at other market-based approaches to increasing the national average fuel economy of new motor vehicles.

★ The new NEPD Group recommends that the President direct the Secretary of Trans portation to review and promote congestion mitigation technologies and strategies and work with Congress on legislation to implement these strategies.

★ The NEPD Group recommends that the President direct the Secretary of the Trea sury to work with Congress on legislation to increase energy efficiency with a tax credit for fuel-efficient vehicles. The NEPD Group recommends that a temporary, efficiency based income tax credit be available for purchase of new hybrid fuel cell vehicles be tween 2002 and 2007.

★ The NEPD Group recommends that the President direct all agencies to use techno logical advances to better protect our environment.

- The Administration remains committed to investing in Intelligent Transportation Systems (ITS) and encourages the private sector to invest in ITS applications. This Department of Transportation (DOT) program funds the development of improved transportation infrastructure that will reduce congestion, such as trav eler information/navigation systems, freeway management, and electronic toll collection. ITS applications reduce fuel associated with travel.
- The Administration remains committed to the DOT's fuel-cell-powered transit bus program, authored by the Transportation Equity Act for the 21st Century (TEA-21). This program demonstrates the viability of fuel-cell power plants for transit bus applications.
- The Administration remains committed to the Clean Buses program. TEA-21 es tablishes a new clean fuel formula grant program, which provides an opportu nity to accelerate the introduction of advanced bus propulsion technologies into the mainstream of the nation's transit fleet.

★ The NEPD Group recommends that the President direct the EPA and DOT to develop ways to reduce demand for petroleum transportation fuels by working with the trucking industry to establish a program to reduce emissions and fuel consumption from long-haul trucks at truck stops by implementing alternatives to idling, such as electrification and auxiliary power units at truck stops along interstate highways. EPA and DOT will develop partnership agreements with trucking fleets, truck stops, and manufacturers of idle-reducing technologies (*e.g.*, portable auxiliary packs, electrification) to install and use low emission-idling technologies.

★ The NEPD Group recommends that the President direct the Secretary of Energy to establish a national priority for improving energy efficiency. The priority would be to improve the energy intensity of the U.S. economy as measured by the amount of energy required for each dollar of economic productivity. This increased efficiency should be pursued through the combined efforts of industry, consumers, and federal, state, and local governments.

★ The NEPD Group recommends that the President direct the EPA Administrator to develop and implement a strategy to increase public awareness of the sizable savings that energy efficiency offers to homeowners across the country. Typical homeowners can save about 30 percent (about $400) a year on their home energy bill by using Energy Star labeled products.

Chapter Five Energy for a New Century: Increasing Domestic Energy Supplies

★ The NEPD Group recommends that the President direct the Secretaries of Energy and the Interior to promote enhanced oil and gas recovery from existing wells through new technology.

★ The NEPD Group recommends that the President direct the Secretary of Energy to improve oil and gas exploration technology through continued partnership with public and private entities.

★ The NEPD Group recommends that the President direct the Secretary of the Interior to examine land status and lease stipulation impediments to federal oil and gas leasing, and review and modify those where opportunities exist (consistent with the law, good environmental practice, and balanced use of other resources).

- Expedite the ongoing Energy Policy and Conservation Act study of impediments to federal oil and gas exploration and development.
- Review public lands withdrawals and lease stipulations, with full public consultation, especially with the people in the region, to consider modifications where appropriate.

★ The NEPD Group recommends that the President direct the Secretary of the Interior to consider economic incentives for environmentally sound offshore oil and gas development where warranted by specific circumstances: explore opportunities for royalty reductions, consistent with ensuring a fair return to the public where warranted for enhanced oil and gas recovery; for reduction of risk associated with production in frontier areas or deep gas formations; and for development of small fields that would otherwise be uneconomic.

★ The NEPD Group recommends that the President direct the Secretaries of Commerce and Interior to re-examine the current federal legal and policy regime (statutes, regulations, and Executive Orders) to determine if changes are needed regarding energy-related activities and the siting of energy facilities in the coastal zone and on the Outer Continental Shelf (OCS).

★ The NEPD Group recommends that the President direct the Secretary of the Interior continue OCS oil and gas leasing and approval of exploration and development plans on predictable schedules.

★ The NEPD Group recommends that the President direct the Secretary of the Interior to consider additional environmentally responsible oil and gas development, based on sound science and the best available technology, through further lease sales in the National Petroleum Reserve-Alaska. Such consideration should include areas not currently leased within the Northeast corner of the Reserve.

★ The NEPD Group recommends that the President direct the Secretary of the Interior work with Congress to authorize exploration and, if resources are discovered, development of the 1002 Area of ANWR. Congress should require the use of the best available technology and should require that activities will result in no significant adverse impact to the surrounding environment.

★ The NEPD Group recommends that the President direct the Secretary of the Interior to work with Congress and the State of Alaska to put in place the most expeditious process for renewal of the Trans-Alaska Pipeline System rights-of-way to ensure that Alaskan oil continues to flow uninterrupted to the West Coast of the United States.

★ The NEPD Group recommends that the President direct the Secretary of Energy to propose comprehensive electricity legislation that promotes competition, protects consumers, enhances reliability, promotes renewable energy, improves efficiency repeals the Public Utility Holding Company Act, and reforms the Public Utility Regulatory Policies Act.

★ The NEPD Group recommends that the President encourage FERC to use its existing statutory authority to promote competition and encourage investment in transmission facilities.

★ The NEPD Group recognizes the importance of looking to technology to help us meet the goals of increasing electricity generation while protecting our environment. To that end, the NEPD Group recommends that the President direct the Department of Energy to continue to develop advanced clean coal technology by:

- Investing $2 billion over 10 years to fund research in clean coal technologies.
- Supporting a permanent extension of the existing research and development tax credit.
- Directing federal agencies to explore regulatory approaches that will encourage advancements in environmental technology.

★ The NEPD Group recommends that the President direct federal agencies to provide greater regulatory certainty relating to coal electricity generation through clear policies that are easily applied to business decisions.

★ The NEPD Group recommends that the President support the expansion of nuclear energy in the United States as a major component of our national energy policy. Following are specific components of the recommendation:

- Encourage the Nuclear Regulatory Commission (NRC) to ensure that safety and environmental protection are high priorities as they prepare to evaluate and expedite applications for licensing new advanced-technology nuclear reactors.
- Encourage the NRC to facilitate efforts by utilities to expand nuclear energy generation in the United States by uprating existing nuclear plants safely.
- Encourage the NRC to relicense existing nuclear plants that meet or exceed safety standards.
- Direct the Secretary of Energy and the Administrator of the Environmental Protection Agency to assess the potential of nuclear energy to improve air quality.
- Increase resources as necessary for nuclear safety enforcement in light of the potential increase in generation.
- Use the best science to provide a deep geologic repository for nuclear waste.
- Support legislation clarifying that qualified funds set aside by plant owners for eventual decommissioning will not be taxed as part of the transaction.
- Support legislation to extend the Price–Anderson Act.

★ The NEPD Group recommends that, in the context of developing advanced nuclear fuel cycles and next generation technologies for nuclear energy, the United States should reexamine its policies to allow for research, development and deployment of fuel conditioning methods (such as pyroprocessing) that reduce waste streams and enhance proliferation resistance. In doing so, the United States will continue to discourage the accumulation of separated plutonium, worldwide.

★ The United States should also consider technologies (in collaboration with international partners with highly developed fuel cycles and a record of close cooperation) to develop reprocessing and fuel treatment technologies that are cleaner, more efficient, less waste intensive, and more proliferation-resistant.

CHAPTER FIVE

★ The NEPD Group recognizes there is a need to reduce the time and cost of the hydro power licensing process. The NEPD Group recommends that the President encourage the Federal Energy Regulatory Commission (FERC) and direct federal resource agencies to make the licensing process more clear and efficient, while preserving environmental goals. In addi tion, the NEPD Group recognizes the importance of optimizing the efficiency and reliability of existing hydropower facilities and will encourage the Administration to adopt efforts to ward that end.

- Support administrative and legislative reform of the hydropower licensing process.
- Direct federal resource agencies to reach interagency agreement on conflicting manda tory license conditions before they submit their conditions to FERC for inclusion in a license.
- Encourage FERC to adopt appropriate deadlines for its own actions during the licensing process.

CHAPTER SIX
Nature's Power: Increasing America's Use of Renewable and Alternative Energy

★ The NEPD Group recommends that the President direct the Secretaries of the Interior and Energy to re-evaluate access limitations to federal lands in order to increase renewable energy production, such as biomass, wind, geothermal, and solar.

★ The NEPD Group supports the increase of $39.2 million in the FY 2002 budget amendment for the Department of Energy's Energy Supply account that would provide increased support for research and development of renewable energy re sources.

★ The NEPD Group recommends that the President direct the Secretary of Energy to conduct a review of current funding and historic performance of renewable energy and alternative energy research and development programs in light of the recommen dations of this report. Based on this review, the Secretary of Energy is then directed to propose appropriate funding of those research and development programs that are performance-based and are modeled as public-private partnerships.

★ The NEPD Group recommends that the President direct the Secretary of the Treasury to work with Congress on legislation to expand the section 29 tax credit to make it available for new landfill methane projects. The credit could be tiered, de pending on whether a landfill is already required by federal law to collect and flare its methane emissions due to local air pollution concerns.

★ The NEPD Group recommends that the President direct the Secretary of the Interior to determine ways to reduce the delays in geothermal lease processing as part of the permitting review process.

★ The NEPD Group recommends that the President direct the Administrator of the Environmental Protection Agency to develop a new renewable energy partnership program to help companies more easily buy renewable energy, as well as receive recognition for the environmental benefits of their purchase, and help consumers by promoting consumer choice programs that increase their knowledge about the environmental benefits of purchasing renewable energy.

★ The NEPD Group recommends that the President direct the Secretary of the Treasury to work with Congress on legislation to extend and expand tax credits for electricity produced using wind and biomass. The President's budget request extends the present 1.7 cents per kilowatt hour tax credit for electricity produced from wind and biomass; expands eligible biomass sources to include forest-related sources, agricultural sources, and certain urban sources; and allows a credit for electricity produced from biomass co-fired with coal.

★ The NEPD Group recommends that the President direct the Secretary of the Treasury to work with Congress on legislation to provide a new 15 percent tax credit for residential solar energy property, up to a maximum credit of $2,000.

★ The NEPD Group recommends that the President direct the Secretaries of the Interior and Energy to work with Congress on legislation to use an estimated $1.2 billion of bid bonuses from the environmentally responsible leasing of ANWR for funding research into alternative and renewable energy resources, including wind, solar, geothermal, and biomass.

★ The NEPD Group recommends that the President direct the Secretary of the Treasury to work with Congress to continue the ethanol excise tax exemption.

CHAPTER SIX

★ The NEPD Group recommends that the President direct the Secretary of Energy to develop next-generation technology—including hydrogen and fusion.

- Develop an education campaign that communicates the benefits of alternative forms of energy, including hydrogen and fusion.
- Focus research and development efforts on integrating current programs regarding hydrogen, fuel cells, and distributed energy.
- Support legislation reauthorizing the Hydrogen Energy Act.

★ The NEPD Group recommends that the President direct the Secretary of the Treasury to work with Congress to develop legislation to provide for a temporary income tax credit available for the purchase of new hybrid or fuel-cell vehicles between 2002 and 2007.

★ The NEPD Group recommends that the President direct the Administrator of the Environmental Protection Agency to issue guidance to encourage the development of well-designed combined heat and power (CHP) units that are both highly efficient and have low emissions. The goal of this guidance would be to shorten the time needed to obtain each permit, provide certainty to industry by ensuring consistent implementation across the country, and encourage the use of these cleaner, more efficient technologies.

CHAPTER SEVEN
America's Energy Infrastructure: A Comprehensive Delivery System

★ The NEPD Group recommends that the President direct the Secretary of Energy to work with the Federal Energy Regulatory Commission (FERC) to improve the reliabil ity of the interstate transmission system and to develop legislation providing for en forcement by a self-regulatory organization subject to FERC oversight.

★ The NEPD Group recommends that the President direct the Secretary of Energy to expand the Department's research and development on transmission reliability and superconductivity.

★ The NEPD Group recommends that the President direct the Secretary of Energy to au thorize the Western Area Power Administration to explore relieving the "Path 15" bottle neck through transmission expansion financed by nonfederal contributions.

★ The NEPD Group recommends that the President direct the appropriate federal agencies to take actions to remove constraints on the interstate transmission grid and allow our nation's electricity supply to meet the growing needs of our economy.

- Direct the Secretary of Energy, by December 31, 2001, to examine the benefits of establishing a national grid, identify transmission bottlenecks, and identify mea sures to remove transmission bottlenecks.
- Direct the Secretary of Energy to work with FERC to relieve transmission con straints by encouraging the use of incentive rate-making proposals.
- Direct the federal utilities to determine whether transmission expansions are nec essary to remove constraints. The Administration should review the Bonneville Power Administration's (BPA's) capital and financing requirements in the context of its membership in a regional RTO, and if additional Treasury financing appears war ranted or necessary in the future, the Administration should seek an increase in BPA's borrowing authority at that time.
- Direct the Secretary of Energy, in consultation with appropriate federal agencies and state and local government officials, to develop legislation to grant authority to obtain rights-of-way for electricity transmission lines, with the goal of creating a re liable national transmission grid. Similar authority already exists for natural gas pipelines in recognition of their role in interstate commerce.

★ The NEPD Group recommends that the President direct the Secretary of the Inte rior to work with Congress and the State of Alaska to put in place the most expedi tious process for renewal of the Trans-Alaskan Pipeline System lease to ensure that Alaskan oil continues to flow uninterrupted to the West Coast of the United States.

★ The NEPD Group recommends that the President direct the Secretaries of Energy and State, coordinating with the Secretary of the Interior and the Federal Energy Regulatory Commission, to work closely with Canada, the State of Alaska, and all other interested parties to expedite the construction of a pipeline to deliver natural gas to the lower 48 states. This should include proposing to Congress any changes or waivers of law pursuant to the Alaska Natural Gas Transportation Act of 1976 that may be required.

★ The NEPD Group recommends that the President support legislation to improve the safety of natural gas pipelines, protect the environment, strengthen emergency preparedness and inspections and bolster enforcement.

CHAPTER SEVEN

★ The NEPD Group recommends that the President direct agencies to continue their interagency efforts to improve pipeline safety and expedite pipeline permitting in an environmentally sound manner and encourage FERC to consider improvements in the regulatory process governing approval of interstate natural gas pipeline projects.

★ The NEPD Group recommends that the President direct the Administrator of the EPA to study opportunities to maintain or improve the environmental benefits of state and local "boutique" clean fuel programs while exploring ways to increase the flexibility of the fuels distribution infrastructure, improve fungibility, and provide added gasoline market liquidity. In concluding this study, the Administrator shall con sult with the Departments of Energy and Agriculture, and other agencies as needed.

★ The NEPD Group recommends that the President direct the Administrator of the Environmental Protection Agency and the Secretary of Energy to take steps to ensure America has adequate refining capacity to meet the needs of consumers.

- Provide more regulatory certainty to refinery owners and streamline the permitting process where possible to ensure that regulatory overlap is limited.
- Adopt comprehensive regulations (covering more than one pollutant and require ment) and consider the rules' cumulative impacts and benefits.

★ The NEPD Group recommends that the President direct the Administrator of the Environmental Protection Agency, in consultation with the Secretary of Energy and other relevant agencies, to review New Source Review regulations, including adminis trative interpretation and implementation, and report to the President within 90 days on the impact of the regulations on investment in new utility and refinery generation capacity, energy efficiency, and environmental protection.

★ The NEPD Group recommends that the President direct the Attorney General to review existing enforcement actions regarding New Source Review to ensure that the enforcement actions are consistent with the Clean Air Act and its regulations.

★ The NEPD Group supports the President's budget proposal to provide $8 million to maintain the two-million-barrel Northeast Heating Oil Reserve. Operated by the pri vate sector, the Reserve helps ensure adequate supplies of heating oil in the event that colder than normal winters occur in the Northeast United States.

CHAPTER 8
Strengthening Global Alliances: Enhancing National Energy Security and International Relationships

★ The NEPD Group recommends that the President make energy security a priority of our trade and foreign policy.

★ The NEPD Group recommends the President support initiatives by Saudi Arabia, Ku wait, Algeria, Qatar, the UAE, and other suppliers to open up areas of their energy sec tors to foreign investment.

★ The NEPD Group recommends that the President direct the Secretaries of State, En ergy and Commerce work to improve dialogue among energy producing and consuming nations.

★ The NEPD Group recommends that the President direct the Secretaries of State, Commerce, and Energy to continue supporting American energy firms competing in markets abroad and use our membership in multilateral organizations, such as the Asia-Pacific Economic Cooperation (APEC) forum, the Organization for Economic Coopera tion and Development (OECD), the World Trade Organization (WTO) Energy Services Negotiations, the Free Trade Area of the Americas (FTAA), and our bilateral relation ships to implement a system of clear, open, and transparent rules and procedures gov erning foreign investment; to level the playing field for U.S. companies overseas; and to reduce barriers to trade and investment.

★ The NEPD Group recommends that the President direct the Secretaries of Commerce and Energy, and the U.S. Trade Representative, to support a sectoral trade initiative to expand investment and trade in energy-related goods and services that will enhance ex ploration, production, and refining, as well as the development of new technologies.

★ The NEPD Group recommends that the President direct the Secretaries of State, Treasury, and Commerce to initiate a comprehensive review of sanctions. Energy securi ty should be one of the factors considered in such a review.

★ The NEPD Group recommends that the President direct the Secretaries of State, Commerce, and Energy to engage in a dialogue through the North American Energy Working Group to develop closer energy integration among Canada, Mexico, and the United States and identify areas of cooperation, fully consistent with the countries' re spective sovereignties.

★ The NEPD Group recommends that the President direct the Secretaries of Energy and State, in consultation with the Federal Energy Regulatory Commission, to review their respective oil, natural gas, and electricity cross-boundary "Presidential Permitting" authorities, and to propose reforms as necessary in order to make their own regulatory regimes more compatible for cross-border trade.

★ The NEPD Group recommends that the President direct the Secretaries of Energy and State, coordinating with the Secretary of the Interior and the Federal Energy Regulatory Commission, to work closely with Canada, the State of Alaska, and all other interested parties to expedite the construction of a pipeline to deliver natural gas to the lower 48 states. This should include proposing to Congress any changes or waivers of law pursuant to the Alaska Natural Gas Transportation Act of 1976 that

CHAPTER EIGHT

may be required.

★ The NEPD Group recommends that the President direct the Secretaries of State and Commerce to conclude negotiations with Venezuela on a Bilateral Investment Treaty, and propose formal energy consultations with Brazil, to improve the energy investment climate for the growing level of energy investment flows between the United States and each of these countries.

★ The NEPD Group recommends that the President direct the Secretaries of Energy, Commerce, and State to work through the Summit of the Americas Hemispheric Ener gy Initiative to develop effective and stable regulatory frameworks and foster reliable supply sources of all fuels within the region.

★ The NEPD Group recommends that the President direct the Secretaries of State, En ergy, and Commerce to reinvigorate the U.S.-Africa Trade and Economic Cooperation Forum and the U.S.-African Energy Ministerial process; deepen bilateral and multilater al engagement to promote a more receptive environment for U.S. oil and gas trade, in vestment, and operations; and promote geographic diversification of energy supplies, addressing such issues as transparency, sanctity of contracts, and security.

★ The NEPD Group recommends that the President direct the Secretaries of State, Commerce, and Energy to support more transparent, accountable, and responsible use of oil resources in African producer countries to enhance the stability and security of trade and investment environments.

★ The NEPD Group recommends that the President direct the Secretaries of State, Commerce, and Energy to support the BTC oil pipeline as it demonstrates its commer cial viability.

★ The NEPD Group recommends that the President direct the Secretaries of Com merce, State, and Energy to continue working with relevant companies and countries to establish the commercial conditions that will allow oil companies operating in Kaza khstan the option of exporting their oil via the BTC pipeline.

★ The NEPD Group recommends that the President direct the Secretaries of State, Commerce, and Energy to support the efforts of private investors and regional govern ments to develop the Shah Deniz gas pipeline as a way to help Turkey and Georgia di versify their natural gas supplies and help Azerbaijan export its gas via a pipeline that will continue diversification of secure energy supply routes.

★ The NEPD Group recommends that the President direct appropriate federal agen cies to complete the current cycle of oil spill response readiness workshops and to consider further appropriate steps to ensure the implementation of the workshops' rec ommendations.

★ The NEPD Group recommends that the President direct the Secretary of State to en courage Greece and Turkey to link their gas pipeline systems to allow European con sumers to diversify their gas supplies by purchasing Caspian gas.

★ The NEPD Group recommends that the President direct the Secretaries of Commerce, Energy, and State to deepen their commercial dialogue with Kazakhstan, Azerbaijan, and other Caspian states to provide a strong, transparent, and stable business climate for energy and related infrastructure projects.

★ The NEPD Group recommends that the President direct the Secretaries of State, Commerce, and Energy to deepen the focus of the discussions with Russia on energy and the investment climate.

★ The NEPD Group recommends that the President direct the Secretaries of Commerce, State, and Energy to assist U.S. companies in their dialogue on the investment and trade climate with Russian officials, to encourage reform of the PSA law and other regulations and related tax provisions, as well as general improvements in the overall investment climate. This will help expand private investment opportunities in Russia and will increase the international role of Russian firms.

★ The NEPD Group recommends that the President direct the Secretaries of State, Commerce, and Energy to continue to work in the APEC Energy Working Group to examine oil market data transparency issues and the variety of ways petroleum stocks can be used as an option to address oil market disruptions.

★ The NEPD Group recommends that the President direct the Secretaries of State and Energy to work with India's Ministry of Petroleum and Natural Gas to help India maximize its domestic oil and gas production.

★ The NEPD Group recommends that the President direct the Secretaries of Commerce, State, and Energy to promote market-based solutions to environmental concerns; support exports of U.S. clean energy technologies and encourage their overseas development; engage bilaterally and multilaterally to promote best practices; explore collaborative international basic research and development in energy alternatives and energy-efficient technologies; and explore innovative programs to support the global adoption of these technologies.

★ The NEPD Group recommends that the President direct federal agencies to support continued research into global climate change; continue efforts to identify environmentally and cost-effective ways to use market mechanisms and incentives; continue development of new technologies; and cooperate with allies, including through international processes, to develop technologies, market-based incentives, and other innovative approaches to address the issue of global climate change.

★ The NEPD Group recommends that the President seek to increase international cooperation on finding alternatives to oil, especially for the transportation sector.

★ The NEPD Group recommends that the President direct the Secretary of State to reinvigorate its dialogue with the European Union on energy issues, and resume the consultative process this year in Washington.

★ The NEPD Group recommends that the President promote a coordinated approach to energy security by calling for an annual meeting of G-8 Energy Ministers or their equivalents.

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★ The NEPD Group recommends that the President reaffirm that the SPR is designed for addressing an imminent or actual disruption in oil supplies, and not for managing prices.

★ The NEPD Group recommend that the President direct the Secretary of Energy to work within the International Energy Agency (IEA) to ensure that member states ful fill their stockholding.

★ The NEPD Group recommends that the President direct the Secretary of Energy to encourage major oil-consuming countries that are not IEA members to consider stra tegic stocks as an option for addressing potential supply disruptions. In this regard, we should work closely with Asian economies, especially through APEC.

★ The NEPD Group recommends that the President direct the Secretary of Energy of fer to lease excess SPR storage facilities to countries (both IEA and non-IEA mem bers) that might not otherwise build storage facilities or hold sufficient strategic stocks, consistent with statutory authorities.

★ The NEPD Group recommends that the President, at such time that exchanged SPR barrels are returned to the SPR, should determine whether offshore Gulf of Mexi co royalty oil deposits to the SPR should be resumed, thereby increasing the size of our reserve.

★ The NEPD Group recommends that the President direct the Secretary of Energy to work closely with Congress to ensure that our SPR protection is maintained.

★ The NEPD Group recommends that the President direct the Secretary of Energy to work with producer and consumer country allies and the IEA to craft a more compre hensive and timely world oil data reporting system.

Glossary

Barrel (Oil): A unit of volume equal to 42 U.S. gallons.

Barrels per Day (Operable Refinery Capacity): The maximum number of barrels of in put that can be processed during a 24-hour period after making allowances for the following limitations: the capability of downstream facilities to absorb the output of crude oil process ing facilities of a given refinery (no reduction is made when a planned distribution of inter mediate streams through other than downstream facilities is part of a refinery's normal op eration); the types and grades of inputs to be processed; the types and grades of products to be manufactured; the environmental constraints associated with refinery operations; the re duction of capacity for scheduled downtime, such as routine inspection, mechanical prob lems, maintenance, repairs, and turnaround; and the reduction of capacity for unscheduled downtime, such as mechanical problems, repairs, and slowdowns.

Biomass: Organic nonfossil material of biological origin constituting a renewable energy source.

British Thermal Unit (Btu): The quantity of heat needed to raise the temperature of 1 pound of water by 1°F at or near 39.2°F.

Coal: A readily combustible black or brownish-black rock whose composition, including in herent moisture, consists of more than 50 percent by weight and more than 70 percent by volume of carbonaceous material. It is formed from plant remains that have been com pacted, hardened, chemically altered, and metamorphosed by heat and pressure over geo logic time.

Cogeneration: The production of electricity and another form of useful energy (such as heat or steam) used for industrial, commercial, heating, or cooling purposes.

Commercial Building: A building with more than 50 percent of its floor space used for commercial activities. Commercial buildings include stores, offices, schools, churches, gym nasiums, libraries, museums, hospitals, clinics, warehouses, and jails. Government buildings are also included, except buildings on military bases or reservations.

Commercial Sector: Business establishments that are not engaged in transportation or in manufacturing or other types of industrial activity (agriculture, mining, or construction). Commercial establishments include hotels, motels, restaurants, wholesale businesses, retail stores, laundries, and other service enterprises; religious and nonprofit organizations; health, social, and educational institutions; and federal, state, and local governments. Streetlights, pumps, bridges, and public services are also included if the establishment oper ating them is considered commercial.

Conversion Factor: A number that translates units of one system into corresponding val ues of another system. Conversion factors can be used to translate physical units of mea sure for various fuels into Btu equivalents.

Crude Oil: A mixture of hydrocarbons that exists in liquid phase in natural underground reservoirs and remains liquid at atmospheric pressure after passing through surface separat ing facilities. Crude oil may also include:

- Small amounts of hydrocarbons that exist in the gaseous phase in natural under ground reservoirs but are liquid at atmospheric pressure after being recovered from oil well (casing head) gas in lease separators and that subsequently are commingled with the crude stream without being separately measured.
- Small amounts of nonhydrocarbons produced with the oil, such as sulfur and other compounds

Crude Oil Stocks: Stocks of crude oil and lease condensate held at refineries, in pipelines, at pipeline terminals, and on leases.

District Heat: Steam or hot water from an outside source used as an energy source in a building. The steam or hot water is produced in a central plant and is piped into the build ing. District heat may be purchased from a utility or provided by a physical plant in a sepa rate building that is part of the same facility (for example, a hospital complex or university).

Electric Power Plant: A station containing prime movers, electric generators, and auxil iary equipment for converting mechanical, chemical, and/or fission energy into electric en ergy.

Electricity Generation: The process of producing electric energy or transforming other forms of energy into electric energy. Also, the amount of electric energy produced or ex pressed in watt-hours (Wh).

End-Use Sectors: The residential, commercial, industrial, and transportation sectors of the economy.

Energy: The capacity for doing work as measured by the capability of doing work (poten tial energy), or the conversion of this capability to motion (kinetic energy). Energy has sev eral forms, some of which are easily convertible and can be changed to another form useful for work. Most of the world's convertible energy comes from fossil fuels that are burned to produce heat that is then used as a transfer medium to mechanical or other means in order to accomplish tasks. Electrical energy is usually measured in kilowatt-hours, while heat en ergy is usually measured in British thermal units.

Energy Consumption: The use of energy as a source of heat or power or as an input in the manufacturing process.

Energy Source: A substance, such as oil, natural gas, or coal, that supplies heat or power. Electricity and renewable forms of energy, such as wood, waste, geothermal, wind, and so lar, are considered to be energy sources.

Exports: Shipments of goods from the 50 states and the District of Columbia to foreign countries and to Puerto Rico, the Virgin Islands, and other U.S. possessions and territories.

Federal Energy Regulatory Commission (FERC): The federal agency with jurisdiction over interstate electricity sales, wholesale electric rates, hydroelectric licensing, natural gas pricing, oil pipeline rates, and gas pipeline certification. FERC is an independent regulatory agency within the Department of Energy and is the successor to the Federal Power Com mission.

Fossil Fuel: Any naturally occurring organic fuel formed in the Earth's crust, such as oil, coal, and natural gas.

Fuel Ethanol: An anhydrous, denatured aliphatic alcohol intended for motor gasoline blending.

Gas-Turbine Electric Power Plant: A plant in which the prime mover is a gas turbine. A gas turbine typically consists of an axial-flow air compressor and one or more combustion chambers where liquid or gaseous fuel is burned. The hot gases expand to drive the genera tor and then are used to run the compressor.

Geothermal Energy: Energy from the internal heat of the Earth, which may be residual heat, friction heat, or a result of radioactive decay. The heat is found in rocks and fluids at various depths and can be extracted by drilling or pumping.

Gross Domestic Product (GDP): The total value of goods and services produced by la bor and property located in the United States.

Hydrocarbon: An organic chemical compound of hydrogen and carbon in the gaseous, liq uid, or solid phase. The molecular structure of hydrocarbon compounds varies from the simplest (methane, a constituent of natural gas) to the very heavy and very complex.

Hydropower: The production of electricity from the kinetic energy of falling water.

Hydropower Plant: A plant in which the turbine generators are driven by falling water.

Independent Power Producer: Wholesale electricity producers (other than qualifying fa cilities under the Public Utilities Regulatory Policies Act of 1978) that are unaffiliated with franchised utilities in the area in which the independent power producers are selling power and that lack significant marketing power. Unlike traditional electric utilities, independent power producers do not possess transmission facilities that are essential to their customers and do not sell power in any retail service territory where they have a franchise.

Industrial Sector: Manufacturing industries, which make up the largest part of the sector, along with mining, construction, agriculture, fisheries, and forestry. Establishments in this sector range from steel mills, to small farms, to companies assembling electronic compo nents.

Jet Fuel: A refined petroleum product used in jet aircraft engines. It includes kerosene type jet fuel and naphtha-type jet fuel.

Methane: Hydrocarbon gas, which is the major component of natural gas.

Methanol: A light, volatile alcohol eligible for motor gasoline blending.

Methyl Tertiary Butyl Ether (MTBE): An ether, intended for motor gasoline blending.

Natural Gas: A gaseous mixture of hydrocarbon compounds, primarily methane, delivered via pipeline for consumption. It is used as a fuel for electricity generation, a variety of uses in buildings, and as raw material input and fuel for industrial processes. *Not*e: This product, also referred to as *dry natural gas* or *consumer-grade natural gas*, is the product that re mains after *wet natural gas* has been processed at lease facilities and/or natural gas pro cessing plants. This processing removes nonhydrocarbon gases (e.g., water vapor, carbon dioxide, helium, hydrogen sulfide, and nitrogen) that would otherwise make the gas unmar ketable and natural gas liquids.

Natural Gas, Dry: The marketable portion of natural gas production, which is obtained by subtracting extraction losses, including natural gas liquids removed at natural gas process ing plants, from total production.

Natural Gas, Wet: A mixture of hydrocarbon compounds and small quantities of various nonhydrocarbons existing in the gaseous phase or in solution with crude oil in porous rock formations at reservoir conditions. The principal hydrocarbons normally contained in the mixture are methane, ethane, propane, butane, and pentanes. Typical nonhydrocarbon gases that may be present in reservoir natural gas are water vapor, carbon dioxide, helium, hydrogen sulfide, and nitrogen. Under reservoir conditions, natural gas and the liquefiable portions occur either in a single gaseous phase in the reservoir or in solution with oil and are not distinguishable at the time as separate substances.

Nitrogen Oxides (NOx): Compounds of nitrogen and oxygen produced by the burning of fossil fuels.

North American Electric Reliability Council (NERC): A council formed in 1968 by the electric utility industry to promote the reliability and adequacy of bulk power supply in the electric utility systems of North America. The NERC consists of ten regional reliability councils and encompasses essentially all the power systems of the contiguous United States and Canada.

Nuclear Electric Power: Electricity generated by an electric power plant whose turbines are driven by steam generated in a reactor by heat from the fissioning of nuclear fuel.

Organization for Economic Cooperation and Development (OECD): Current mem bers are Australia, Austria, Belgium, Canada, Czech Republic, Denmark and its territories (Faroe Islands and Greenland), Finland, France, Germany, Greece, Greenland, Hungary, Iceland, Ireland, Italy, Japan, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, South Korea, Spain, Sweden, Switzerland, Turkey, United Kingdom, and United States and its territories (Guam, Puerto Rico, and Virgin Islands).

Organization of Petroleum Exporting Countries (OPEC): Countries that have orga nized for the purpose of negotiating with oil companies on matters of oil production, prices, and future concession rights. Current members are Algeria, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, United Arab Emirates, and Venezuela.

Photovoltaic Energy: Direct-current electricity generated from sunlight through solid state semiconductor devices that have no moving parts.

Pipeline, Natural Gas: A continuous pipe conduit, complete with such equipment as valves, compressor stations, communications systems, and meters, for transporting natural gas and/or supplemental gaseous fuels from one point to another, usually from a point in or beyond the producing field or processing plant to another pipeline or to points of use. Also refers to a company operating such facilities.

Pipeline, Oil: Oil and product pipelines (including interstate, intrastate, and intracompany pipelines) used to transport oil and petroleum products, respectively, within the 50 states and the District of Columbia.

Proved Reserves, Oil: The estimated quantities of all liquids defined as crude oil that geo logical and engineering data demonstrate with reasonable certainty to be recoverable in fu ture years from known reservoirs under existing economic and operating conditions.

Proved Reserves, Natural Gas: The estimated quantities of natural gas that analysis of geological and engineering data demonstrates with reasonable certainty to be recoverable in future years from known reservoirs under existing economic and operating conditions.

Refinery (Oil): An installation that manufactures finished fuels from oil, unfinished oils, natural gas liquids, other hydrocarbons, and alcohol.

Renewable Energy: Energy obtained from sources that are essentially inexhaustible (un like, for example, fossil fuels, of which there is a finite supply). Renewable sources of en ergy include conventional hydroelectric power, wood, waste, geothermal, wind, photovol taic, and solar thermal energy.

Spot Price: The price for a one-time open market transaction for immediate delivery of the specific quantity of product at a specific location where the commodity is purchased “on the spot” at current market rates.

Strategic Petroleum Reserve (SPR): Petroleum stocks maintained by the federal gov ernment for use during periods of major supply interruption.

Stocks: Supplies of fuel or other energy source(s) stored for future use. Stocks are re ported as of the end of the reporting period.

Sulfur Dioxide (SO_2): A toxic, colorless gas soluble in water, alcohol, and ether. Used as a chemical intermediate in paper pulping and ore refining, and as a solvent.

Transportation Sector: Private and public vehicles that move people and commodities. Included are automobiles, trucks, buses, motorcycles, railroads, and railways (including streetcars), aircraft, ships, barges, and natural gas pipelines.

Wellhead Price: The price of oil or natural gas at the mouth of the well.

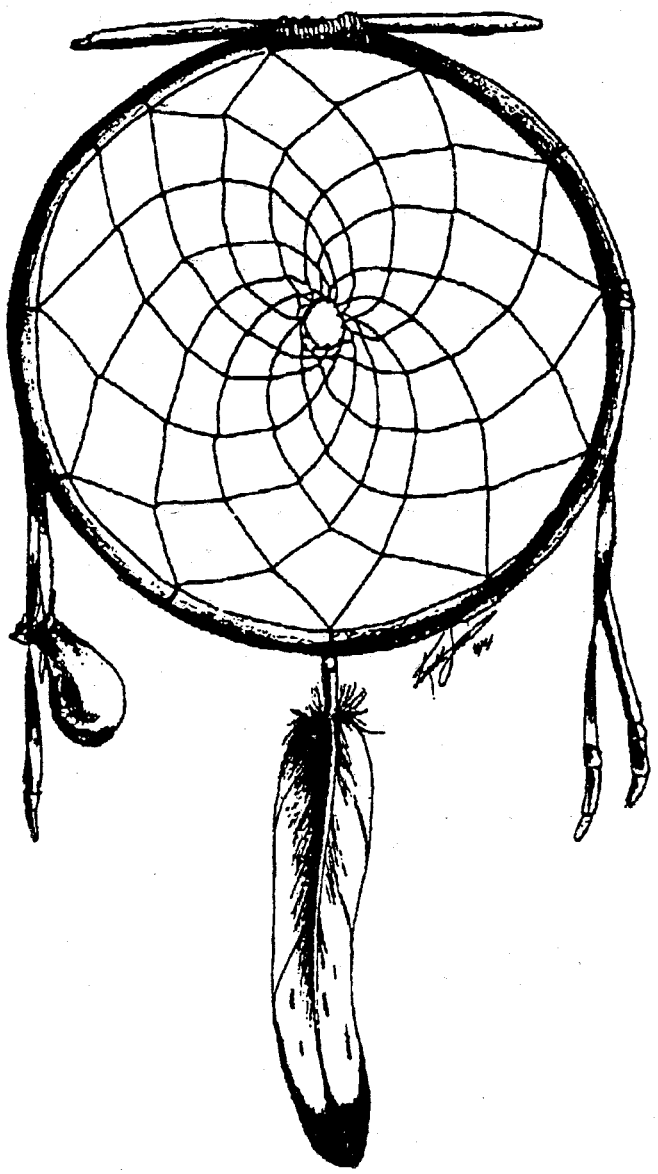
Wind Energy: The kinetic energy of wind converted into mechanical energy by wind tur bines (i.e., blades rotating from a hub) that drive generators to produce electricity.

Wood Energy: Wood and wood products used as fuel, including round wood (cord wood), limb wood, wood chips, bark, sawdust, forest residues, charcoal, pulp waste, and spent pulping liquor.


SEAL OF THE PRESIDENT OF THE UNITED STATES

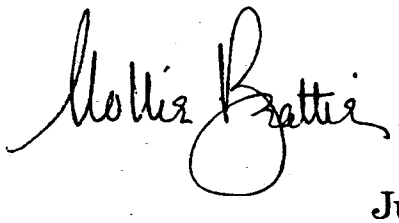
THE NATIVE AMERICAN POLICY

of the U.S. Fish and Wildlife Service



FROM THE DIRECTOR

Just as the "Dreamcatcher" catches the good dreams and allows the bad dreams to pass through the net, the Native American Policy of the Fish and Wildlife Service that follows is intended to capture only good government-to government relationships. As our relationship with the Native American people continues to evolve, we will continue to capture the good visions and add them to this Policy.



June 28, 1994

Cover: The "Dreamcatcher"—During sleep is often when the most powerful visions occur. A dream catcher should be hung freely in the air above the head of the dreamer. Good dreams become caught in the net and directed back to the dreamer by way of the feather. Bad dreams go through the hole and beyond.

Cover Art is a pen and ink drawing by Keith C. Smith of a dreamcatcher created by Ken Poynter. Keith, a graduate of the University of Colorado is Navajo and is currently employed by the University of Colorado–Boulder. Ken, a Passamaquody, is currently the Executive Director of the Native American Fish and Wildlife Society.

INTRODUCTION

The U.S. Fish and Wildlife Service (Service), to accomplish its objectives with greater effectiveness, is seeking partnerships with Native American governments, foreign nations, States, other governmental agencies, conservation groups, and individual citizens. Such partnerships will provide opportunities to better address ecological systems as a whole and do so with maximum assistance and support.

The express purpose of this Native American Policy (Policy) is to articulate the general principles that will guide the Service's government-to-government relationship to Native American governments in the conservation of fish and wildlife resources. The Service envisions developing other Native American policy statements on more specific topics.

The Service has developed and adopted this Policy to help accomplish its mission and concurrently to participate in fulfilling the Federal Government's and the Department of the Interior's trust responsibilities to assist Native Americans in protecting, conserving, and utilizing their reserved, treaty guaranteed, or statutorily identified trust assets. This Policy is consistent with Federal policy supporting Native American government self-determination.

The Service has a long history of working with Native American governments in managing fish and wildlife resources. These relationships will be expanded, within the Service's available resources, by improving communication and cooperation, providing fish and wildlife management expertise, training and assistance, and respecting and utilizing the traditional knowledge, experience, and perspectives of Native Americans in managing fish and wildlife resources.

This Policy is intended to be flexible and dynamic to provide for evolution of the partnerships between the Service and Native American governments. Working relationships between the Service and Native American governments will be generally consistent nationwide, however, they will vary according to the legal basis and management requirements of each relationship. For example, the Service's interaction with Alaska Natives is largely directed by the provisions of the Alaska Native Claims Settlement Act and the Alaska National Interest Lands Conservation Act. Outside of Alaska, the Service's involvement with Native Americans is guided primarily by reserved right doctrines, Executive Orders, judicial mandates, and specific treaties between the Federal Government and Native American governments. This Policy applies to all Service employees in discharging official duties that affect Native American governmental interests.

This Policy is adopted pursuant to and consistent with existing law and does not preempt or modify the fish and wildlife management authorities of the Service, other Federal agencies, Native American governments, or States. The Policy does not suggest recognition of tribal authority that does not currently exist, however, the Service need not wait for judicial recognition of tribal authority over fish and wildlife when such authority is already supported by law. The Policy will not be used to arbitrate differences in opinion between government agencies or to interpret any authorities, laws or judicial findings. Unless specific judicial rulings or Acts of Congress indicate otherwise, this Policy should not be construed as validating the authority of any Native American government in Alaska over lands, fish and wildlife, or non-tribal members.

This Policy does not negate or supersede the diverse mandates and priorities of the Service. Accomplishing the intent of this Policy is contingent upon prevailing legal, procedural, workforce, and monetary constraints.

POLICY PRINCIPLES

The following policy statements provide the framework within which the Service will cooperate with Native American governments to conserve fish and wildlife resources.

I. SOVEREIGNTY

Native American governments are recognized as governmental sovereigns and have been referred to as quasi-sovereign domestic dependent nations by the courts. The Service recognizes the sovereign status of Native American Governments.

II. CONSERVATION

While the major components of this Policy are aimed at cultivating and maintaining effective partnerships between the Service and Native American governments, the ultimate goal is to effect long-term conservation of fish and wildlife resources. This goal is eloquently expressed in the following statement:

> *"We did not inherit this Earth or its natural resources from our ancestors, we are only borrowing them from our childrens' children and their children. Therefore, we are duty-bound and obligated to protect them and use them wisely until such time that they get here, and then they will have the same obligations."*
>
> *Anonymous*

III. GOVERNMENT TO GOVERNMENT RELATIONS

General Statement

There is a unique and distinctive political relationship between the United States and Native American governments, as defined by treaties, statutes, court decisions and the United States Constitution, that differentiates Native American governments from other interests and constituencies, and that extends to all Federal agencies. The Service will maintain government-to-government relationships with Native American governments. The Service will work directly with Native American governments and observe legislative mandates, trust responsibilities, and respect Native American cultural values when planning and implementing programs. Successful implementation of this Policy will be accomplished through working relationships and mutual partnerships with Native American governments. The Service will rely on Native American governments to identify formal and informal contacts to represent them when coordinating with the Service. Working relationships, in many cases, will be with Native American fish and wildlife departments. For major joint initiatives, the Service will offer to enter into formal agreements, developed by both parties, that clearly identify the roles, responsibilities, and obligations of the Service and each involved Native American government.

Reservation Lands

The Service recognizes the authority that Native American governments have for making fish and wildlife resource management policy and for managing fish and wildlife resources on trust lands within their Native American reservations. Under certain circumstances, a Native American government may have fish and wildlife authority affecting nonmember reservation lands. In such cases, the Service will give proper recognition to the relative rights of both the Native American government and the affected State(s), according to the specific nature of the case.

Non-Reservation Lands

The Service recognizes and supports the rights of Native Americans to utilize fish and wildlife resources on non-reservation lands where there is a legal basis for such use. The Service recognizes that as a result of treaties, statutes, and judicial decrees, certain Native American governments, along with State governments, may have shared responsibilities to co-manage fish and wildlife resources. In such cases, the Service will cooperate with Native American governments and affected resource management agencies to help meet objectives of all parties. While the Service retains primary authority to manage Service lands, affected Native American governments will be afforded opportunities to participate in the Service's decision-making processes for those lands.

IV. SELF-DETERMINATION

Support for Self-Determination

The Service favors empowering Native American governments and supporting their missions and objectives in assuming program management roles and responsibilities through contracting and other mechanisms. Therefore, the Service supports the rights of Native Americans to be self-governing, and further supports the authority of Native American governments to manage, co-manage, or cooperatively manage fish and wildlife resources, and to protect their Federally recognized authorities.

Indian Self Determination and Education Assistance Act
(Public Law 93-638, as amended)

The Service is committed to entering into contracts, cooperative agreements, or grants with Native American governments at their request for the administration of fish and wildlife conservation programs under the terms, conditions, and to the extent provided by the Indian Self Determination and Education Assistance Act (Act). The Service will work with Native American governments in developing effective policies, plans, and operating standards that are consistent with the Service's obligation under the Department of the Interior's rules and regulations for implementing the provisions of the Act.

V. COMMUNICATION

Consultation

The Service will consult with Native American governments on fish and wildlife resource matters of mutual interest and concern to the extent allowed by law. The goal is to keep Native American governments involved in such matters from initiation to completion of related Service activities.

Communication with other Agencies

Upon the request of a tribe, the Service will encourage and facilitate communication and cooperation among Native American governments, States, Federal agencies and others to identify and delineate respective roles and responsibilities and to ensure that issues of common interest and concern are discussed. This may include such activities as taking the initiative to provide the biological or managerial expertise necessary for resolution of conflicts about fish and wildlife resource issues.

VI. FUNDING

Funding Sources

The Service will assist Native American governments in identifying Federal and non-Federal funding sources that are available to them for fish and wildlife resource management activities.

VII. CULTURE/RELIGION

Consultation

The Service will involve Native American governments in all Service actions that may affect their cultural or religious interests, including archaeological sites. The Service will be guided in this respect by such legislation as the American Indian Religious Freedom Act, the National Historic Preservation Act, the Native American Graves Protection and Repatriation Act, and the Archaeological Resources Protection Act. The Service will take appropriate precautions to ensure that locations of protected sites remain confidential.

Reasonable Access

The Service will provide Native Americans reasonable access to Service managed or controlled lands and waters for exercising ceremonial, medicinal, and traditional activities recognized by the Service and by Native American governments. The Service will permit these uses if the activities are consistent with treaties, judicial mandates, or Federal and tribal law and are compatible with the purposes for which the lands are managed.

Animal Parts

The Service will expedite processing and distributing certain animal parts, such as eagle feathers, for recognized religious, ceremonial, and cultural purposes in accordance with Federal laws. Timeliness of processing and distributing animal parts will be contingent upon animal part availability and on the needs of the Service to conduct required scientific and law enforcement investigations. The Service will strive to ensure the dignity of its custodial process in recognition of the solemn nature of Native American uses of such animal parts.

VIII. LAW ENFORCEMENT

Cooperation

Service law enforcement agents will assist with the cooperative enforcement of Federal wildlife laws. The Service will encourage the use of cooperative law enforcement as an integral component of Native American, Federal, and State agreements relating to fish and wildlife resources. The Service will assist in the formulation of the law enforcement elements of those agreements. Upon request, the Service will evaluate Native American law enforcement capabilities and, if warranted, provide recommendations for improving such capabilities.

Coordination

The Service will coordinate with law enforcement officers of Native American governments regarding Service law enforcement operations on or adjacent to Native American lands, as appropriate. The Service will assist Native American governments in the coordination of appropriate fish and wildlife law enforcement investigations that require the use of the Federal court system. If requested, the Service will also provide liaison between Native American governments and the U.S. Department of the Interior Solicitor on fish and wildlife matters.

Development of Fish and Wildlife Codes

The Service will assist Native American governments with the development of comprehensive fish and wildlife conservation codes.

IX. TECHNICAL ASSISTANCE

Technical Expertise and Assistance

The Service will make available technical expertise from all Service program areas to assist Native American governments in the management of fish and wildlife resources, and to assist the Native American governments in developing their own technical expertise in fish and wildlife conservation and management where requested. The Service will advise Native American governments about the kinds of technical assistance that it can provide. Technical assistance priorities will be developed with input from affected Native American governments.

Agreements

The Service will develop partnership agreements with Native American governments to work together and to exchange technical expertise regarding matters of mutual interest, such as the conservation and recovery of threatened and endangered species, migratory birds, and anadromous fish.

Information Transfer

The Service will provide access to technical information from such sources as technical assistance offices, other field offices, and fish health laboratories. As requested, the Service will assist Native American governments in identifying other agencies that might provide technical assistance. Information obtained by the Service from Native American governments will not be shared or released without their consent or as required by law. Information generated by the Service through technical assistance to Native American governments will be released only with their consent or as required by law.

X. TRAINING AND EDUCATION

Cultural Awareness Training

The Service will work with Native American governments to help Service employees improve their understanding of Native American traditional, cultural, and religious values and practices, natural resource values, treaty and other Federally reserved rights, and appropriate law enforcement policy issues.

Native American Access to Service Training

The Service will provide Native American governments the same access to fish and wildlife resource training programs as provided to other government agencies.

Law Enforcement Training

The Service, as resources permit, will make its law enforcement expertise and capabilities available to Native American governments. The Service will provide guidance and assistance in developing, maintaining, or improving Native American fish and wildlife law enforcement programs. The Service's basic and refresher fish and wildlife law enforcement training courses that are provided to other governmental agencies will also be available to Native Americans.

Professional Development

The Service will facilitate the education and development of Native American fish and wildlife professionals by providing innovative educational programs and on-the-job training opportunities. The Service will establish partnerships and cooperative relationships with Native American educational institutions to assist in such areas as developing natural resources curricula or implementing cooperative education programs. The Service will also ensure that Native American schools and children are included in its environmental education outreach programs.

Work Force Diversification

The Service will develop active, innovative, and aggressive recruitment programs to attract qualified personnel to the Service so that its workforce can be representative of the cultural diversity of the nation. Qualified Native Americans will be actively encouraged to apply for jobs with the Service. These recruitment efforts will be focused especially where the Service is involved in managing fish and wildlife resources for which Native Americans have management authority or where they have cultural or religious interests.

Education of the General Public

The Service will work with Native American governments to inform and educate the public about Native American treaty and Federally reserved rights, laws, regulations, and programs, and programs related to fish and wildlife.

DEFINITIONS

The following definitions help to clarify the guidance encompassed by this Policy:

Agreements—Documents approved by two or more parties that identify their roles and responsibilities in achieving mutual objectives (e.g. Memoranda of Agreement, Memoranda of Understanding, Cooperative Agreements, Grants, and Contracts).

Co-Management—Two or more entities, each having legally established management responsibility, working together to actively protect, conserve, enhance, or restore fish and wildlife resources.

Cooperative Management—Two or more entities working together to actively protect, conserve, enhance, or restore fish and wildlife resources.

Fish and Wildlife Resources—All fish and wildlife (including invertebrates), plants and their habitats.

Fish and Wildlife Resource Management—All activities that are intended to contribute directly or indirectly to the preservation, utilization, maintenance, mitigation and enhancement of fish and wildlife resources.

Lands—Includes all uplands, wetlands, and open waters such as streams, lakes, estuaries, and bays.

Native American Law Enforcement Officers—Enforcement personnel of Native American governments specifically empowered primarily or secondarily to enforce fish and wildlife laws (e.g. rangers, conservation officers, game wardens, fire chiefs, and police officers).

Native Americans—American Indians in the conterminous United States and Alaska Natives (including Aleuts, Eskimos, and Indians) who are members of Federally recognized tribes.

Native American Governments—Governing bodies, including executive and legislative branches, of Federally recognized tribes as regarded by Federal law and formally identified by the Department of the Interior. Does not include other entities representing Native interests such as corporations, societies, commissions, committees, associations or other groups not officially designated by the Secretary of the Interior as a "Government."

Reservations—Generally, reservations are "trust assets" that were set aside for Native American use, pursuant to treaties, statutes and executive orders. Properties located outside the contiguous boundaries of reservations, as well as lands conveyed under the Alaska Native Claims Settlement Act, that are held in fee title by Native Americans as private property generally are not considered to be reservations.

Trust Responsibility—The fiduciary obligations that attach to the United States as trustee of the assets and resources that the United States holds in trust for Native American governments and their members, the treaty and statutory obligations of the United States toward Native American governments and their members, and other legal obligations that attach to the United States by virtue of the special relationship between the Federal Government and Native American governments. The identification and quantification of trust assets is recognized as an ongoing and evolving process.

United States Department of the Interior

IN REPLY REFER TO:
8550, 8560 (342)

BUREAU OF LAND MANAGEMENT
WASHINGTON, D.C. 20240

September 11, 1985

Information Bulletin No. 85-328

To: All State Directors (Except Eastern States Office)

From: Director

Subject: "Reservations" and Public Lands Under the Federal Power Act with Reference to Wilderness Study Areas

A recent Solicitor's Opinion has been issued dealing in part with applicability of the term "reservations" under the Federal Power Act (FPA) and the authority of the Federal Energy Regulatory Commission (FERC) to issue licenses for power projects with reference to wilderness study areas. A copy of the Opinion dated August 16, 1985, is enclosed for your review. Pages 6-8 contain the information on wilderness study areas.

On page 7, under paragraph 3 of item B., the phrasing "eligible for designation" means where lands included in a wilderness study area have been formally recommended by the Secretary of the Interior and the President of the United States to the Congress as suitable for wilderness designation. It does not include lands where the recommendation is still pending within the Department of the Interior.

You should also note the differences in applicability between designated areas, eligible for designation, and wilderness study areas, as well as the FERC licensing and permit procedures.

Guy E. Baier
Deputy Director for Lands and Renewable Resources
Acting

1 Enclosure
Encl. 1 - Solicitor's Opinion, BLM.ER.0528, dated August 16, 1985 (pp 9)

United States Department of the Interior

OFFICE OF THE SOLICITOR
WASHINGTON, D.C. 20240

BLM.ER.0528

MEMORANDUM

AUG 16 1985

TO: Director, Bureau of Land Management

FROM: Associate Solicitor, Energy and Resources

SUBJECT: "Reservations" and Public Lands under the Federal Power Act

This is in response to the Bureau of Land Management's (BLM) recent memorandum seeking assistance in determining which types of lands currently being managed by the Bureau qualify as "reservations" under the Federal Power Act (FPA).

Specifically, BLM has asked whether the following categories of land fall within the FPA's definition of "reservations": Revested Oregon and California and Reconveyed Coos Bay Wagon Road Grant lands (O&C lands); Taylor Grazing Act lands; Public Water lands withdrawn under Executive Order 5106; and Wilderness Study Areas (WSAs). For reasons stated herein, we have concluded that only Taylor Grazing lands are outside the scope of the FPA's definition of "reservations". 1/

BACKGROUND

The Federal Power Act (FPA) was originally entitled the Federal Water Power Act (FWPA) when it was enacted in 1920, ch. 285, 41 Stat. 1077 (current version at 16 U.S.C. §§ 791-828 (1982)). FWPA was later amended by the Public Utility Act of 1935, ch. 687, 49 Stat. 838 (1935) (current version at 16 U.S.C. § 796), receiving the new title "Federal Power Act." The purpose of the amendments was "to remove from the act [the new FPA] all suggestion of authority [by the Federal Power Commission to grant] licenses" within national parks and monuments. H.R. Rep. No. 1318, 74th Cong., 1st Sess. 22 (1935).

1/ The definition of "reservations" as relied on in this opinion is derived exclusively from section 3(2) of the Federal Power Act. The definition of "reservations" as expressed in this opinion has no bearing on defining other types of reservations, particularly reserved water rights. For information regarding reserved water rights see, Federal Water Rights of the National Park Service, Fish and Wildlife Service, Bureau of Reclamation, and the Bureau of Land Management, M-36914, June 25, 1979.

FWPA marked the first federal attempt to provide for comprehensive management of the nation's waterways and to significantly regulate the production of hydroelectric power. 2/

FWPA authorized the establishment of an administrative agency, the Federal Power Commission, which in 1977 became the Federal Energy Regulatory Commission (FERC). FWPA also defined the terms "public lands" and "reservations." Section 3(1), 16 U.S.C. § 796 (1) defines "public lands" to mean "such lands and interests in land owned by the United States as are subject to private appropriation and disposal under public land laws. It shall not include 'reservations' as hereinafter defined." Section 3(2), 16 U.S.C. § 796(2) defines "reservations" to mean "national forests, tribal lands embraced within Indian reservations, military reservations and other lands and interest in lands owned by the United States and withdrawn, reserved or withheld from private appropriation and disposal under the public land laws; also lands and interest in lands acquired and held for any public purposes; [but shall not include national monuments or national parks]." (language in brackets was added by the 1935 amendments to the Public Utility Act).

The distinction between "public lands" and "reservations" is critical in the wake of the Supreme Court's decision in Escondido Mutual Water Co., v. La Jolla Band of Indians, ___ U.S. ___, 104 S. Ct. 2105 (1984). The Court in Escondido held, under section 4(e) of the FPA, 16 U.S.C. § 797(e), FERC is required to include in a license for the construction and operation of power sites located within "reservations", any terms and conditions the Secretary of the Interior (the Secretary) finds are necessary to "protect and utilize" such "reservations." ___ U.S. at ___, 104 S. Ct. at 2111-12. The Secretary does not have the authority to add terms and conditions to licenses for power sites on "public lands."

The drafters of the FWPA contemplated that the terms "reservations" and "public lands" together would encompass all of the lands then owned by the United States. See S. Rep. No. 180, 66th Cong., 1st Sess. (1920). Since rules of statutory construction require that terms in statutes be interpreted in a

2/ For a detailed account of the events leading to the passage of FWPA, See J. Kerwin, Federal Water Power Legislation (1926); G. Pinochet, The Long Struggle for Effective Federal Water Power Legislation, 14 Geo. Wash. L. Rev. 9, 19-20 (1945); J. Fly, The Role of the Federal Government and the Conservation and Utilization of Water Resources, 86 U. Pa. L. Rev. 274, 292-93 (1938).

manner which will effectuate the purposes which Congress intended, each category of land must be characterized as either "reservations" or "public lands." See e.g., Commissioner of Internal Revenue v. Engle, ___ U.S. ___, 104 S. Ct. 597, 604 (1984); Gonzalez v. Young, 441 U.S. 600, 612-15 (1979); United States v. Boyden, 696 F.2d 685, 687-88 (9th Cir. 1983); Fortworth and Denver Ry. Co., v. Lewis, 693 F.2d 432, 435-36 (5th Cir. 1982).

In order to be characterized as "reservations" under the FPA, each category of land must be land either owned or acquired by the Federal government which has been withdrawn, withheld or reserved from disposal or appropriation under the public land laws and dedicated for some public purpose or governmental use. 3/ Lands which have been withdrawn or withheld but not dedicated for a specific purpose are outside the scope of the definition of "reservations" and are therefore "public lands" under the FPA.

DISCUSSION

1. Oregon and California Railroad and Coos Bay Wagon Road Grant Lands.

The lands regulated by the O&C Act were at one time part of grants made to the Oregon and California Railroad Company and the Coos Bay Wagon Road Company in 1866 and 1869 to aid in the construction of railroads and wagon roads. Title to the lands which had been granted for railroad development was forfeited and revested in the United States in 1916 because of covenant violations. Title to the remaining lands granted (which were to

3/ In a recent opinion issued by the Office of the Solicitor, the distinction between a permanent reservation and a temporary withdrawal was discussed. The opinion stated that "a permanent reservation occurs when federal land is set aside and dedicated to a present, governmental use; a temporary withdrawal occurs when public land is set aside for some other public purposes, e.g., pending a determination of how the land is to be used." August 23, 1984, Memorandum Opinion to the Director of BLM from the Associate Solicitor of the Division of Energy and Resources at 4. Indeed, it appears that Congress contemplated that the term reservation would refer to a "permanent" reservation and not to temporary withdrawals because of the type of examples provided in section 3(2) of the FPA, 16 U.S.C. § 796(2) to illustrate their intent, e.g., military reservations and national forests.

be used to construct the Coos Bay Military Wagon Road) was forfeited and reconveyed to the Federal government in 1919. See H.R. Rep. No. 1119, 75th Cong., 1st Sess. 1-2 (1937).

The O&C Act was intended to resolve problems created by the Revestment Act of June 9, 1916, ch. 137, 39 Stat. 218 and the Act of July 13, 1926, ch. 897, 44 Stat. 915. The 1916 and 1926 Acts called for the outright alienation of the government's interest in the land and the timber thereon. The policy under which those Acts were passed was determined to be wasteful and destructive to the "social interests" of the United States. See H.R. Rep. No. 1119, 75th Cong., 1st Sess. 2 (1937). The O&C Act provided that Oregon and California and Coos Bay lands now were to be "conserved and perpetuated" instead of being divested. Id.

The O&C Act provided that lands

> classified as timberlands and power site lands valuable for timber, shall be managed, except as provided in section 3 [43 U.S.C. § 1181c] hereof, for permanent forest production, and the timber thereon shall be sold, cut, and removed in conformity with the principal [sic] of sustained yield for the purpose of providing a permanent source of timber supply, protecting watersheds, regulating stream flow and contributing to the economic stability of local communities and industries and providing recreational facilities.

Ch. 876, § 1, 50 Stat. 874 (1937) (codified as amended at 43 U.S.C. § 1181a (1982)).

When Congress declared that O&C lands were to be managed for "permanent forest production" the operation of other public land laws which would have permitted disposal or appropriation were without effect. Moreover, Congress specifically authorized the Secretary to "restore to homestead entry [land] more suitable for agricultural use than for afforestation." 43 U.S.C. § 1181c. Hence, until the Secretary exercises his authority to reclassify the land for agricultural purposes, O&C lands can only be used for the specific purposes enunciated in section 1 of the O&C Act, 43 U.S.C. § 1181a.

By repudiating the policy of divestiture of timber lands under the 1916 and 1926 Acts, Congress intended that O&C lands would be "conserved and perpetuated" and used primarily for timber production. The result of this action is the creation of a

"reservation" under the FPA. Title to O&C lands is vested in the United States; the operation of the public land laws is restricted; and the lands have been dedicated for "permanent forest production." Hence, O&C lands meet the definition of "reservations" under the FPA.

2. Taylor Grazing Act Lands

In contrast to O&C lands, Taylor Grazing lands are not within the FPA's definition of "reservation". This is so because these lands lack the necessary element of being dedicated for some public purpose. Executive Order No. 6910, (Nov. 26, 1934) authorized the temporary withdrawal of all vacant, unreserved and unappropriated public lands in western states from "settlement, location, sale or entry" and reserved them for classification pending a determination of the most useful purpose for the land. Executive Order No. 6964 (Feb. 5, 1935) also withdrew unreserved and unappropriated lands for the purpose of later reclassifying them under the Federal Emergency Relief Administration. Since these executive orders did not dedicate the lands for a particular purpose, the lands withdrawn under them are not within the definition of "reservations" under the FPA. Moreover, each executive order specifically states that"unreserved lands" are being withdrawn from appropriation. The FPA's definition of "reservation" contemplates that a particular purpose for the lands has already been determined. Since both executive orders only withdrew, but did not dedicate the lands for some particular usage, Taylor Grazing lands do not fall within the FPA's definition of "reservations."

3. Public Water Reserve No. 107

Under the Act of June 25, 1910, ch. 421, 36 Stat. 847, the President was authorized to make withdrawals of public lands. The 1910 Act was subsequently amended by the Act of August 24, 1912, ch. 369, 37 Stat. 497. Together these Acts authorized the President to make withdrawals and to reserve land for the development of water power sites, irrigation, classification at some later time, or any other public purpose specified in the order of withdrawal.

Under the authority of the 1910 and 1912 Acts, Public Water Reserve Withdrawal No. 107 (April 17, 1926) was signed by President Coolidge withdrawing from appropriation all unappropriated, unreserved public land located within one quarter mile of a spring or water hole on the public lands. Such lands were to be reserved for the public's use in accordance with the Act of December 29, 1916, ch. 9, 39 Stat. 862. Under section 10

of the 1916 Act, water holes or other bodies of water needed or used by the general public for watering purposes were reserved and ordered held open for public use. Section 10 also specifically stated that the lands were not merely being withdrawn, but rather, were being reserved: "lands. . . may be reserved under the Act of June 25, 1910, and such lands. . . shall while so reserved, be kept and held open to the public use . . . ." Id. at 865 (emphasis added). Hence, it is clear that lands reserved under Public Water Reserve No. 107 are within the FPA's definition of "reservations".

4. Wilderness Study Areas

In addition to requesting assistance in determining whether Wilderness Study Areas (WSAs) are "reservations" under the FPA, BLM has requested information concerning the Federal Energy Regulatory Commission's (FERC) authority to issue licenses for power projects within WSAs.

We have concluded that WSAs fall within the definition of "reservations" under the FPA. We have also determined that FERC does not have authority to issue licenses within WSAs which would impair or reduce the wilderness value of the land. However, it may issue a preliminary permit to an applicant to maintain the priority of his application and to allow the compilation of studies to determine the feasibility of the proposed project.

A. WSAs as "Reservations" under the FPA

Section 603 of the Federal Land Policy and Management Act, 43 U.S.C. § 1782 (FLPMA) authorizes the Secretary to review roadless areas of 5,000 acres or more and report to the President his recommendation as to the "suitability or nonsuitability" of each area for inclusion in the National Wilderness Preservation System. 43 U.S.C. § 1782.

The wilderness review provisions in section 603 of FLPMA were designed to further the purposes of the Wilderness Act, 16 U.S.C. §§ 1131-1136, by mandating an assessment of the public lands for wilderness values and providing Congress with an opportunity to take action to protect appropriate areas.

While these areas are being studied, other uses which will not "impair the suitability of such areas for preservation as wilderness" are allowed to continue until the area is dedicated as a part of the National Wilderness Preservation System. 43 U.S.C. § 1782 (emphasis added). By imposing such restrictions on the use of WSAs, Congress intended to preserve the wilderness

characteristics of an area until it had a chance to review the recommendations received from the President. See H.R. Rep. No. 1163, 94th Cong., 2d Sess. 17 (1976). In order to give effect to Congress' intentions, WSAs must be considered as "reservations" under the FPA because these areas are not subject to appropriation under the public land laws until the studies are completed and Congress has had the opportunity to act upon them. In addition, these lands have been dedicated for the express purpose of identification of wilderness characteristics to determine if they should be included in the National Wilderness Preservation System. Thus, WSAs are "reservations" under the FPA.

B. FERC Licensing Authority Within WSAs

BLM's memorandum makes reference to FERC's Hydropower Licensing Application Procedures which state that FERC "is not authorized to license nonfederal hydropower projects within designated areas or areas before the Congress for designation." Id. at 117.

First, a distinction between WSAs and designated wilderness areas or areas eligible for designation must be drawn. The purpose of designating wilderness areas or declaring specific areas eligible for inclusion in the National Preservation System is to preserve the natural environment of an area from "the progressive, destructive and hasty inroads of man." Parker v. United States, 448 F.2d 793, 795 (10th Cir. 1971). This is in contrast with the purposes of section 603 of FLPMA which "supplies the affirmative statutory base for review and protection of . . . land suitable for designation as wilderness . . . ." Interpretation of section 603 of the Federal Land Policy and Management Act of 1976 - Bureau of Land Management (BLM) Wilderness Study, 86 I.D. 89, 93 (1979).

The limitation on FERC's licensing authority applies only to areas which have been designated or are eligible for designation as part of the National Wilderness Preservation System and not to WSAs.

Second, FERC's authority to issue licenses within WSAs is curtailed by section 603 of FLPMA, 43 U.S.C. § 1782. When FERC receives an application for a power project located within a WSA, it will not issue a license. Instead, it will issue a preliminary permit with terms and conditions attached to prevent harm to areas having wilderness values. The applicant will be instructed to "study all feasible schemes that would develop the hydroelectric potential of the water resources" in a manner which

will not impair the suitability of the area for preservation as wilderness. See Trin-Co. Forest Products, 28 FERC ¶ 61,166 (1984).

The preliminary permit does not authorize any construction. Idaho Power Co., 27 FERC ¶ 61,175 (1984). Construction related impacts will be addressed when an application for a license is filed. The limitations on the use of preliminary permits was discussed in Trin-Co. Forest Products:

> The purpose of any preliminary permit is to maintain priority of applications for a license during the term of the permit while the permittee conducts investigations and secures data necessary to determine the feasibility of the proposed project and to prepare an acceptable application for license. This permit does require the permittee to conduct certain studies, but under conditions which will assure that those studies cause no significant adverse environmental impacts. . . . Should the permittee find the project to be feasible and file an application for license, all interested persons and agencies will be given notice and have an opportunity to review the application, present their comments concerning the project and the effects of this construction in operation, and seek to participate in the licensing proceedings.

28 FERC ¶ 61,166. See also Tehama County Flood Control and Water Conservation District, 18 FERC ¶ 61,245 (1982).

In sum, before FERC can issue a license authorizing construction of a power project within a WSA, it must provide notice and an opportunity for interested agencies and the public to submit comments which must be taken into account before any license issues. Moreover, FERC will not issue a license or preliminary permit if there is evidence showing that wilderness values of a designated study area will be reduced or impaired because of activities authorized under the permit or license before Congress has had an opportunity to act.

Conclusion

We have determined that where lands or interests in land owned by the United States are withdrawn from appropriation under the public land laws and dedicated for some public purpose, such lands or interests in land are "reservations" under section 3(2)

of the FPA. Of the four categories discussed above, only Taylor Grazing lands are not within the FPA's definition of "reservations."

Keith E. Eastin
Associate Solicitor
Energy and Resources

UNITED STATES OF AMERICA 69 FERC ¶ 61,336
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Elizabeth Anne Moler, Chair;
Vicky A. Bailey, James J. Hoecker,
William L. Massey, and Donald F. Santa, Jr.

Project Decommissioning at Relicensing) Docket No. RM93-23-000

POLICY STATEMENT

(Issued December 14, 1994)

I. INTRODUCTION AND SUMMARY

The Federal Energy Regulatory Commission (Commission) is adopting a policy statement that addresses issues related to relicensing and decommissioning 1/ raised in its September 15, 1993 Notice of Inquiry (NOI) in the above-captioned proceeding. 2/ In that Notice, the Commission invited comment on a series of fifteen questions dealing with the relicensing and decommissioning of licensed hydropower projects after the original license has expired. The individual questions, as well as a summary of the commenters' responses, are set forth in Appendix A to this Policy Statement.

There are three major areas of inquiry encompassed in the ensuing analysis and discussion. The first involves relicensing of a project. The second addresses what happens when no new license goes into effect for the project at the time of

1/ In this document, the term decommissioning is used broadly. Possible forms of decommissioning extend from simply shutting down the power operations to tearing out all parts of the project, including the dam, and restoring the site to its pre-project condition.

2/ Project Decommissioning at Relicensing; Notice of Inquiry, 58 FR 48991 (Sept. 21, 1993), IV Stats. & Regs. ¶ 35,526 (1993).

relicensing, and the project in question must be decommissioned. Finally, the discussion addresses pre-retirement funding of retirement costs that will be incurred upon decommissioning.

Regarding the first issue, generally, when the license for a project expires, the Commission issues a new license to the existing licensee. However, that is not the only option available. After examining the legislative history and the relevant statutory provisions, the Commission concludes that it has the legal authority to deny a new license at the time of relicensing if it determines that, even with ample use of its conditioning authority, no license can be fashioned that will comport with the statutory standard under section 10(a) of the Federal Power Act (the Act) and other applicable law. The Commission anticipates that, where existing projects are involved, license denial would rarely occur.

At the time a license expires, the Commission will review any application for a new license in terms of current conditions and public interest considerations. There may be instances where a new license can be fashioned, but the terms will not be acceptable to the licensee, and so the license will be rejected. This is most likely to occur where the licensee of an already marginal project is confronted with additional costs at relicensing that render the project uneconomic. The Commission concludes that this possibility will not preclude it from imposing the environmental (and other) conditions it deems

appropriate to carrying out its responsibilities under the Act.

In those instances where it has been determined that a project will no longer be licensed, because the licensee either decides not to seek a new license, rejects the license issued, or is denied a new license, the project must be decommissioned. The second subject involves the extent of the Commission's authority over decommissioning and the process to be applied when a project is to be decommissioned. The statutory language does not expressly address, in any comprehensive manner, the Commission's authority over decommissioning and the process to be applied in carrying it out. In such a situation, the Commission has the authority to fill in gaps left by the statute and to ensure that a project is decommissioned in a manner that is consistent with the public interest. The Commission will take a very flexible approach to the carrying out of this process.

Possible forms of decommissioning extend from simply shutting down the power operations to tearing out all parts of the project, including the dam, and restoring the site to its pre-project condition. Multiple concerns must be considered in determining which alternative is appropriate, and the solutions necessarily will vary from one situation to another. Judging from the Commission's experience with project license surrenders, interested parties should generally be able to negotiate the proper approach to decommissioning. The Commission strongly encourages all the interested parties to work together to accomplish a mutually acceptable resolution in each case.

The Commission, however, rejects the notion that it is without statutory power to act where negotiated solutions cannot

be arranged. The Commission has concluded that it has the power to take steps necessary to assure that the public interest is suitably protected, including, in the rare case, requiring removal of the project dam. Assuring protection of the public interest may involve the need to coordinate with other government bodies that will succeed to regulatory responsibility over certain aspects of the formerly-licensed projects.

The Commission will not generically impose decommissioning funding requirements on licensees. However, in certain situations, where supported by the record, the Commission may impose license conditions to assure that funds are available to do the job when the time for decommissioning arrives. The Commission will determine whether to impose funding requirements on a case-by-case basis, at the time of relicensing.

Further, even in situations in which the Commission does not impose a funding requirement at the time a project is relicensed, the licensee will ultimately be responsible for meeting a reasonable level of decommissioning costs if and when the project is decommissioned. The licensee should plan accordingly, and the Commission will not accept the lack of adequate preparation as justification for not decommissioning a project. Some provision for mid-course funding may become appropriate for a variety of reasons. The Commission encourages affected parties to develop creative solutions to pre-retirement funding in such situations.

The Commission will be receptive to proposals, concerning

pre-planning and pre-funding of decommissioning costs, reached by

mutual agreement during the course of individual licensing proceedings or during the term of a license.

Where the Commission includes a decommissioning funding provision in a license it issues, if the licensee is a public utility subject to the Commission's wholesale ratemaking jurisdiction, it may file to include an appropriate share of those costs in its rates. In situations where the Commission has not required pre-retirement funding in a license, and it is subsequently determined that decommissioning is necessary, a licensee that is a public utility may file to recover an appropriate share of decommissioning costs through wholesale rates, on a prospective basis.

Finally, the Commission is by separate order rescinding the reserved authority over decommissioning matters that routinely has been included in recent relicensing orders because of the pendency of this proceeding. The records in those cases demonstrate no current need to plan for, or expect, project retirement based on current conditions.

II. THE COMMISSION'S OPTIONS AT RELICENSING

A. The Original Legislation

When the Federal Water Power Act (FWPA) 3/ was enacted in 1920 after several years of consideration and debate, sections 14 and 15 were key parts of the legislation. There was a keen interest by some members of Congress in providing the opportunity for eventual Federal takeover of Commission-licensed power

3/ Pub. L. 66-280, 41 Stat. 1063 (June 10, 1920).

projects, and that became reflected in section 14. This section was designed as a vehicle that would permit the Federal government to own, maintain, and operate valuable water-power projects under terms which could make such takeover practical when the circumstances warranted. 4/

Congress further provided in section 15 of the FWPA that if Congress did not elect the first option of taking over and operating the project when a license expired, then the Commission was authorized to issue a new license either to the original licensee or to a new licensee. Because of concern about what would happen to service, and to the industries and communities dependent upon the project for service, 5/ if Congress and the Commission had not acted by the time the license expired, Congress included a provision for annual licenses until the takeover/licensing issue had been resolved.

4/ That was before the period of the large-scale construction of hydropower projects by the Federal Government that would mark future decades. At that point, proponents of Federal ownership faced considerable resistance to the concept (e.g., 53 Cong. Rec. 3416 (1916) [remarks of Sen. Shields]; 53 Cong. Rec. 3356 [remarks of Sen. Works]; 56 Cong. Rec. 9121 (1918) [remarks of Rep. McArthur]; Water Power - Hearings before the House Committee on Water Power, 65th Cong., 2d Sess. 235-36 (1918) (hereinafter cited as "1918 House Hearings") [remarks of Rep. Sims]). Nonetheless, they wanted to leave future possibilities open via takeover. See, e.g., 53 Cong. Rec. 3297 (1916) [remarks of Rep. Husting]; 53 Cong. Rec. 3228 [remarks of Sen. Walsh]; 1918 House Hearings at 447-53 [testimony of Secretary of the Interior Lane].

5/ See, e.g., 54 Cong. Rec. 1008 (1917) [remarks of Sen.

Shields]; 59 Cong. Rec. 1048, 1442-43, 1474 (1920) [remarks of Sen. Walsh]; 59 Cong. Rec. 1043, 1045 [remarks of Sen. Fletcher], 59 Cong. Rec. 1049 [remarks of Sen. Myers].

The focus during this period was plainly on the three options: Federal takeover and continued operation; a new license to a new licensee and continued operation; and a new licensee to the old licensee, who would also continue operation. 6/ In the first two cases, the entity taking over the operation would have to pay the existing licensee for the project, according to the formula established in section 14.

This did not, however, necessarily mean continuation of business as usual. The statute provided for license terms of up to 50 years on original licenses. 7/ As has been recognized: 8/

> By so limiting the duration for which these licenses could be granted, Congress intended to preserve for the Nation the opportunity of reevaluating the use to which each project site should be put in light of changing conditions and national goals.

During the license period, as reflected in sections 6 and 28 of the FWPA, licensees enjoyed considerable security. At the end of that period, the Commission would reexamine the statutory

6/ See, e.g., Water Power Bill to Provide for the Development of Water Power and the Use of Public Lands in Relation Thereto, and for other Purposes, Hearings on H.R. 14893 before the House Committee on the Public Lands, 63d Cong., 1st Sess. 477 (hereinafter cited as "1914 Hearings before House Committee on Public Lands") [testimony of O.C. Merrill]; 51 Cong. Rec. 13037, 13623-24 (1914) [remarks of Rep. Ferris]; 53 Cong. Rec. 10469 (1916) [remarks of Rep. Adamson]; 1918 House Hearings 855 [letter from Secretary of Agriculture Houston]; id. at 451 [testimony of Secretary of the Interior Lane]; id. at 674 [testimony of Secretary of War Baker] (the Secretaries of Agriculture, War, and the Interior originally constituted the Commission and were instrumental in drafting the 1920 legislation).

7/ Section 6 of the FWPA.

8/ S. Rep. No. 13, 2d Sess. 2-3 (1968).

standard and make a new determination. Under section 10 of the FWPA, new licenses (except the interim annual licenses) could be issued only on the condition: 9/

> That the project adopted . . . shall be such as in the judgment of the commission will be best adapted to a comprehensive scheme of improvement and utilization for the purposes of navigation, of water-power development, and of other beneficial uses; and if necessary in order to secure such scheme the commission shall have the authority to require the modification of any project and of the plans and specifications of the project works before approval.

Any new license that the Commission issued would be pursuant to the terms of the then-prevailing laws and regulations and carry such further reasonable terms and conditions as the Commission then deemed appropriate to implement the statutory standard. 10/ Each license was to be conditioned on acceptance of those terms, 11/ and if the licensee did not accept the license, as conditioned, its rights to an annual license would end, as well. 12/

There was no mention in the legislation of the possibility of denying a license, which would put the project out of business. At the same time, there was no discussion of what was

9/ Section 10(a) of the FWPA. This provision, with some additions, remains today as section 10(a) of the Federal Power Act, and is set forth at infra n. 46.

10/ Section 15 of the FWPA.

11/ Section 6 of the FWPA.

12/ 59 Cong. Rec. 6524 (1920) [remarks of Rep. Esch]; 59 Cong. Rec. 7779 [remarks of Sen. Jones].

It is Commission practice to issue annual licenses to permit it to complete certain actions, however. See 18 CFR §§ 16.18(b)(1) and (2).

to occur if, at relicensing, the Commission could not make the requisite finding under the comprehensive development standard. That is, there was no direction concerning how the Commission was to reconcile the potentially conflicting terms of sections 10 and 15.

B. The Current Statutory Scheme

Section 14 remains on the books, although the Federal Government has never taken over a licensed project under its terms, nor has the Commission ever recommended that it do so. Section 15 likewise remains on the books. As the first licenses were about to expire, 50 years after initial passage of the FWPA, a term was added to section 15 of what was now the Federal Power Act, 13/ authorizing the Commission to issue nonpower licenses. 14/ No such license has been issued, either. In nearly every instance, existing licensees have applied for, and received, new power licenses when their old ones expired.

All of these decisions have been made in the context of the Commission's implementation of the comprehensive development standard of section 10(a) of the Act. At the same time, section 10(a) has evolved since 1920. 15/ It no longer has the almost

13/ 16 U.S.C. § 791a, et seq.

14/ Section 3 of Pub. L. 90-451, 82 Stat. 617 (Aug. 3, 1968).

15/ Section 10(a) now reads:

> That the project adopted . . . shall be such as in the judgment of the Commission will be best adapted to a comprehensive scheme for improving

and developing a waterway or waterways for the use
and benefit of interstate or foreign commerce, for
(continued...)

exclusively pro-development focus of the 1918-20 period, when the original legislation was propelled by the largely undeveloped status of the country's water-power resources and the power shortages that had existed during World War I. 16/

Environmental considerations evoked virtually no comment in the debates and reports immediately preceding adoption of the FWPA. 17/ However, these considerations have become important factors since the 1950s, as experience with the effects of water-power project operation has grown. This has resulted in new license conditions that have generally increased the costs associated with running hydropower projects.

15/(...continued)

> the improvement and utilization of water power development, for the adequate protection, mitigation, and enhancement of fish and wildlife (including related spawning grounds and habitat), and for other beneficial public uses, including irrigation, flood control, water supply, and recreational and other purposes referred to in section 4(e) . . . .

Section 4(e) is set forth infra.

16/ See, e.g., H.R. Rep. No. 715, 65th Cong., 2d Sess. 15, 29 (1918); H.R. Rep. No. 61, 66th Cong., 1st Sess. 4 (1919); 1918 House Hearings 5-15, 458-59; 56 Cong. Rec. 8929, 9120-22, 9614 (1918); 58 Cong. Rec. 1932 (1919).

17/ As discussed later, there were two provisions included in the 1920 legislation, involving fishways and Federal reservations, which have environmental overtones. However, both were carry-overs from predecessor legislation

(requiring permits for projects on Federal lands or in navigable waters), and were not the subject of any significant attention at that time.

The first steps in this direction were taken by the Commission in various individual licensing orders it issued. 18/ Then, as States began to challenge Commission environmental actions, and seek concurrent jurisdiction, the courts put their imprimatur on the matter. They generally upheld the Commission's preemptive authority in this area, 19/ but underscored further the Commission's responsibilities for environmental protection. 20/

Finally, in 1986 changes were made to the Act which codified and extended the earlier actions. 21/ This is reflected principally in sections 10(a) and 10(j). Section 10(a) was expanded to refer explicitly to fish and wildlife concerns. A new section 10(j) was added to require expressly that, in every license it issues, the Commission establish conditions for the adequate and equitable protection of, mitigation of damages to, and enhancement of fish and wildlife.

The 1986 legislation directed the Commission, when establishing license conditions, to reach an appropriate balance between power and other developmental interests and the protection of nondevelopment resources, such as fish and

18/ The first time such considerations were reflected in the Commission's Standard Terms and Conditions for licenses was in 1964. See, e.g., 31 FPC 286, 530; 32 FPC 73, 841, 1116 (1964). However, such terms began to appear with increasing frequency in licenses issued during the 1950s.

19/ FPC v. Oregon, 349 U.S. 435 (1955).

20/ Udall v. FPC, 387 U.S. 428 (1967).

21/ Pub. L. 99-495, 100 Stat. 1243 (Oct. 16, 1986).

wildlife. It must consider, but need not give controlling weight to, the recommendations of various Federal and State resource agencies. There are however two long-standing provisions which authorize other federal agencies to promulgate license conditions. The Secretaries of the Interior and Commerce have their own power under section 18 to require construction, maintenance, and operation of fishways. In many instances fishways were not required at the time of initial licensing, but are being mandated at the time of relicensing. Similarly, where the project is built in a National Forest or other Federal reservation, under section 4(e) of the Act the Secretary of the department responsible for supervision of the reservation is empowered to establish, at the time of licensing, conditions he or she believes to be necessary for the adequate protection and utilization of the reservation. These conditions may also be revisited at relicensing.

More recently, most States have been given implementation authority under the Clean Water Act. 22/ If the State denies water quality certification for a hydropower project, the Commission cannot issue a license for the project. The States have broad authority under the Clean Water Act to impose terms and conditions on operation of the project; the Commission must include lawful terms and conditions they impose in any license it issues. 23/ This responsibility permits the States on some

22/ 33 U.S.C. § 1341(a)(1).

23/ See PUD No. 1 of Jefferson County v. Washington Department of Ecology, U.S. , 114 S.Ct. 1900 (1994).

occasions to establish conditions independent of the Commission that may alter the economic viability of a project.

C. Discussion

As the Commission interprets the terms of the Act, the statutory scheme contemplates that normally the balancing between power and environmental interests can and will be accommodated through license conditions. If the licensee's proposal does not satisfy the comprehensive development standard of section 10(a), then the Commission will add terms that will bring it into compliance. 24/

To date, the Commission has not been confronted with any relicensing situation where its conditioning authority has been inadequate to do the job, i.e., where there was unacceptable environmental damage that proved irremediable. Nonetheless, if such a situation were to occur, the Commission does not read the Act as requiring it to issue a license. Such an approach would compel it to ignore the strictures of section 10(a), which the courts have long recognized rests at the core of the Commission's licensing responsibilities. 25/

The principal support for perpetual licenses in 1920, which was before the advent of serious environmental concerns, rested on the idea that if the project had to close down, it could be a catastrophe to the community dependent on that power.

24/ See language quoted supra at p. 7.

25/ FPC v. Union Electric Co., 381 U.S. 90, 98 (1965); First Iowa Hydro-Electric Cooperative v. FPC, 328 U.S. 152, 180-81 (1946).

Electricity was essentially local in nature, since it could generally be transmitted no more than 200-300 miles. 26/ This tended to result in reliance on a single source that had been developed to serve its surrounding area.

Over the ensuing decades, this specter has been transformed by technological change. Today, power can be, and is, transported considerable distances, as communities are linked by an electric grid that crosses vast areas of the country. At the same time, rather than emphasizing retention of existing projects, as in 1920, the current regulatory focus is on fostering greater efficiency by expanding the opportunities to shop for power from distant projects.

Actually, by the time the first licenses began to expire, the concept of the inevitability of power operation from a particular project was eroding. In 1968, the statute was amended to provide for nonpower licenses. Section 15(f) of the Act states (emphasis added):

> In issuing any licenses under this section except an annual license, the Commission, on its own motion or upon application of any licensee, person, State, municipality, or State commission, after notice to each State commission and licensee affected, and after opportunity for hearing, whenever it finds that in conformity with a comprehensive plan for improving or developing a waterway or waterways for beneficial public uses all or part of any licensed project should no longer be used or adapted for use for power purposes, may license all or part of the project works for nonpower use.

26/ 51 Cong. Rec. 12753 (1914) [remarks of Rep. Sherley], 53 Cong. Rec. 546 (1916) [remarks of Rep. Ferris], 59 Cong. Rec. 243 (1919) [remarks of Sen. Jones].

The underscored language shadows that of section 10(a), and recognizes that there can be situations where the standard embodied therein cannot be met and the Commission decides that a project should no longer be used for power purposes.

Later, in language added to section 4(e) of the Act in 1986, Congress further stated (emphasis added):

> In deciding whether to issue any license under this Part for any project, the Commission, in addition to the power and development purposes for which licenses are issued, shall give equal consideration to the purposes of energy conservation, the protection, mitigation of damage to, and enhancement of, fish and wildlife (including related spawning grounds and habitat), the protection of recreational opportunities, and the preservation of other aspects of environmental quality.

Similarly, among other recent environmental legislation, the water certification requirements under the Clean Water Act could sometimes effectively quash an application for a new license.

Given this history, it is the Commission's view that, in those cases where, even with ample use of its conditioning authority, a license still cannot be fashioned that will comport with the statutory standard under section 10(a), the Commission has the power to deny a license.

The Commission rejects any suggestion that, rather than denying a new license, the United States would have to take over the property under section 14. It is abundantly clear from the legislative history of the FWPA that section 14 was designed to permit the Federal Government to take over and operate the

property, not close it down. 27/ Under such circumstances, the Government would get the output, which it could either sell or use for its own purposes, obviating the need to acquire power from other sources. 28/

As already noted, the FWPA was not drafted and passed with environmental concerns in mind. 29/ There is nothing in that legislation that contemplates the prospect of requiring the Government to routinely bail out projects that can no longer pass muster under section 10(a) because of serious and irremediable adverse public impacts. In individual cases, where the facts and circumstances indicate that in fairness the burden should fall on

27/ See, e.g., 51 Cong. Rec. 13623 (1914) [remarks of Rep. Ferris]; 54 Cong. Rec. 1008 (1917) [remarks of Sen. Shields]; 1918 House Hearings 235-36 [remarks of Rep. Sims]; id. at 25-26 [remarks of O.C. Merrill, instrumental in drafting the bill]. See also the statutory language of sections 14(a) and 15(a)(1).

28/ The suggestion of municipal licensees that Congress has barred denial of municipal licenses is wide of the mark. The 1953 legislation to which they refer precluded the Federal takeover of such projects under section 14. It also expressly stated that no provision of the Act was repealed or affected except as was specifically referred to in the 1953 legislation. See 16 U.S.C. §§ 828b-828c. This term was included at the Commission's request to ensure that such key provisions as sections 4, 10, and 18 were not affected. See S. Rep. No. 599, 83d Cong., 1st Sess. 5-6 (1953).

While the 1953 legislation prevented takeover under section 14, the Federal Government's paramount right to take over by condemnation remained. Id. at 3-5. See also H.R. Rep. No. 985, 83d Cong., 1st Sess. 2, 5 (1953).

29/ However, Congress did exhibit its concern with public safety (see Section 10(c)). There is nothing to suggest that the Commission could not deny a license on these grounds (see

South Carolina Public Service Authority v. FERC, 850 F.2d 788, 793 (D.C. Cir. 1988)), but would instead have to buy out the dangerous properties in order to close them down.

Federal taxpayers, rather than on the licensee, the language of section 14 is broad enough to permit the Commission to pursue that course. However, there is no reason to interpret section 14 as mandating that outcome.

To this point, the discussion has focussed on license denial, which is expected to be highly unusual. The more likely scenario is one in which the Commission is required to condition a new power license with environmental mitigation measures, and the licensee is unwilling to accept the license tendered. The licensee may prefer to take the project out of business, because the costs of doing business have become too high. 30/ There is no merit to the suggestion by some industry commenters that a condition in a power license is per se unreasonable if, as a result of imposing the condition, the project is no longer economically viable. The statute calls for a balancing of various development and nondevelopment interests, and those commenters' position would elevate power and other development interests far above the environmental concerns. It would mean that severe environmental damage would have to be accepted in order to protect even a very marginal hydropower project. The Commission does not read the Federal Power Act to compel such a

30/ As discussed in a later section, any decision to close down a project will generally involve decommissioning costs.

That element would also be factored into the equation in determining whether the licensee elects to continue in operation or close down.

result. As the Court of Appeals for the Seventh Circuit recently observed: 31/

> [T]here can be no guarantee of profitability of water power projects under the Federal Power Act; profitability is at risk from a number of variable factors, and values other than profitability require appropriate consideration.

The Commission's approach to the conditions it establishes will be realistic and pragmatic. In assessing whether the terms it is considering are reasonable, the Commission looks at the costs to the licensee in complying with the terms of the license, as well as the environmental benefits from imposing them. Within those parameters, however, it must be recognized that meeting reasonable environmental costs is a part of today's cost of doing business. 32/

There may be some occasions where the obligation to pay increased environmental costs at relicensing will force a hydropower project to close down. With the increasing emphasis on competition in the electric power industry today, the prospect of shutting down certain power projects may increase. However, this is not unique to hydroelectric projects.

31/ Wisconsin Public Service Corp. v. FERC, 32 F.3d 1165, 1168 (7th Cir. 1994).

32/ H.R. Rep. No. 934, 99th Cong., 2d Sess. 22 (1986).

> Hydropower projects, of course, do not stand alone in this regard. Other sources of electric generation must also meet costs of environmental compliance. For example, coal burning facilities must meet Clean Air Act standards (42

U.S.C. § 7651, et seq.) and nuclear facilities must incur the costs of disposing of spent nuclear fuel and project decommissioning (e.g., 10 CFR § 50.75).

The possibility that a project may have to shut down is not a legitimate basis for the Commission to ignore its obligations to impose necessary environmental conditions. However, the Commission is required to balance a number of different factors under sections 4(e) and 10(a) of the Act in its licensing decisions. Should it be demonstrated that the environmental costs would be excessive or that loss of power supplied by the project would be significant, that evidence can be considered in assessing the power and development aspects to be weighed under section 10(a)'s comprehensive development standard, as can the renewable nature of water-power resources. Similarly, hydropower may carry significant environmental benefits over some of the alternate power sources that would be used instead, and that is a factor to be considered in weighing the nondevelopmental aspects of the equation.

As the foregoing discussion indicates, there are no definitive standards as to how the varying accommodations reflected in the statute are to be applied by the Commission in fashioning its license conditions. Environmental considerations are important, but so are developmental needs. Optimally, many of the conflicting concerns can be worked out through processes of consultation and negotiation during the licensing proceeding. 33/ Experience has shown that this approach in fact usually does yield an acceptable result.

III. THE DECOMMISSIONING PROCESS

33/ See, e.g., sections 10(a) and 10(j) of the Act.

A. Experience with Project Retirement

As discussed earlier, the emphasis in 1920 was on the continuation of licensed projects. Nonetheless, over the years various projects have in fact stopped producing power and closed down. Generally, the reasons have been grounded in economics -- for one reason or another, it would simply be too expensive to continue operating the project.

Rather late in the legislative process leading to the FWPA, Congress added to the other terms of section 6 a brief reference to surrender of licenses, without explanation or comment. 34/ Shortly after passage, the Commission issued a regulation that parallelled the statute in providing that it was not simply the licensee's decision to surrender a license during the term, but that the Commission had to approve the surrender, as well. Furthermore, the regulation went on, if any project works had been constructed, the surrender had to be "upon such conditions with respect to the disposition of such works as may be determined by the Commission." 35/

34/ The relevant sentence reads:

> Licenses may be revoked only for the reasons and in the manner prescribed under the provisions of this Act, and may be altered or surrendered only upon mutual agreement between the licensee and the Commission after . . . public notice.

The words "or surrendered" were the late addition.

35/ FPC Order No. 9, Regulation 10(5), issued Feb. 26, 1921.

See also 18 CFR § 6.2 (1994); FPC Order No. 175 (Attachment p. 28) (1954); FPC, General Rules and Regulations in Force Jan. 1, 1948, § 6.2 (1948).

Since those days, surrenders have been successfully worked out on many occasions. There are a myriad of considerations involved in determining what form the decommissioning will take. There was an occasional reference in the pre-FWPA debates to the fact that if a licensee decided not to continue with a project and instead rejected a new license, it would have to tear out the project. 36/ This sort of remark, however, illustrates that no significant consideration was being given at the time to the intricacies of decommissioning a power project.

For example, there can be very great environmental consequences to tearing out a dam that is part of a licensed hydropower project. Over the life of the project huge amounts of silt may accumulate, and if the dam is removed, that silt may sweep downstream, causing major damage to other properties or resources. 37/ The situation is even more serious where PCBs or other hazardous materials are embedded in the sediment. Equally significant, even if the project is no longer to produce power, the dam and related project works may serve other, nonpower functions worth preserving.

In some instances, power production is a very secondary element. The primary function of a project may be to supply water for irrigation or domestic needs, but power production facilities were included to help with the costs of the project.

36/ 59 Cong. Rec. 1046, 1443, 1474-75 (1920) [remarks of Sen. Lenroot].

37/ Niagara Mohawk Power Corp., 49 FPC 1352 (1973), 4 FERC 61,209 (1978).

Certainly, under those circumstances, tearing out a dam would be unwarranted. Another example of significant nonpower functions associated with a project occurs when property owners have built homes around the project's reservoir.

A review of prior Commission surrender cases would reveal examples of all of these situations. Commonly dams are retained, 38/ but it is not unusual that they be breached or removed. 39/ The determining circumstances vary with each case.

There is one factor which has consistently been reflected in the Commission's orders. If the dam is to remain in place or there are other aspects of the project left which may significantly affect public resources, the Commission generally wants to be satisfied that there is another authority to take over regulatory supervision. While this seems to be a matter of sound public policy, it is further buttressed by the terms of section 15(f) regarding what happens when the Commission issues a nonpower license:

38/ See, e.g., Porcupine Reservoir Co., 62 FERC ¶ 62,074 (1993); Kimberly-Clark Corp., 55 FERC ¶ 62,018 (1991); Red Bluff Water Power Control District, 7 FERC ¶ 61,295 (1979); Pennsylvania Electric Co., 58 FPC 1749 (1977); Central Vermont Public Service Corp., 56 FPC 2532 (1976).

39/ Consumers Power Company, 68 FERC ¶ 61,080 at 61,438-40 (1994); American Hydro Power Co., 60 FERC ¶ 61,237 (1992); 64 FERC ¶ 62,097 (1993) [safety concerns]; Watervliet Paper Co., 35 FERC ¶ 61,030 (1986); Duke Power Co., 43 FPC 265 (1970). The licensee itself, of course, may prefer this

approach, rather than to continue to pay for maintenance and repairs on a project which is no longer generating any power revenues.

> Whenever, in the judgment of the Commission, a State, municipality, interstate agency, or another Federal agency is authorized and willing to assume regulatory supervision of the lands and facilities included under the nonpower license and does so, the Commission shall thereupon terminate the license.

In other words, Congress anticipated a continuing system of supervision over public aspects of those project works that would remain.

B. The Commission's Role in Decommissioning

Sections 6 and 15(f) deal expressly with only two situations -- surrenders during a license term and situations where the Commission has issued a nonpower license at the end of a license term. However, there is no evidence to suggest that Congress determined or intended that the Commission was to be left powerless to deal with other, analogous situations. As the Court of Appeals for the District of Columbia Circuit has recognized: 40/

> The Act is not to be given a tight reading wherein every action of the Commission is justified only if referable to express statutory authorization. On the contrary, the Act is one that entrusts a broad subject-matter to administration by the Commission, subject to Congressional oversight, in the light of new and evolving problems and doctrines.

Likewise, the Supreme Court has observed: 41/

40/ Niagara Mohawk Power Corp. v. FPC, 379 F.2d 153, 158 (D.C. Cir. 1967). See also Northern States Power Co. v. FPC, 118 F.2d 141, 143 (7th Cir. 1941).

41/ Chevron v. Natural Resources Defense Council, Inc., 467 U.S. 837, 843 (1984), quoting from Morton v. Ruiz, 415 U.S. 199, 231 (1974). See also section 309, empowering the Commission

to "perform any and all acts, and to prescribe . . . such orders, rules, and regulations as it may find necessary or appropriate to carry out the provisions of this Act."

> The power of an administrative agency to administer a congressionally created . . . program necessarily requires the formulation of policy and the making of rules to fill any gap left, implicitly or explicitly, by Congress.

The Commission is of the opinion that implicit in the section 6 surrender provision is the view that a licensee ought not to be able simply to walk away from a Commission-licensed project without any Commission consideration of the various public interests that might be implicated by that step. Rather, the Commission should be able to take appropriate steps that will satisfactorily protect the public interests involved. 42/ Section 15(f) takes the approach one step further by suggesting that wherever nonpower activities are to continue, there should be another regulatory authority prepared to step in. Those principles have validity well beyond the particular contexts in which they are specifically referenced in the Act. 43/

42/ The Commission has extended the concept in section 6 to provide for annual licenses, during which the Commission takes appropriate action to properly close out its jurisdiction. See 18 CFR § 16.18(b)(1)-(2).

On the other hand, the Commission rejects the suggestion of some industry commenters that section 6 gives the licensee a veto over what the terms of surrender are to be. Under section 6, it would be the licensee that sought an intra-term surrender, in order to be relieved of the obligations under the license. The Commission would be in the position to deny the surrender unless its terms were met.

43/ This policy statement focusses only on decommissioning at the time of relicensing. Licensees have occasionally raised concern that the Commission might unilaterally decide to decommission a project before the end of a license term. However, the terms of section 6 of the Act apply to that situation. The licensee can explicitly or implicitly (by

its actions) apply for license surrender, and the Commission can agree to the surrender. The Commission can order

(continued...)

Some commenters in this docket have nonetheless suggested that the Commission should stay out of the picture when a license ends. They implicitly concede that the end of licensing, and of power production, does not necessarily mean the end of impacts on public resources and values. However, they contend, where Federal interests are involved, as with Federal lands and threats to navigation, other Federal authorities can simply take over. Otherwise, they contend, the States can do so.

As the system presently operates, the Commission staff and the licensees work with all of these groups to arrange a comprehensive resolution, and, until this is done, the Commission retains jurisdiction by issuing annual licenses. Overall Commission supervision of the process makes much more sense than a piecemeal approach that raises the chance of both overlaps and gaps in coverage.

The Commission consequently contemplates continuation of the existing procedure. Experience suggests that in nearly all instances the interested parties should be able to reach a resolution of the decommissioning approach among themselves. Where this is not possible, the Commission will impose reasonable terms appropriate to the situation, but this is not the approach the Commission favors.

43/(...continued)
surrender where the licensee has accepted a license whose terms expressly permit the Commission to order decommissioning within the license term. Finally, the

Commission can initiate a revocation proceeding under sections 26 and 31 of the Act. In other instances, the licensee has security against mid-term surrenders.

C. The Role of Other Federal Agencies

Where project works at issue are located on Federal lands, the Commission's surrender regulations have for decades required the licensee to restore the lands to the satisfaction of the responsible agency when the licensee surrenders its license. 44/ Most commonly those agencies are the U.S. Forest Service and the Bureau of Land Management, and both apply analogous principles in permits they grant for use of Federal lands. 45/

Absent specific authority by the Federal agency involved for continued use of Federal lands at the termination of Commission licensing, it is eminently reasonable that the licensee must restore the lands to that agency's satisfaction, at the licensee's expense. 46/ No commenter presents a persuasive case to the contrary.

44/ See FPC Order No. 175 (Attachment A p. 28) (1954). See also 18 CFR § 6.2.

45/ See 36 CFR § 251.60(j) and 43 CFR § 2803.4-1.

46/ While the Commission's regulation does not expressly state that it will be at the licensee's expense, this is implicit. The Commission has no authority to subsidize the project by itself paying or requiring the other agency to do so. It might be noted that the BLM and Forest Service rules (cited in the previous footnote) specifically state that:

> If the holder fails to remove all such structures or improvements within a reasonable period, as determined by the authorized officer, they shall become the property of the United States, but the

holder shall remain liable for the cost of removal of the structures and improvements and for restoration of the site.

The Army Corps of Engineers presumably would sometimes become involved where there are navigable waters. To the extent that new construction in navigable waters is proposed, as where dam removal or modification is in issue, permits are needed from the Corps under the River and Harbor Act. 47/ Moreover, were project works to actually pose a serious threat to navigation, it can be assumed that the Corps would step in to protect that interest.

However, commenters have offered no comprehensive legal analysis of the Corps of Engineers' responsibility outside those relatively narrow contexts. Absent that, or a clear indication from the Corps that it intends to take a leading role in assuming broad responsibility for safety and other aspects of projects previously regulated by the Commission and believes that it has the authority to do so, there is little basis for the Commission to count on the Corps of Engineers' assuming significant additional responsibility.

D. The Role of States and Municipalities

There remains a relatively large gap in coverage left by Commission withdrawal. However, many States (though not all) have fairly comprehensive programs in effect governing dams and similar structures in their waters, especially in the areas of dam safety and the environment. It is thus important that the responsible State agencies be partners in any arrangement that is worked out at the time when Federal licensing ends.

47/ See 33 U.S.C. §§ 401, 403.

The attitudes of States (and municipalities) towards the prospect of taking over regulation may vary, depending on the circumstances. Where a project has multiple uses, State or municipal authorities may be willing to assume responsibility in order to keep major nonpower elements of the project in operation. Where this is the case, the Commission will entertain the request that it simply require the shut-down of power operations without further actions that could affect those other functions. It is unlikely that a dam or reservoir serving key municipal water needs, for example, is going to be shut down.

There could be other situations, however, where a State (or municipality) would be reticent to have responsibility for a project licensed by the Federal Government now transferred to it. This might include cases where there are presently serious problems associated with the project, and/or the project serves no useful function other than power production (which will be unauthorized once Commission licensing ends). Where a State makes a persuasive case as to why it ought not to have to bear the burden of future regulation, the Commission will consider the appropriateness of requiring the affected project works to be removed, thereby eliminating the need for future oversight.

Many factors would enter into such a decision, of course, including (but not limited to) the costs of removal, 48/ the

48/ In the past, the dam removal projects that have been carried out have generally involved relatively modest expenditures. However, that would not invariably be the case. For

example, the projected costs of removing the Glines/Elwha dams and restoring the site and the resources impacted by

(continued...)

burdens on the State of continued supervision, what alternative approaches are available, and the environmental consequences of removal. The Commission will also look to whether it authorized the original construction (and thus was directly responsible for the project being there) or simply issued the original license on an existing project.

Where dams or other project works are left in place, the State may effectively be compelled to assume supervisory responsibility over remaining project works, however unwillingly, because the public interest demands that protection. Some State agencies have complained about any approach that leaves the States with the financial burden of dealing with no-longer-useful or abandoned power projects.

It is not clear that the specific examples cited in the comments are in fact under Commission regulation. Rather, it appears that in most, if not all, of these instances, the projects had never been Federally licensed. Nonetheless, where the facts indicate that there may be a significant problem in terms of potential financial threat to State finances, it is a matter for the Commission to consider in deciding how far it will take its own responsibility to deal with the decommissioning process for a particular project, especially with respect to

48/(...continued)
the projects have ranged up to $300 million, depending on the scope of the work undertaken and other factors. Dam

removal costs alone are estimated at about a quarter of that total. Department of the Interior, et al., The Elwha Report; Restoration of the Elwha River Ecosystem & Native Anadromous Fisheries; A Report Submitted Public Law 102-495 Executive Summary 13 (January 1994).

assuring adequate resources for future maintenance of project works that are to be left in place. 49/

Several commenters noted also that a licensee might seek to transfer an increasingly marginal project to a new licensee that lacked the financial resources to maintain it or close it down in an appropriate manner. Through that process, the former owner relieves itself of the responsibility, which then may fall to State authorities or, at least when Federal lands are involved, on other Federal agencies. While the Commission is aware of no widespread problems on this score, it agrees that transfer applications should be scrutinized to foreclose this sort of situation, and where warranted, other authorities should be consulted before transfers are approved.

E. The Project After Decommissioning

When a project will no longer be licensed, the Commission's jurisdiction is going to end. The future operation of any remaining works is then the responsibility of whoever next assumes regulatory authority. The Commission does not believe that, at that point, it has the authority to require the existing licensee to install new facilities, such as fish ladders. Basically, the Commission issues a license for a particular period, subject to certain conditions. The licensee may have an opportunity to obtain a new license at the end of that term, subject to new conditions; but, if it elects not to do so, the Commission cannot go forward and require the same future steps to

49/ The Commission contemplates that its role would end with seeing that the resources are made available at the time of decommissioning. The State would then be responsible for supervision of the future oversight and administration.

be taken anyway, as part of the decommissioning process. 50/ That new facility is a step for any successor agency to take.

Similarly, while the Commission may require licensees to provide certain recreational opportunities in association with licensed activities, that obligation ends when the project is no longer licensed. If these opportunities are to continue at all, it will have to be as a result of the former licensee's voluntary action or the requirements of the new regulatory regime that follows.

On that score, once the Commission's jurisdiction has concluded, the preemption which earlier displaced any State laws would be at an end. The State would then be at liberty to impose its own licensing or other regulatory regime, free from any restrictions imposed earlier by operation of the Federal Power Act. That is, projects left in place would have to meet State-imposed requirements. Where the owner could not do so, presumably it would have to remove the project or take other appropriate remedial action authorized or required under State law.

The Commission's goal is that generally matters of this type can and will be resolved to the satisfaction of the successor agency as part of the Commission's decommissioning process, obviating the need for any later other action. There could then be a smooth transition to the new regime with a minimum of interruption.

50/ On the other hand, during decommissioning negotiations, it might be mutually agreed that, rather than restoring fish passage by tearing down the existing facilities, a new fishway would be built instead.

IV. FUNDING DECOMMISSIONING COSTS

There may be some situations, as noted earlier, where the Commission decides to recommend Federal takeover, which could involve taxpayer funding of project retirement costs. There may also be situations where the level of costs involved is so large that some sort of cost sharing arrangement must be worked out if the retirement plan is to be effectuated. 51/ Normally, however, the Commission anticipates that the licensee will be responsible for paying the costs (up to a reasonable level) of the steps needed to decommission the project, since the licensee created the project and benefitted from its operations.

A major focus of the NOI was on possible plans for funding of decommissioning costs over the life of the project. This step would help assure that the funds are available to do the job when the time for decommissioning arrives, thereby avoiding the possibility that State or Federal taxpayers might, by default, be compelled to pay them because the licensee lacks the resources. On the other hand, to require such prior funding in all cases could mean unnecessarily tying up substantial amounts of the capital of financially sound licensees in less than optimum investments for extensive periods.

In any event, there are several impediments to effectively carrying out such a funding program. First, there is the

51/ This may be because the costs reach a level which the Commission considers unreasonable. However, there is a very practical aspect as well. As the costs of decommissioning

rise, they may reach a point where it is more economical for the licensee to to continue to produce power in order to fund future decommissioning. Where others would like to see the project closed, this provides an impetus for them to share the costs.

question of determining the proper period for accumulating the funds. Some would argue that the license term is the proper period. However, it may be possible to anticipate that there is a substantial likelihood that a project will close down before the end of a license period. Poor physical condition, marginal economics, and similar factors may mark this potential situation. On the other hand, the prospect of a project closing down at the end of the license term cannot be assumed to reflect the general pattern, since physically, a hydropower project, with proper maintenance and replacement, may last far beyond the new term.

Secondly, there is the problem of measuring how much funding should be provided. This will depend, inter alia, on the scope of the decommissioning that is to occur. As discussed earlier, there are different possible decommissioning scenarios, for which the costs may vary markedly. Only at the time of decommissioning will the costs of that program actually be known.

The Commission's primary concern is that the licensee have the money available to carry out whatever decommissioning steps the Commission decides are appropriate if the project ceases to be licensed. In light of the practical problems involved in trying to deal with events far in the future, and because in many cases the time horizon and general financial strength of the licensee may be such that there is no substantial need for a pre-retirement funding program, the Commission will not act generically to impose such programs on all licensees.

Accordingly, where the Commission has not required pre-retirement funding in a license, the licensee has no ongoing obligation to

create a decommissioning fund as a contingency for the event that the project is required to be decommissioned at a later date.

There may be particular facts on the record in individual cases, however, that will justify license conditions requiring the establishment of decommissioning cost trust funds in order to assure the availability of funding when decommissioning occurs. The Commission would consider, for example, whether there are factors suggesting that the life of the project may end within the next 30 years, and would also look at the financial viability of the licensee for indications that it would be unable to meet likely levels of expenditure without some form of advance planning.

In other cases, licensees and others may wish to reach an agreement in the context of individual licensing cases concerning procedures for pre-retirement planning and funding. The Commission encourages creative solutions in this regard. 52/

Without advance planning, the financing of decommissioning costs may well cause problems at the time of decommissioning. Licensees have argued that the Commission should impose no funding requirements in its licenses. While the Commission has decided not to adopt any generic funding requirements, licensees should not view the Commission's decision as an impediment to ordering whatever decommissioning steps it deems appropriate when the time for decommissioning a particular project arrives. 53/

52/ See Consumers Power Company, 68 FERC ¶ 61,077 at

pp. 61,380-83 (1994).

53/ By the same token, the establishment of a fund does not necessarily mean that a project will ultimately be

(continued...)

The licensee has the responsibility for project retirement. In those situations where a licensee has not been required to undertake pre-retirement funding, and it determines on its own that decommissioning is probable and the costs can reasonably be estimated, a public utility licensee can file to recover such costs in rates.

If funding requirements have been established in a license issued by the Commission, licensees subject to the Commission's ratemaking jurisdiction can recover an appropriate share of funding amounts in subsequent wholesale rate filings. 54/ In situations where the Commission has not required pre-retirement funding in a license, and it is subsequently determined that decommissioning is necessary, a licensee that is a public utility may file to recover an appropriate share of decommissioning costs through wholesale rates, on a prospective basis.

The foregoing discussion is directed to project-specific funding. The NOI also raised the possibility of establishing some type of industry-wide fund, financed by annual charges imposed by the Commission. In this instance, the licensee would

53/(...continued)
decommissioned. Likewise, any planning and funding that does occur will not control the scope of the ultimate decommissioning, should that prove necessary. If funds prove inadequate, more will have to be supplied. There may also be more funds than are ultimately needed.

54/ If it turns out that costs actually incurred for decommissioning are greater than the funding amounts, the licensee may seek to recover the additional costs through

rates. However, if it turns out that the costs actually incurred at the time of decommissioning are less than the funding amounts, the licensee and its shareholders may not keep those amounts; rather, the licensee will be required to refund them to ratepayers.

not be pre-funding its own decommissioning costs but rather would be helping underwrite the costs of other licensees (presumably those lacking the resources to meet their own obligations). The Commission has concluded at the present time that such a fund is inappropriate. There is little specific evidence concerning the need for such a fund, 55/ while the practical problems of implementing the program fairly and administering it soundly would be formidable. Should later experience with decommissioning demonstrate a stronger need, the Commission can reassess the issue at that time.

List of Subjects in 18 CFR Part 2

Administrative practice and procedure, Electric Power, Natural gas, Pipelines, Reporting and recordkeeping requirements.

By the Commission. Commissioner Bailey dissented with a separate statement attached.

(S E A L)

Lois D. Cashell,
Secretary.

In consideration of the foregoing, the Commission amends Part 2, Chapter I, Title 18 of the Code of Federal Regulations as set forth below.

55/ For example, the main support seems to come from those government authorities who otherwise fear they might have to absorb costs associated with abandoned projects owned by

those without significant financial resources. However, those authorities have not shown that they have broadly implemented such a program for permittees within their jurisdictions, as might be expected if developed on this score.

PART 2 - GENERAL POLICY AND INTERPRETATIONS

1. The authority citation for Part 2 continues to read as follows:

AUTHORITY: 15 U.S.C. 717-717w, 3301-3432; 16 U.S.C. 792-825y, 2601-2645; 42 U.S.C. 4321-4361, 7101-7352.

2. Part 2 is amended by adding § 2.24, to read as follows:

§ 2.24 Project Decommissioning at Relicensing.

The Commission issued a statement of policy on project decommissioning at relicensing in Docket No. RM93-23-000 on December 14, 1994.

NOTE: This Appendix will not be published in the Code of Federal Regulations.

APPENDIX A

COMMENT SUMMARY

In response to the NOPR, the Commission received comments and reply comments from a great many commenters, including municipal and non-municipal licensees; federal, state, and local governmental organizations; national, regional, and local environmental, trade, or other organizations and associations; and private citizens. The more substantial comments are identified at the end of this comment summary, grouped by category and showing the shortened names or acronyms used in this summary. In addition, there was a large volume of comments in the nature of one to three-page letters. Many were from individuals (including operators of small hydro projects) and many were from local or regional organizations or local branches of national organizations.

In general, the commenters fall into two distinct groups of roughly equal size. One group takes what might be loosely characterized as a "strict construction" approach to the legal issues, contending that the Commission's organic statutes do not authorize it to compel the decommissioning of a project except under narrowly prescribed procedures that entail reimbursement of the licensee. The advocates of this position include the licensees and their organizations.

The second group might be loosely characterized as taking a broader approach to statutory interpretation, contending that the Commission has considerablhority to decline to

relicense a project whose license has expired, and to compel the licensee to decommission the project (including, if appropriate, removal of a dam or other project facilities) at the licensee's expense. The advocates of this position include a broad array of national, regional, and local environmental groups, as well as federal and state agencies.

Many commenters addressed the specific questions posed in the NOPR. Other commenters expressed more general views. Some commenters expressed their legal analysis in broad terms, with their answers to the questions being framed as cross-references to their broader discussion. 56/ Many commenters endorsed the more extensive comments of an association to which they belong, adding supplemental views or emphasizing particular points. Many of the shorter letters referred to the views expressed by organizations that filed lengthier comments. A limited number of commenters filed reply comments.

This summary discusses first the comments on the broader issues and then the comments in response to the specific questions posed by the NOPR.

A. Broader Issues

As a preliminary matter, a number of commenters note the range of activities potentially includable within the scope of the word "decommissioning." Depending on the circumstances, it

56/ EEI, for instance, discussed the issues in one broad narrative; APPA divided its comments into separate responses

to the specific questions; and NHA commented broadly in the first half of its submission and then responded to specific questions in the second half. Reform and Kennebec also split their comments between a general discussion and specific responses to questions.

could mean simply ceasing to operate a project, without physically removing any project facilities. At the opposite end of the spectrum would be removing a dam and dredging out the accumulated silt in the reservoir, a potentially complex and costly process that could involve serious environmental impacts of its own. Environmental commenters find legal authority for the Commission to mandate physical removal of project works. 57/ Licensees, on the other hand, contend that once a project's license ends and the project ceases to generate electrical power (and, perhaps, the generator is disconnected and removed), the Commission lacks jurisdiction to mandate anything further. 58/

Licensees suggest that hydroelectric projects, if properly maintained, may be physically and economically viable "indefinitely," such that decommissioning would be a rare occurrence. 59/ These commenters stress the formidable structural integrity of dams, designed to last for "thousands" of years. 60/ Environmental commenters, on the other hand, analogizing to mines, forests, nuclear plants, and landfills, etc., suggest that all hydropower projects have a finite "life-cycle"; that they all silt up in the end; and that plans for their decommissioning should be routinely considered from the

57/ See discussion and citations below; a variety of legal theories was advanced.

58/ See, e.g., EEI at 12; APPA reply comments at 4-7.

59/ EEI reply comments at 13.

60/ Id. at 5.

outset of their operation. 61/ Commenters of all persuasions agree that project facilities that become unsafe should be removed (if they can't be repaired) to alleviate the hazard. 62/ Some licensees suggest that when projects become uneconomic the licensee will itself take the initiative of proposing decommissioning and surrender of the license.

Commenters who believe that the decommissioning of hydropower project will be a comparatively rare event urge case-by-case analysis of the issues as they may arise, in the peculiar factual context presented by the case at hand. 63/ Commenters who believe that decommissioning is part of the inevitable life cycle of all hydropower projects prefer a more generic approach to determining the Commission's policy and practice. 64/ These commenters advocate advance planning for decommissioning, contending that, absent a decommissioning policy by the Commission, the inevitable costs of decommissioning will be borne by taxpayers. 65/

As a preliminary matter, a number of commenters draw a distinction between shutting down project operations and removing project facilities, and, along with this, a distinction between the power to cause a project to cease operating and the power to

61/ See, e.g., Reform at 5-6, 11-13.

62/ See, e.g., NHA at 28; APPA at 9.

63/ See, e.g., NHA at 5; EEI at 4; PG&E reply comments. (Reply comments are specifically identified as such; all other citations are to initial comments.) See also New England

at 4-5.

64/ See, e.g., Reform at 5-6, 11-13.

65/ Reform at 13-14.

cause someone (i.e., the licensee) to incur the expense of removing its project's facilities. Licensees concede the Commission's authority to terminate a project at relicensing as long as the licensee is compensated for its investment. The compensation could come from either a government or a private purchaser. 66/

In this regard, several commenters suggest (but without legal discussion or citation) that an involuntary decommissioning of a project would constitute a taking of property without due process of law in violation of the U.S. Constitution. 67/ Other commenters dispute that assertion, with extended discussion of legal precedent in support of their position. In general, they contend that a license is not a property right, and that the termination of a license does not constitute a taking of property even if the termination results in an economic loss. 68/ They go on to contend that the FPA also does not provide an absolute right to compensation. 69/

Citing extensively to the legislative history of the FPA, including its amendments and precursors, licensees argue that Congress sought to encourage investment in hydro power projects by assuring investors that they would be able to recover the value of their project at the expiration of the

66/ See discussion and citation below.

67/ See e.g., Pacificorp at 3.

68/ Kennebec at 12-18; Walton at 7-8.

69/ Kennebec at 18-20.

license. 70/ Also citing to that legislative history, environmental groups and government agencies respond that Congress sought to protect the investors' financial interests in the event that the project was taken over and operated by the government, or by another group of investors, after the license expired, but did not intend to reimburse the investors if the project was decommissioned at the expiration of the license term; at that point, the investors would already have fully recovered their investment. 71/

The crux of the licensees' position 72/ is that sections 14 and 15 of the FPA give the Commission four choices at

70/ NHA at 11-16; EEI at 18, 20-33; Duke at 9-13; Mt. Hope at 4-5.

71/ See, e.g., Wisconsin Department at 3-13; Washington Department at 1-2.

72/ See, e.g., EEI at 16-20.

relicensing, and only four choices. 73/ EEI expresses it as follows: 74/

> In a relicensing proceeding, FERC has authority to:
>
> * issue a new license to the existing licensee or a new licensee;
>
> * recommend a federal takeover in accordance with the provision of the FPA applicable to such action;
>
> * issue a nonpower license to an applicant for such a license, or
>
> * issue annual licenses to the existing licensee until a final decision is made.
>
> A unilateral order of surrender to be followed by decommissioning or project removal at the licensee's expense are not options available to FERC under the FPA.

A corollary argument to this view is that the FPA section 15 authority to issue an annual license is mandatory and not

73/ Section 14 of the FPA, 16 USC 807, authorizes federal takeover of hydropower projects at the expiration of the license, pursuant to prescribed procedures, and provided that the United States pays the licensee its "net investment" in the project, not to exceed its "fair value." Section 15, 16 USC 808, prescribes the relicensing procedures in the event that there is no federal takeover under section 14. These procedures include issuance of a new license (to either the existing licensee or a new licensee), an annual license, or a nonpower license.

The compensation to be paid by the new owner to the prior owner is defined in section 14 to be "the net investment of the licensee in the project or projects taken, not to exceed the fair value of the property taken, plus such reasonable damages, if any, to property of the licensee valuable, serviceable, and dependent as above set forth but not taken, as may be caused by the severance therefrom of property taken."

74/ EEI at 3-4. See also NHA at 7-8. EEI further contends (at 13-14) that nonpower licenses can only be used as the transitional authority pending assumption of jurisdiction by another agency, and cannot be used as a vehicle to implant an involuntary decommissioning.

discretionary. Thus, the Commission is compelled to issue annual licenses (in perpetuity if necessary) until such time as it either issues a new license or a nonpower license or recommends federal takeover; the FPA does not afford the Commission the option of issuing no license at all. 75/

Environmental groups and government agencies characterize this result as "absurd." 76/ Discussing the standards in sections 4 and 10 of the FPA, 77/ as amended by the Electric Consumers Protection Act of 1986 (ECPA), they note that the Commission is required to conduct an extensive inquiry into the alternative, non-power uses of the water, and to consider those uses in deciding whether to issue a new license. They argue from this that Congress surely intended for the Commission to have the authority to conclude that issuance of any form of license (whether new, annual, or nonpower) would be inconsistent with the public interest, and to implement that conclusion by not issuing any license. 78/ Citing the legislative history of the FPA and its predecessor, the Federal Water Power Act, these commenters contend that Congress intended licenses to be for a finite term with a definite end, implying that they need not be renewed or reissued. 79/ They construe the provision for

75/ See e.g., EEI at 25, 29; Chelan at 15-16.

76/ See, e.g., Kennebec at 30-34; Kennebec reply comments at 6-7; Michigan at 8.

77/ 16 USC 797 and 803.

78/ See, e.g., Reform at 20-24; Kennebec at 8-12; Kennebec reply comments at 5-8; Interior at 3-4; S'Klallam at 3-4.

79/ See, e.g., Kennebec at 5-7; Interior at 3.

annual licenses as applying solely during the pendency of the relicense proceedings; if those proceedings conclude with a determination to not issue a license, then there is no further obligation to issue annual licenses. 80/

Reform points out that licensees are required to obtain a water quality certification under section 401(a) of the Clean Water Act 81/ as a prerequisite to receiving a new license. Reform contends that it would be absurd to construe the FPA as requiring issuance of an annual license in perpetuity in the event that the water quality certification was denied. 82/

Commerce contends that the authority to withhold permission is basic to and inherent in the concept of a license. Commerce construes the FPA, as amended, and its legislative history, as reserving "paramount rights" in the United States over navigable waters, and refers to "the generic powers and authority of the Commission set forth in section 4(e) to exercise discretion in determining whether or not to issue a licensee." 83/ Commerce construes the nonissuance of a license as the "no action" alternative under the National Environmental Policy Act (NEPA), and seems to construe NEPA itself as supporting adoption of a decommissioning alternative. 84/

80/ See, e.g., Reform at 24-25.

81/ 33 USC 1341(a).

82/ Reform reply comments at 15-16.

83/ Commerce at 1-3.

84/ Id. at 4.

Licensees also contend that section 6 of the FPA 85/ requires mutual agreement between the licensee and the Commission as a prerequisite to any Commission order requiring removal of project facilities. 86/ Other commenters respond that section 6 applies only during the term of the license, and does not preclude unilateral Commission action to compel removal of facilities after the license has expired. 87/

Municipal licensees also emphasize the Act of August 15, 1953, 88/ which made certain provisions of the FPA inapplicable to states and municipalities, including the section 14 authorization of federal takeover upon payment of the "net investment" in the project. Municipal licensees emphasize that the purpose of the 1953 legislation was "to provide greater certainty to state and municipal licensees that the public uses and benefits conferred by such projects will not be disrupted," 89/ and to assist state and municipal agencies in financing their projects through the sale of revenue bonds with amortization schedules beyond the term of the license. These commenters contend that Congress deliberately eliminated the possibility of federal takeover of municipal projects so as to encourage investment in them, and that requiring decommissioning

85/ 16 USC 799. Section 6 provides that licenses "may be altered only upon mutual agreement between the licensee and the Commission . . ."

86/ EEI at 33-38; NHA at 21-22; APPA at 5.

87/ See, e.g., Interior at 6; Reform reply comments at 12.

88/ Pub. L. 83-278, 67 Stat. 587, codified at 16 USC 828-828b.

89/ Water at 9.

at the end of the license term would be inconsistent with the purpose of the 1953 legislation. 90/

Environmental groups and government agencies suggest a variety of sources of legal authority to compel licensees to remove project facilities at the expiration of a license if a new license isn't issued. Some commenters suggest that the Rivers and Harbors Act of 1899 provides a source of authority with respect to the removal of project works on navigable waters. 91/ Some commenters cite section 23(b) of the FPA, 92/ which requires a Commission license as a prerequisite to construction, operation, or maintenance of hydropower facilities; they contend that the power to order removal of existing unauthorized facilities is inherent in the power to decline to authorize those facilities. 93/ Some commenters cite sections 4(g), 10(c), and 309 of the FPA. 94/ Others point to historical precedent. 95/ Kennebec suggests that the

90/ Chelan at 7-10; Centralia at 4-5; Grant at 2-3.

91/ See, e.g., Reform at 27.

92/ 16 USC 817.

93/ Kennebec at 21-25, 27; Reform at 25-27; Walton at 11. Licensees disagree. NHA reply comments at 5-6; EEI reply comments at 26; Duke reply comments at 3.

94/ Interior at 1; Reform at 16, 25-27; Kennebec at 22-23, 25-26. Section 4(g) of the FPA, 16 USC 797(g), authorizes the Commission to conduct investigations. Section 10(c) of the FPA, 16 USC 803(c), requires the licensee to maintain and repair the project. Section 309 of the FPA, 16 USC 825h,

confers general authority on the Commission to implement the FPA. Licensees disagree. APPA reply comments at 2; EEI reply comments at 12.

95/ See, e.g., Kennebec at 20-21.

Commission can compel removal of facilities either by a direct order under FPA section 23(b) or by a "forced surrender." 96/

Licensees contend that their construction of the FPA is consistent with court and Commission decisions. 97/ Environmental groups and government agencies cite judicial precedents supporting their more expansive interpretation of the statutory scheme. 98/

Licensees refer to the enactment by Congress in 1992 of the Elwha River Ecosystem and Fisheries Act, 99/ which provides a scheme for compensation in the event of the decommissioning of projects on the Elwha River in Washington. Licensees contend that this legislation further confirms that the overall intent of Congress, and the overall scheme of hydro legislation, is that decommissioning and dam removal is a federal responsibility to be implemented through federal takeover with full reimbursement of the licensee. 100/ Environmental groups respond that the Elwha River legislation is unique to the peculiar facts and circumstances of that river and its projects and has no dispositive or precedential value with respect to the rest of the legislative scheme.

Licensees stress that hydropower projects provide clean, renewable energy, and contend that the FPA was enacted to foster

96/ Id. at 27-28.

97/ See, e.g., NHA at 9-11, 16; EEI at 39-43.

98/ See, e.g., Reform at 16-19, 22-24; Interior at 2. Licensees

disagree. See, e.g., EEI reply comments at 30-31.

99/ Pub. L. No. 102-495.

100/ NHA at 18-20; EEI at 43-48; APPA at 14-15; James at 5-7.

development of those resources. Licensees also emphasize the environmental and recreational benefits of their projects. Environmental groups, emphasizing the more recent amendments to the FPA that require consideration of fish and wildlife resources and other alternative uses of water, contend that hydropower projects inevitably alter the physical environment to its detriment, by blocking rivers and flooding land, etc.

B. Specific Questions

The NOPR posed 15 specific questions. For convenience each question is reprinted here, followed by a summary of the comments received on it.

1. Does the Commission have the authority to determine that no project should be operated or maintained at the site of a project whose original license has expired? May the Commission decline to issue a new license for the project without issuing an annual license or a nonpower license or recommending federal takeover?

The comments on these issues were summarized above. With respect to the first sentence, licensees contend that the Commission's authority is limited to recommending federal takeover with full compensation to the original licensee. Environmental groups and government agencies disagree, finding implicit authority to decline to issue any license at all, neither a new license, nor a nonpower license, nor an annual license. Licensees contend that if the Commission does not issue a new license it must issue either an annual license or a nonpower license or recommend federal takeover. Environmental groups contend that once the relicense proceeding has ended there

is no further requirement to issue annual licenses (or anything else in lieu thereof).

2. Does the Commission have the authority to require the holder of an annual license to file an application to surrender it? Assuming no new application has been filed, can the Commission require the holder of an annual license to decommission the project and cease operating it?

NHA contends that FPA section 6 precludes involuntary decommissioning unless no application for a new license has been filed or the original licensee refuses to accept the terms of the new license tendered to it. 101/ NHA believes the Commission could construe a refusal to accept a "reasonable" new license, or a cessation of project operations, as constituting an implied surrender, but with substantial legal restraints on the Commission's ability to compel particular actions (e.g., removal of facilities) after surrender has occurred. 102/

In addition to other statutory provisions discussed above, Reform contends that the Commission could issue a nonpower license, "on its own motion" under FPA section 15(f), that compelled a licensee to decommission its project, remove project facilities, and restore the project site. 103/ Kennebec finds such authority inherent in FPA section 309, and would use an annual license as the vehicle to compel decommissioning and site restoration. 104/ Interior suggests that the Commission can use either a nonpower license or an annual license as a vehicle for mandating decommissioning. 105/

101/ NHA at 22-25.

102/ Id. at 25-27.

103/ Reform at 25-28. EEI, at 26-27, disagrees.

104/ Kennebec at 38.

105/ Interior at 1.

Commerce believes that the Commission can reasonably conclude that Congress left a gap in the statutory scheme, and that the Commission can utilize its "policymaking authority and expertise" to fill that gap by construing the FPA to authorize the Commission "to order the surrender of an expired license and require the decommissioning of the project by the license holder." Commerce "encourages the Commission to take further regulatory or interpretive action to provide a better foundation" for this position. 106/

3. Should the licensee's conduct and/or the particular circumstances of the case affect in any way the Commission's authority regarding decommissioning? For example, should it make any difference if the licensee requests or consents to project decommissioning? Should it make any difference if the decommissioning issue affects only part of a project (such as a reservoir, dam, or some other project facility)?

Interior and Commerce regard these factors as irrelevant to the Commission's authority to mandate decommissioning. 107/ Kennebec suggests that the Commission's analysis under FPA sections 4 and 10 could result in a determination to omit authority at relicensing for some previously-licensed project facilities. 108/ APPA agrees, provided that the new license as a whole is "reasonable." 109/ Reform suggests use of FPA section 23(b) to remove those portions of a project that are located in navigable waters. 110/

106/ Commerce at 5-7.

107/ Interior at 6; Commerce at 8.

108/ Kennebec at 40.

109/ APPA at 6-7.

110/ Reform at 29.

4. Does question no. 1 pose an implicit choice between licensee responsibility and federal takeover, i.e., an implicit choice as to who is responsible for removing project works and who should bear that cost? If the Commission required the holder of an annual license to file an application to surrender it, would the Commission be required to ensure that the annual licensee received its "net investment" in the project and reasonable severance damages?

NHA contends that the choice is explicit, and is determined by the FPA. 111/ APPA distinguishes the federal takeover process under FPA section 14 from a voluntary "surrender" within the mutual agreement parameters of FPA section 6; notes that municipal license projects "are not subject to recapture or relicensing at the Section 14 price"; and contends that FPA section 15 requires issuance of annual licenses "until it receives the compensation to which it would be entitled in a federal takeover, paid either by the United States or a new licensee, or until it is offered a new license on reasonable terms" defined as "terms which yield a license that would be valued at no less than the takeover compensation." 112/

Reform distinguishes between the transfer of a project and the decommissioning of a project, contending that under FPA sections 14 and 15 the licensee is entitled to recover its net investment and reasonable severance costs only in the event of a federal takeover, third party takeover, or grant of a nonpower license, all of which involve a transfer of ownership of a project. In Reform's view, in the event of decommissioning of the project -- either voluntary or involuntary -- there is no

111/ NHA at 30.

112/ APPA at 7-9.

change of ownership and, therefore, the "licensee does not qualify for the return of its net investment." 113/

Kennebec contends that the Commission has the legal authority to determine, in effect, who should most appropriately bear the cost of decommissioning: the "taxpayer" through federal takeover or the licensee. Kennebec believes those costs are most efficiently and appropriately borne by the licensee. 114/

Interior and Commerce agree that compensation of the licensee's net investment is required if the project is taken over, but not if it is decommissioned. 115/

5. Barring federal takeover or issuance of a non-power license or of a new license to a third party applicant, must an existing licensee be given a new license with whatever conditions are necessary for mitigation, enhancement, and protection of natural resources regardless of the effect of the conditions on the economic viability of the project? If such a new license were issued and the applicant declined the license, refused to comply with its terms, or indicated an intent to abandon the project, could the Commission construe the applicant/existing licensee's position as a de facto application to surrender the license? Could the Commission then order the decommissioning of part or all of the project (with or without removal of project facilities)?

NHA contends that FPA section 15 requires that new licenses must be issued "upon reasonable terms," and that this precludes issuance of a new license containing environmental mitigation measures whose costs render the project uneconomic. 116/ NHA would also regard such a result as an impermissible balancing of

113/ Reform at 30-31; see also Kennebec at 42.

114/ Kennebec at 41.

115/ Interior at 6; Commerce at 8-9.

116/ NHA at 31.

developmental and nondevelopmental values under the ECPA amendments to the FPA. 117/

APPA contends that if the Commission does not recommend federal takeover, issue a nonpower license, or issue a new license "on reasonable terms," then it must continue issuing annual licenses; it cannot terminate the proceeding and stop issuing annual licenses if a licensee rejects an "unreasonable" new license. APPA then goes on to explore the potential applicability of the Rivers and Harbors Act, and sections 4(g) and 23(b) of the FPA, with respect to removal of facilities after a license has expired, and also explores the related ramifications of sections 26 and 31 of the FPA. 118/

Reform suggests a variety of legal authority to which the Commission might resort if a licensee declines to accept a new license, or accepts it but declines to implement the mitigatory measures that render it uneconomic. 119/ Kennebec contends that sections 10 and 15 of the FPA provide adequate authority to impose reasonable environmental conditions on a new license even if those conditions render the project uneconomic. Kennebec further contends that the Commission has authority to compel the licensee to "remove the project" if the licensee declines to accept a new license so conditioned. 120/

117/ NHA at 31-33.

118/ APPA at 9-12. Sections 26 and 31 of the FPA, 16 USC 820 and 823b, generally pertain to violation of the terms of a license and Commission remedies in response thereto. See

also EEI at 27.

119/ Reform at 32.

120/ Kennebec at 44-46.

Interior contends that the Commission must deny the relicense application if continued operation of the project is not in the national interest. Under the circumstances posited in the latter part of the question, Interior would have the Commission pursue the matter as a de facto license surrender or as an enforcement case under section 31 of the FPA. 121/ Commerce, New York, and Michigan, would treat it as a de facto surrender. 122/

6. If the Commission has the authority to require the holder of an annual license to file an application to surrender it, and if the Commission requires that the project be decommissioned, may the Commission require an existing licensee to install new project facilities to protect the environment, such as fish screens or fish passage facilities, as part of the decommissioning process? May the Commission require the existing licensee to remove any project facilities as part of the decommissioning process or, alternatively, to maintain certain project facilities in perpetuity as part of that process? In particular, does the Commission have the legal authority to require removal of a dam as part of the relicensing process? Would the answers to any of the above be different if only part of the project were decommissioned?

NHA contends that, in a surrender or decommissioning situation, the Commission's jurisdiction terminates and passes on to relevant federal or state authorities once the license has been surrendered and the project has ceased generating electricity. 123/ APPA notes that many licensees lease their dams but do not own them, and that the leases are not likely to permit removal of the dam. 124/ APPA contends that the Commission's statutory responsibility is to regulate functioning

121/ Interior at 7.

122/ Commerce at 9-10; New York at 2; Michigan at 9.

123/ NHA at 34; see also Central Maine at 4.

124/ APPA at 13.

hydropower projects, and that "ecosystem restoration" after decommissioning is the province of other governmental agencies. 125/ Montana Power contends that the licensee's obligations are limited to making certain that the project is no longer capable of generating electricity and ensuring that the dam is left in a safe condition. 126/

Reform contends that the Commission has inherent authority to attach environmental mitigatory conditions at any stage, including decommissioning. Reform suggests that, in the long run, removal of a dam would be less costly than "perpetual" maintenance and rebuilding of it. 127/

Citing section 23(b) of the FPA, Kennebec also finds inherent authority to mandate environmental mitigation at decommissioning. Kennebec construes such measures as less costly than removal of the project, and therefore inherent in the authority it perceives for the Commission to mandate project removal. 128/ Kennebec also contends that the Commission has authority to compel a licensee to remove its dam at the expiration of its license. 129/

Interior and Commerce believe that the Commission has inherent authority to mandate either partial or total decommissioning, with or without environmental mitigatory

125/ Id. at 15.

126/ Montana Power at 10.

127/ Reform at 33-34.

128/ Kennebec at 45-46.

129/ Kennebec reply comments at 8-11.

measures. 130/ Commerce contends that the Commission should require installation of new fish passage facilities as part of a surrender or decommissioning process if the Commission deems such fishways necessary or if such facilities are prescribed by the Secretary of Commerce or the Secretary of Interior pursuant to section 18 of the FPA. 131/

7. May the Commission issue a new license to an existing licensee that prefers to continue operating a project that is no longer economical, rather that incur the one-time cost of decommissioning the project?

NHA points out that the cost of decommissioning a project must be factored into the determination of which alternative is the most economical. In other words, it may be less costly to operate the project than to shut it down or remove it. NHA encourages the Commission to defer to market forces to determine the future economic viability of existing, operating projects. 132/

Reform contends that since all projects have a finite life, the one-time cost of decommissioning is inevitable and does not justify operation of an otherwise uneconomic project. 133/ Several commenters point out that a project may have beneficial flood control or recreational purposes that justify continuation

130/ Interior at 7-8; Commerce at 11.

131/ Commerce at 10. Section 18 of the FPA, 16 USC 811, requires the Commission to include the Secretaries' fishway

prescriptions in any license it issues.

132/ NHA at 35-37.

133/ Reform at 34-35.

of its operations even if its electric generating functions are not, by themselves, economic. 134/

The Western Urban Water Coalition stresses the importance of not decommissioning hydropower projects that serve municipal water supply purposes, which is often a vital primary or secondary purpose of projects that also generate electricity. In this regard, it refers to FPA section 15(f) as providing a mechanism for municipal licensees, through the use of nonpower licenses, to temporarily ensure the continued operation of projects that are needed for water supply purposes. 135/ It also recommends preparation of an environmental impact statement that analyzes the impact, of any proposed decommissioning of a project, on water supply and existing water supply facilities and the feasibility and costs of alternative water supply facilities. 136/

Mines urges the Commission to consider the socioeconomic impact of decommissioning hydropower projects, pointing out that electricity can account for as much as one third of the cost of smelting aluminum. Thus, the loss of a source of affordable electricity could lead to a loss of jobs and social dislocation.

New York suggests that if a decision is made to continue operation of an uneconomic project because of its other benefits, then long-term maintenance costs could be shared by government

134/ Kennebec at 47; Nebraska at 3-4; New York at 2; Brazos.

135/ Water at 3-5, 10.

136/ Id. at 12-13.

agencies or financed out of a decommissioning trust fund. 137/

Central Maine states that, because the cost of applying to surrender a license is the same as the cost of applying for a new license, under certain circumstances there is a financial incentive to seek a new license for an uneconomic project. 138/

8. What are the existing licensee's responsibilities with respect to decommissioning, if the existing licensee does not apply for a new license and wants to abandon the project? In such a situation, is a licensee responsible for decommissioning the project, with or without removal of facilities, at the end of the term of the license or of the project's useful life? If so, how should "useful life" be defined?

NHA states that there is no means of predicting a project's useful life; it can only be determined after the fact on a case-by-case basis. NHA refers to U.S. projects that have been in operation since the previous century, and dams in India and Ceylon that have stored water for irrigation for over 2000 years. NHA states that projects can be damaged or destroyed by natural events (e.g., earthquakes, landslides, or floods), or can be rendered obsolete by improper or outmoded design or construction, or by improper maintenance or operation. A project's useful life could also be affected by economic circumstances, or by the conditions imposed in a license and their related costs. 139/

Reform states that "useful life" has been defined as "the number of years as a baseload facility plus the number of years

137/ New York at 3.

138/ Central Maine at 3.

139/ NHA at 37-40.

as an indeterminate load facility." 140/ Wisconsin Electric suggests a definition based on "useful economic life" measured in terms of the project's capacity, the value of its energy, and its projected future costs. 141/ Walton defines "useful life" as the length of time during which the project is profitable, but with profitability adjusted to include "social and environmental costs" including the costs of dam removal and associated sediment control. 142/

Interior believes that it is reasonable to require the licensee to bear the cost of decommissioning after it has enjoyed the economic benefits of the license. 143/ Commerce urges the Commission to require prompt removal of project facilities within a "reasonable period" after expiration of the license "rather than allowing projects to remain abandoned until the end of a 'useful life' threshold." 144/

New York notes that the "useful life" of a hydropower project could run much longer than that of a nuclear plant, and that the project could be abandoned well before it reaches the end of that useful life. Therefore, New York would require that decommissioning planning take place at the midpoint of the term of the license. 145/

140/ Reform at 35-36.

141/ Wisconsin Electric at 8.

142/ Walton at 13.

143/ Interior at 8.

144/ Commerce at 11-12.

145/ New York at 3.

Subsequehanna recommends that "the Commission should commission a comprehensive study to develop guidelines to determine the useful life and projected cost of decommissioning a 'typical' or generic project." Susquehanna recommends that licensees submit decommissioning studies 20 years in advance of license expiration; Susquehanna believes this would provide adequate time for planning. 146/

Oregon advises that the Oregon Public Utility Commission has the authority to allow rate recovery for project decommissioning for regulated utilities. Oregon suggests that unregulated project owners could treat decommissioning as a cost of doing business. 147/

Alabama Power points out that if the Commission determines that the public interest mandates relicensing a project after a trust fund has been accumulated to decommission it, then the trust will have increased the operating cost of the project for no useful purpose. 148/

9. Assuming that project facilities removal/decommissioning is the project owner's responsibility, how should the appropriate time to begin recognition of this liability be determined in light of the fact that most projects continue to be economic when the original license expires? Would it be appropriate to impose such a requirement at the time the first new license is issued?

NHA reiterates its view that the useful life of a project cannot be determined in advance, and that licensees cannot be compelled to decommission their projects without their consent.

146/ Susquehanna at 1-3.

147/ Oregon at 4.

148/ Alabama Power at 8-9.

Therefore, it rejects any generic rule on this subject. 149/

APPA points out that decommissioning in the sense of shutting down project operations without removing the dam is relatively inexpensive, and contends that removing a dam is too speculative to warrant collection of funds in advance. APPA would allow licensees flexibility to determine when and how to accumulate funding for decommissioning, noting that project costs are frequently front-loaded in the earlier years of the project. 150/

Interior and Reform advocate inclusion in all licenses of a condition reserving the Commission's right to mandate decommissioning of the project if it ceases to be in the public interest to continue operating it. 151/ Commerce would review the propriety of decommissioning at license expiration. 152/

10. Can the Commission condition new licenses (if so requested) to require a reserve or trust fund that could be used to finance the cost of decommissioning and/or the removal of project facilities when the new license expires? If so, under what circumstances should it do so?

NHA contends that, since in its view the Commission lacks statutory authority to compel decommissioning, it also lacks legal authority to mandate a trust fund for that

149/ NHA at 40-41.

150/ APPA at 17.

151/ Interior at 8-9; Reform at 36-37.

152/ Commerce at 12.

purpose. 153/ APPA finds legal authority for a trust fund only with respect to minor licenses when sections 14 and 15 of the FPA are waived. 154/

Reform finds legal authority for mandating trust funds in section 10(c) of the FPA, and would have the Commission issue regulations requiring the creation of trust funds. Reform would also require licensees to submit decommissioning plans. 155/

Referring to regulations governing the decommissioning of nuclear facilities, Susquehanna believes that a decommissioning trust fund requirement would fall within the scope of the Commission's authority, but does not elaborate on the source of that legal authority. 156/

Oregon notes that its Energy Facility Siting Council has adopted regulations that require site certificate applicants to demonstrate their ability to pay for decommissioning. 157/

Michigan contends that "by requiring the establishment of funding mechanisms, FERC will ensure that a marginally-funded prospective licensee is only issued a license if it has the funds to eventually retire the project." 158/

Public Pool contends that the Commission cannot mandate involuntary decommissioning, but states that in the event of

153/ NHA at 42.

154/ APPA at 18-19.

155/ Reform at 38-39.

156/ Susquehanna at 2-3.

157/ Oregon at 8-9.

158/ Michigan at 12.

voluntary surrender or abandonment the licensee would be responsible for ensuring public health and safety, including removal of facilities if necessary, and that a funding mechanism may be appropriate for this purpose. 159/

Consolidated contends that establishing mandated reserve funds for decommissioning places a disproportionate burden on independent non-utility licensees and industrial owners because investor-owned utilities and municipalities can recover the additional cost of decommissioning from their respective ratepayers and taxpayers. 160/ Washington Water believes that, as an investor-owned utility, it would be required to pay income taxes on the revenues collected for such a fund, and would therefore have to charge its customers more than the direct cost of the fund. 161/

Wisconsin Electric suggests that the revenues allocated to a trust fund for decommissioning might otherwise be used to finance "upgrades, replacement, repair and redevelopment" of a project, suggesting that the requirement for a trust fund would shorten the useful life of the project by reducing its level of maintenance. Wisconsin Electric further suggests that, if the Commission mandates a trust fund, it should reduce its maintenance standards commensurately. 162/

11. There are licensees over which the Commission does not have ratemaking jurisdiction. Should the Commission establish

159/ Public Pool at 8-9.

160/ consolidated at 6.

161/ Washington Water at 10-11.

162/ Wisconsin Electric at 9-10.

accounting or other requirements and undertake to audit these entities to ensure the availability of funds for decommissioning?

NHA contends that, since in NHA's view the Commission lacks authority to mandate decommissioning, it also lacks authority to establish accounting requirements to implement decommissioning. 163/ Several commenters state that under the Act of August 15, 1953, 16 USC 828b, states and municipalities canynot be required to comply with the Commission's records and accounting procedures. 164/ Reform would find legal authority under section 10(c) of the FPA to impose accounting requirements regardless of the status of the licensee, and would have the Commission impose such requirements. 165/ Walton distinguishes between ratemaking regulatory functions, on the one hand, and accounting requirements that implement trust fund or other license requirements that are designed to protect "the public's interest in health, safety, navigability, and environmental quality." 166/

12. Can and should the Commission include, in either a new or an original license, a requirement that the licensee accumulate a fund or reserve that can be used to retire or decommission the project, including removal of project facilities, at the termination of the license? Would the propriety of such a condition depend either (1) on whether there is some particular threshold of evidence in the present record

163/ NHA at 43.

164/ APPA at 20; Chelan at 10, 20-21; Centralia at 6-7. Centralia goes on to contend that the lack of legal authority to prescribe accounting requirements means that the Commission also lacks legal authority to audit municipal

licensees' books.

165/ Reform at 39-40.

166/ Walton at 15.

indicating that project decommissioning may or would be appropriate in the future, or (2) on the agreement of the license applicant to accept such a condition in a new license?

APPA would impose a trust fund requirement only on minor licensees whose licenses require removal of the dam at the expiration of the license. 167/ Reform would impose a trust fund requirement in all licenses, with the cost of the project's decommissioning to be determined in the environmental assessment or environmental impact statement at the time of licensing. 168/

EPA states that decommissioning is a reasonable alternative that should be explored in the environmental analysis associated with the relicensing process. This exploration should include the potential impact of decommissioning on water quality because the release of stored sediments could adversely affect aquatic resources. 169/

Michigan contends that if there is evidence in the record that decommissioning is likely to occur within 50 years it would be "arbitrary and capricious" for the Commission not to require a decommissioning fund. 170/

13. What alternatives would there be to requiring individual licensees to contribute to a project-specific fund? Would it be feasible and appropriate to have a program-wide fund, funded through a collection of charges for that purpose from all licensees?

167/ APPA at 20-21.

168/ Reform at 41-42.

169/ EPA at 2.

170/ Michigan at 12.

APPA contends that there is no legal authority for compelling licensees to contribute to a program-wide fund, and that such a fund would be quite impractical to establish. APPA contends that such a fund would inevitably be inequitable, penalizing either small or large projects, and raising a host of complex accounting questions, some of which APPA poses back to the Commission. 171/

Reform proposes a two-tiered system under which each licensee would be responsible for its own decommissioning costs but would also make modest contributions to a program-wide "insurance fund" to finance decommissioning of projects whose licensees lack the necessary funds. 172/

Kentucky suggests that the Commission consider "the need for a national decommissioning fund, supported by annual fees paid by licensees, to address abandoned projects." It believes that these costs should be borne by "those who build the dam and reap the benefits of it." 173/

EPA suggests that "the Commission consider the approaches to site restoration responsibility in mining operations as possible models for developer funding of dam removal and site restoration." 174/

Interior encourages the Commission to explore the bonding formulae used by the mining and nuclear energy industries to

171/ APPA at 21-23.

172/ Reform at 43.

173/ Kentucky at 1.

174/ EPA at 2.

calculate and administer decommissioning and site restoration funds. Interior recommends that the Commission "consider pooling funds within certain geographical units, perhaps by watershed or geographical regions. A reserve or trust fund supported by a single project or a group of projects in a river basin could receive annual monies based on a percentage of construction or removal costs, profit margins, generating capacity, or other project features." 175/

Commerce suggests consideration of a program-wide fund administered by either the Commission or an independent authority analogous to a public utility commission, but believes project-specific funds would be preferable. 176/

New York suggests that new projects be required to establish a trust fund, but that existing projects contribute to a statewide or regional pool of funds. New York expresses concern that a nationwide pool of funds might lead to inequitable use of the funds by different regions. 177/

Oregon notes that a program-wide fund would finance decommissioning of "orphaned" projects, but believes the problems inherent in administering it would outweigh the benefits in that it would likely be contentious, burdensome, and inequitable. Oregon also suggests that part of a fund could be used "as an endowment" to help finance maintenance. Oregon states that it

175/ Interior at 9.

176/ Commerce at 13-15.

177/ New York at 3.

might "be willing to assume responsibility for some projects that no longer generate power." 178/

Walton proposes a "multi-faceted approach" that includes project-specific funds, regional funds, watershed funds, and multi-project single owner funds, as appropriate. 179/ S'Klallam suggests individual performance bonds backed up by an industry-wide fund. 180/ Seattle suggests a national decommissioning insurance fund financed through fees assessed on all licensees. 181/

14. With respect to both a project-specific fund and a program-wide fund, what mechanisms would be used for collecting and administering the money? Would such a fund be administered by the licensees (jointly or severally), by State government agencies, or by the Commission? Who would determine how much money to collect, and pursuant to what guidelines? Who would determine how and when to allow monies from the fund to be dispersed, and what findings would be needed to make those determinations? What accounting standards would be utilized?

APPA suggests that there are no good answers to these questions, and that a program-wide fund would be inconsistent with sound regulatory policy. 182/

Reform would require each licensee to establish a segregated fund for each of its projects, administered by a corporate trustee appointed by the licensee, and subject to periodic audit by the Commission. The Commission would determine the amount of money to be collected in the fund, based on its environmental

178/ Oregon at 5-6.

179/ Walton at 17.

180/ S'Klallam at 16.

181/ Seattle reply comments.

182/ APPA at 23.

analysis at relicensing of the cost of restoring pre-project conditions at the project site. The money would be accumulated either through prepayment and appreciation or through periodic payments into an external sinking fund. The Commission would oversee the fund's investment strategy through promulgation of regulations. The Commission would determine when to decommission the project, and would require periodic financial accounting. 183/

Vermont contends that "[l]icensees should be required to project the cost of decommissioning and create a decommissioning fund through an annual set aside that would enable decommissioning by the end of the license term." 184/ The estimated cost could be based on either dam retention or dam removal, with due consideration to any flood control purposes served by the dam. Vermont would also include a national fund, to cover license surrenders by project owners who can't afford decommissioning costs. Vermont suggests use of a standard license article to implement whatever policies are adopted.

Commerce suggests that project-specific trust funds could be administered by the licensee under strict guidelines established by the Commission, either in the license or generically, including minimum funding requirements and restrictions on investment interests, with Commission monitoring during the course of the license. 185/

183/ Reform at 43-47; see also Walton at 17-19.

184/ Vermont at 1-2.

185/ Commerce at 14; see also Walton at 17-19.

New York prefers that decommissioning funds "be controlled at the state level. FERC could ultimately determine the amount of money to collect, based on the recommendations of consulting agencies and based on estimates provided as part of decommissioning plans submitted by the licensee". 186/

Michigan believes that the licensees should administer project-specific trust funds, and that the states, "on behalf of the ratepayers, as appropriate, and as guardians of the public trust, as well as their citizens' health, welfare, and safety, should be the beneficiaries." 187/ Washington Department advocates control of the fund by the Commission, to best assure that the money will be available when needed. 188/

New England suggests a case-by-case approach, fine tuning the trust fund mechanism to the peculiar facts and circumstances of each project. 189/ PG&E also emphasizes the project-specific nature of decommissioning procedures and costs, ranging from removal of generating equipment to removal of a dam. 190/

Northern proposes, as an alternative to trust funds, that licensees incorporate estimated dam removal costs into depreciation for each specific project, so that the project owner would "carry a negative value for each project." Northern also

186/ New York at 4.

187/ Michigan at 13.

188/ Washington Department at 2.

189/ New England at 7-9.

190/ PG&E at 7.

suggests use of an internal account similar to an amortization reserve. A further alternative would be allowing the licensee to demonstrate that "the current net worth of all company assets" is large enough to cover any estimated project removal costs. All of these alternatives would be subject to verification through periodic Commission audit. 191/

Peninsula suggests that some licensees might want to cooperate on a funding pool for a trust fund, perhaps with an insurance company, while others may prefer to self-finance through project-specific funds. 192/

15. Would it be appropriate for the Commission to propose new regulations, license articles, or a policy statement that address any of the above matters? If so, what new regulations, license articles, or policy clarification should the Commission consider?

As noted above, licensees and their associations generally favor a case-by-case approach to decommissioning issues as they arise. APPA proposes elimination of certain existing regulations that it believes to be inconsistent with the FPA. 193/ A number of commenters recommend that the Commission establish a decommissioning policy through the adoption of new regulations and standard license articles. 194/ Interior suggests that the articles set forth the Commission's policy on decommissioning

191/ Northern at 4-5.

192/ Peninsula at 13.

193/ APPA at 24.

194/ Reform at 48; Interior at 10; Michigan at 13-14; Washington Department at 3; New York at 4; see also Walton at 19-20.

including requirements for advance planning and for funding mechanisms. 195/

Commerce urges the Commission to promulgate decommissioning standards in a policy statement, with implementing regulations to clarify that the Commission will mandate decommissioning when it finds that it would best serve the public interest. Commerce also suggests adding license articles to establish a decommissioning reserve fund. 196/

Kennebec recommends issuance of a policy statement clarifying the Commission's authority to mandate decommissioning, removal of project works, and "returning the site to its natural state." Kennebec also suggests the possibility of new regulations, or of new license articles, but in such a manner as to avoid restricting the Commission's flexibility to mandate decommissioning even absent such articles in the license. 197/

The U.S. Forest Service supports adoption of regulations on decommissioning, but believes that new legislation may be needed to clarify the Commission's legal authority. In particular, the Forest Service seeks clarification as to its own responsibilities, and that of other federal land management agencies, in the event that a licensee "abandons" a project but can't afford to remove project facilities. The Forest Service suggests that the Commission ascertain, during the licensing

195/ Interior at 10.

196/ Commerce at 15.

197/ Kennebec at 48-49.

process, what it will cost to decommission such projects; require a trust fund for that purpose; and clarify these procedures and requirements in new regulations.

COMMENTERS

Federal Agencies

National Marine Fisheries Service (NMFS)

U.S. Department of the Interior (Interior)

U.S. Department of the Interior, Bureau of Mines, Western Field Operations Center (Mines)

U.S. Environmental Protection Agency (EPA)

U.S. Forest Service

State Agencies

Kentucky Department for Environmental Protection (Kentucky)

Michigan Department of Natural Resources (Michigan)

New York Department of Environmental Conservation (New York)

State of Oregon (Oregon)

State of Vermont (Vermont)

Washington Department of Wildlife (Washington Department)

Wisconsin Department of Natural Resources (Wisconsin Department)

Associations

American Forest and Paper Association (Paper)

American Public Power Association and Certain Public Systems (APPA) 198/

American Whitewater Affiliation (Whitewater)

Appalachian Mountain Club (Appalachian)

Edison Electric Institute (EEI) 143/

Elwha S'Klallam Tribe (S'Klallam)

Friends of the Earth (Earth)

Hydropower Reform Coalition (Reform) 143/

198/ All of the commenters filed initial comments. Commenters identified by this footnote also filed reply comments.

Industrial Licensee Group (Industrial)

Izaak Walton League (Walton)

Kennebec Coalition (Kennebec)

Natural Hydropower Association (NHA) 143/

Northwest Hydroelectric Association (Northwest)

Pacific Rivers Council (Pacific)

Public Generating Pool (Public Pool)

Public Power Council (Public Power)

Trout Unlimited (Trout)

Western Urban Water Coalition (Water)

Municipal Licensees

Brazos River Authority (Brazos)

City of Centralia, Washington (Centralia)

City of New Martinsville, West Virginia (New Martinsville)

City of Saint Cloud, Minnesota (Saint Cloud)

City of Seattle, Washington (Seattle) 143/

Nebraska Public Power District (Nebraska)

Ketchikan Public Utilities (Ketchikan)

Oroville-Wyandotte Irrigation District, Friant Power Authority, and Tri-Dam Project (Oroville-Wyandotte)

Public Utility District No. 1 of Chelan County, Washington (Chelan)

Public Utility District No. 2 of Grant County, Washington (Grant)

Non-Municipal Licensees

Alabama Power Company and Georgia Power Company (Alabama Power) 143/

Allegheny Power System (Allegheny)

Bangor Hydroelectric Company (Bangor)

Central Maine Power Company (Central Maine)

Consolidated Hydro, Inc. (Consolidated)

Duke Power Company (Duke) 143/

Idaho Power Company (Idaho Power)

James River Corporation (James) 143/

Montana Power Company (Montana Power)

Mt. Hope Hydro Inc., United Energy Corporation, and Liberty Power Corporation (Mt. Hope)

New England Power Company (New England)

Northern States Power Company (Northern)

Pacific Gas and Electric Company (PG&E) 143/

Pacificorp

Pennsylvania Electric Company and York Haven Power Company (Penelec)

Public Service Company of Colorado (Colorado Company)

Puget Sound Power & Light Company (Puget)

Simpson Paper (Vermont) Company (Simpson)

Southern California Edison Company (California Edison)

Susquehanna Electric Company (Susquehanna)

Union Electric Company (Union)

Upper Peninsula Power Company (Peninsula)

Washington Water Power Company (Washington Water)

Wisconsin Electric Company (Wisconsin Electric)

Wisconsin Valley Improvement Company, Wisconsin Public Service Corporation, Weyerhaeuser Company, Consolidated Water Power Company, Neekosa Papers Inc., and Wisconsin River Power Company (Wisconsin Companies)

Other Organizations and Individuals

A great number of local organizations and private citizens, including many local and regional environmental groups and many licensees of small hydropower projects, submitted comments in letter form of one to several pages in length.

Project Decommissioning) Docket No. RM93-23-000
at Relicensing)

(Issued December 14, 1994)

BAILEY, Commissioner, dissenting

I respectfully dissent from the views expressed in this policy statement. I will admit that as a regulator, both here and formerly as a State Commissioner, I am sympathetic to the analysis that an agency that has been vested with the authority to implement a particular statute must, of necessity, fill in certain specifics as changing circumstances warrant. In this case, an argument can be made that inherent in the authority to grant a relicense application is the ability to deny that application and to oversee the process of decommissioning the project.

But I pull away from the majority after a review of the record in this proceeding. I cannot concur in the decision that the Federal Power Act authorizes this Commission to require the decommissioning of a hydroelectric project. While someone drafting the Federal Power Act today may very well write it differently, the provisions of the statute as they currently stand, read together with the legislative history, do not support, in my view, the conclusion that the Commission has the authority to order dam removal.

The whole tone of the legislative history is the encouragement of development. And in order to encourage development, the drafters strove to give investors certain assurances that their investments would be secure. Thus, they set out the specific scenario that would occur at the time of license renewal.

That scenario is reflected today in sections 14 and 15 of the Federal Power Act: the Commission may issue a new license, either to the original licensee or a third party, issue a license for the nonpower use of the project, or recommend Federal takeover. The extensive legal analysis supporting this conclusion is articulated in detail in numerous comments filed in response to the Notice of Inquiry, and I will not begin to repeat those arguments here.

In addition, I find the passage of Public Law No. 83-278 in 1953 to be a strong indicator that, even 30 years after passage of the Federal Water Power Act, no one envisioned dam decommissioning as being part of the Commission's authority. By enacting that law, Congress exempted municipal licensees from the possibility of Federal takeover at the end of the license term.

This legislation was intended to facilitate the financing of project expansions through the sale of revenue bonds with amortization schedules extending well beyond the term of the initial license.

Clearly, the legislation anticipated that these municipally-owned projects would continue to operate and provide sufficient revenue to meet debt service obligations. The threat that a municipal licensee might not only lose its license at the end of the term, but also have to fund the project's decommissioning or removal, would obviously be a much larger obstacle to financing than the Federal takeover possibility that Congress eliminated in 1953. Thus, as argued in the comments, the imposition of a decommissioning requirement would directly undermine and be contrary to the specific intent of Public Law No. 83-278.

Although the policy statement indicates that the Commission rarely expects to mandate project decommissioning, the decision to imply such authority has significant consequences. While this Commission may exercise that authority narrowly, parties and intervenors will continue to call for its broad application, including the imposition of trust funds at each project, as well as contributions to regional funds. Indeed, the policy statement concludes that, should later experience with decommissioning demonstrate a stronger need, the Commission can reassess the issue of establishing some type of industry-wide fund.

I question whether the Federal Power Act contemplates such a scheme. In addition, there will be social and economic consequences that flow from such decisions. Decommissioning funds, should they be required, are traditionally included in rates. The likely increase in electric rates for consumers in potentially large regions of the country and the possible negative impact on the financial viability of certain projects are issues not addressed by the policy statement.

In sum, there are major social consequences, in the broadest sense, that derive from the decision to imply authority here, and I am unwilling to assume lightly that authority. Sections 14 and 15 of the Federal Power Act outline the relicensing process to be implemented by the Commission. Many of the issues raised by the decommissioning debate are not solely FERC's to decide and I believe should be addressed in a broader forum.

Vicky A. Bailey
Commissioner

INTERAGENCY GUIDANCE FOR THE PRESCRIPTION OF FISHWAYS PURSUANT TO SECTION 18 OF THE FEDERAL POWER ACT

(May 2002)

Prepared by:

Fish and Wildlife Service (U.S. Department of the Interior)

and

National Marine Fisheries Service (U.S. Department of Commerce)

INTERAGENCY GUIDANCE FOR THE PRESCRIPTION OF FISHWAYS PURSUANT TO SECTION 18 OF THE FEDERAL POWER ACT

(May 2002)

INTERAGENCY GUIDANCE FOR THE PRESCRIPTION OF FISHWAYS PURSUANT TO SECTION 18 OF THE FEDERAL POWER ACT
(May 2002)

A. Purpose

The purpose of this document is to provide guidance to the Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) (Services) for developing fishway prescriptions at Federal Energy Regulatory Commission (FERC)-licensed hydropower projects pursuant to section 18 of the Federal Power Act (FPA).[1] This guidance is intended to increase the consistency and predictability of the Services' prescription process and to help clarify the process for applicants, licensees, FERC and other stakeholders.

B. Scope

The guidance provided in this document applies only to the Services' development of fishway prescriptions. It does not expand the authorities of the Department of the Interior or the Department of Commerce (Departments) beyond those that currently exist, nor does it place additional requirements on anyone outside the Departments beyond those that already exist in the FPA and FERC's regulations or in any other statutes. This document provides guidance to the Services on developing fishways during FERC's traditional, alternative, and post-licensing processes, and is intended to allow appropriate flexibility in individual licensing circumstances. The guidance provided in this document is consistent with the Departments' Mandatory Conditions Review Process (MCRP) policy[2] and the Interagency Task Force to Improve Hydroelectric Licensing Process (ITF) reports.[3]

Section 18 authority is delegated to the FWS within the Department of the Interior[4] and to NMFS within the Department of Commerce. This authority states that FERC shall require the construction, operation, and maintenance by a licensee at its own expense of a fishway prescribed by the Departments. These fishways address project effects and help the Services achieve resource goals and objectives.

C. Importance of Fishways

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[1] 16 U.S.C. 811.

[2] See http://www.nmfs.noaa.gov/habitat/habitatprotection/anadromousfish.htm.

[3] See http://www.nmfs.noaa.gov/habitat/habitatprotection/anadromousfish7.htm or http://www.doi.gov/hydro. In the winter of 1998, FERC, the Departments of the Interior, Commerce, Agriculture, and Energy, the Council on Environmental Quality, and the Environmental Protection Agency formed the ITF to identify administrative improvments to the hydropower licensing process. The ITF completed seven reports and committed to implementing the recommendations outlined in these reports. These reports were developed with input from a Federal advisory committee.

[4] 209 DM 6.7; 242 DM 1.1A.

Hydropower projects can fragment a river system, impede or block fish movement, and kill or injure fish. The viability and mobility of fish species that would otherwise move to and from different habitats within the river system may diminish substantially, if not completely, due to a hydropower project. These species can be important components of marine food webs and can support populations of commercially and recreationally important fish that are of economic significance to the nation.

Fishways help mitigate the impact of hydropower projects by providing safe, timely, and effective fish passage around a project for spawning, rearing, feeding, growth to maturity, dispersion, migration, and seasonal use of habitat. Fishways are not designed to provide habitat protection or improvement. To be successful, fishways must be constructed, operated, and maintained in consideration of the species' biological requirements and in consideration of how their behaviors are influenced by the structural and nonstructural elements of the project.

Fishway prescriptions also help to achieve resource goals and objectives.[5] These goals and objectives may be identified in national, regional, or watershed level planning documents, or may be established by the Services on a site-specific basis. Examples of resource goals and objectives include: (1) the enhancement, protection, or restoration of existing fish populations within a river system; (2) the reunification of fragmented fish populations; or (3) the reintroduction or reestablishment of fish runs. In addition, fishways may be necessary to protect tribal resources for the exercise of American Indian rights.[6]

Effective fishways are in the public interest and are an appropriate project purpose because they are important means to protect the nation's fish resources. Congress recognized the national significance of fish passage by specifically addressing fishways in the 1920 enactment of the FPA, and by making fishways mandatory when prescribed by the Departments. As such, fishways should be integrated with the design and operation of both existing and new projects.

D. Definition of Terms

1. Fishway

For the purposes of this guidance, the Services define fishway as follows:

> ... for the safe and timely upstream and downstream passage of fish shall be limited to physical structures, facilities, and devices necessary to maintain all life stages of such fish, and project operations and measures related to such structures, facilities, or devices which are necessary to ensure the effectiveness of such structures, facilities, or devices for such fish.[7]

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[5] Interagency Task Force to Improve the Hydropower Licensing Process (ITF), December 2000, Reports on Agency Recommendations, Conditions, and Prescriptions under Part I of the Federal Power Act, and Improving the Studies Process in FERC Licensing.

[6] 61 Fed. Reg. 58,211 (1996).

[7] The Services use Congress's direction provided in section 1701(b) of the National Energy Policy Act of 1992 (Pub. L. 102-486) to define fishways.

The Services' definition includes the following key elements: (1) fishways provide passage both upstream and downstream; (2) passage must be safe, timely, and effective; (3) passage applies to all life stages of fish; (4) fishways include physical structures, facilities, or devices; and (5) fishways include project operations and measures that are related to such structures, facilities, or devices necessary to ensure fishway effectiveness.

2. Fish

For the purposes of this guidance, the Services define fish as follows:

> Cold-blooded, aquatic vertebrates, that live in water, have gills instead of lungs for breathing, and could be covered with scales and equipped with fins for swimming.

3. Hydropower Project

For the purposes of this guidance, the Services use the definition of hydropower project provided in the FPA:[8]

> Hydropower project means complete unit of development, consisting of a power house, all water conduits, all dams and appurtenant works and structures (including navigation structures) which are part of said unit, and all storage, diverting, or forebay reservoirs directly connected therewith, the primary line or lines transmitting power therefrom to the point of junction with the distribution system or with the interconnected primary transmission system, all miscellaneous structures used and useful in connection with said unit or any part thereof, and all water-rights, rights-of-way, ditches, dams, reservoirs, lands, or interest in lands the use and occupancy of which are necessary or appropriate in the maintenance and operation of such unit.

E. Administrative Record

The Services are responsible for developing, maintaining, and submitting to FERC a thorough and accurate administrative record for each fishway prescription developed. This record provides the written evidence that supports their decisions and includes all of the information considered, reviewed, and relied upon to develop the prescription, even those documents that may indicate a possible alternative outcome. The information contained in the administrative record should satisfy the Services' "substantial evidence"[9] requirement and should include the underlying data, reports, articles, and plans, as well as all of the Services' findings, analyses, conclusions, and decisions. The importance of assembling the relevant documents on a daily basis cannot be understated, it will be difficult to assemble the information developed throughout the prescription and licensing processes months or years after the processes were

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[8] 16 U.S.C. 796 (11).

[9] 16 U.S.C. 825*l*; Bangor Hydroelectric Company v. FERC, 78 F.3d 659 (D.C. Cir. 1996); Administrative Procedures Act 5 U.S.C. 551 et seq.

initiated.

If it becomes necessary to defend a fishway prescription before a court, the Services' decisions are entitled to deference provided that reasonable procedures were followed and their decision-making process was carefully memorialized in a written record.[10] This deference means that a court should uphold the Services' positions as long as there is substantial evidence for their decisions in the record. The administrative record filed with FERC needs to include the Services' complete administrative record because the courts rely on the record that FERC used in its licensing decision.

The "Guidance to Federal Agencies on Compiling the Administrative Record", prepared by the U.S. Department of Justice (DOJ) in January 1999,[11] contains principles for compiling a record, where to find documents that comprise a record, what documents should be included, how to handle privileged documents and materials, how to organize a record, consequences of an incomplete record, and supplementing a record. The Services should become familiar with the appropriate sections of the DOJ guidance as an aid to preparing an administrative record.

F. Developing Fishway Prescriptions

The Services develop their fishway prescriptions concurrently with FERC's licensing process and, when applicable, during the license term.[12] The guidance in this document is applicable to FERC's traditional, alternative, and post-licensing procedures and may be adjusted to reflect the inherent differences in these processes. FERC's regulations[13] address all aspects of the hydropower project licensing process and it is important to understand those regulations. This guidance does not change or conflict with FERC's regulations or add any additional requirements for the public. The Services should work closely with their legal counsel throughout the licensing and fishway prescription processes to ensure that all applicable regulations, policies, and procedures are addressed and to ensure that the Services' issues are represented consistent with their statutory obligations and legal precedent. Legal counsel will also assist in developing the administrative record and necessary filings throughout the process, and will help to ensure that FERC's procedural requirements and deadlines are satisfied.

The fishway prescription process is a consultative, iterative effort among the Services and

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[10] If a party to a licensing proceeding is dissatisfied with FERC's licensing decision, including a fishway prescription, the party may seek rehearing before FERC. Following rehearing, FERC's decision may be reviewed before a U.S. Court of Appeals. In reviewing FERC's licensing decision, a court will consider only that information contained in the administrative record. A licensing decision that is not supported by substantial evidence may be found arbitrary and capricious and may be overturned.

[11] See http://policy.fws.gov/library/m0063.html.

[12] Use of the term "Services" does not infer that both agencies will always participate in the licensing process or will develop fishway prescriptions. Depending on the species affected by a proposed project, either or both agencies may choose to participate or prescribe fishways.

[13] 18 CFR parts 4 and 385.

stakeholders. The Services work with stakeholders during the consideration, development and implementation of fishways. After fishways are constructed and operational, the licensee and the Services should work together to evaluate, monitor, inspect, and modify (if necessary) the fishways throughout the license term to ensure that the fishways are performing as intended.

The Services develop their fishway prescriptions based on the information available, even if all of the requested information has not been provided. In all cases, the Services base their prescriptions on substantial evidence that can include best available information and professional judgement. The Services may prescribe new fishways or the maintenance and operation of existing fishways for the time FERC maintains jurisdiction over a project. The Services will consider the least expensive fish passage option that satisfies their resource goals and objectives, as long as sufficient information is provided for the Services to adequately evaluate the options.[14]

The Services' fishway prescription process is sequential and can be replicated with consistency from project to project, while providing the flexibility necessary to accommodate FERC's traditional, alternative, and post-licensing processes. The process generally consists of the following steps: (1) evaluate potential for fishways; (2) develop the preliminary fishway prescription; (3) file the preliminary prescription and schedule, and request public comment; (4) receive comments and modify the fishway prescription; and (5) file the modified fishway prescription and the supporting administrative record.

1. Evaluate Potential for Fishways

Early in the licensing process, the Services begin considering whether or not a fishway is appropriate at a given project. This consideration is generally based on a number of issues including the effects of a project on fish, existing habitat constraints, applicability to resource plans, and the feasibility of fishway construction. The Services should base this evaluation on available information regarding the species and the basin, and should include both site specific and non-site specific information where it currently exists. In addition, the Services should conduct a preliminary review of existing fishway technology. The results will help to develop resource goals and objectives, determine need and feasibility, and, if necessary, will support requests for studies and additional information made by the Services to help tailor the fishway to project specific features. Information developed during the process may require the Services to reassess their initial conclusions.

a) Gather Available Information

While each project is unique, certain basic information is beneficial to the fishway prescription process, including the following: (a) the fish species and life stages occurring currently or historically in the vicinity of the project or proposed project; (b) the biological status of the species; (c) the species life history requirements and distribution; (d) the effect of the project on fish and their habitats; (e) the status of habitats upstream and downstream of the project or proposed project; (f) the quality or potential to restore habitats upstream or downstream of the project; (g) the possibility for restoration or improvement of fish runs; and (h) available comprehensive, resource management, or basin-wide plans.

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[14] ITF, December 2000. Report on Agency Recommendations, Conditions, and Prescriptions under Part I of the Federal Power Act.

Some additional factors that the Services may consider include the following:

- Is fish passage necessary for the exercise of reserved rights of affected Indian tribes to restore or otherwise protect fish resources?
- Has the lack of fish passage at the project affected fish distribution, production, natural gene flow, or diversity?
- Will a decision to prescribe fishways conflict with or support state, regional, tribal, or Federal resource management priorities or affect other fish and wildlife resources through the introduction of non-native or exotic species, exposure to environmental contaminants, or other similar factors?
- Are there threatened or endangered species that may be affected and would fish passage help to conserve, recover, or continue the existence of these species?[15]
- Have areas upstream or downstream of the project been designated as essential fish habitat pursuant to the Magnuson-Stevens Fishery Conservation and Management Act?[16]
- Will a decision to prescribe fishways conflict with or support a designated use, existing use, anti-degradation provisions, basin plans, discharges, or water quality criteria in applicable state, Federal, or tribal water quality standards developed pursuant to the Clean Water Act?

This information may be contained in scientific and technical literature, historical accounts, records, and surveys; Federal, state, regional, and tribal management or resource plans; information obtained from environmental scoping, consultation and coordination, project-specific surveys and studies; the license application and the administrative record; as well as information already in the Services' possession.

b) Develop Resource Goals and Objectives

Fishway prescriptions are developed to specifically address the effects of a hydropower project on fish. Fishway prescriptions should also help to further resource goals and objectives where appropriate. Therefore, the Services may adopt project specific resource goals and objectives from existing Federal, state, regional, and tribal watershed, management or resource plans, including those plans identified in FERC's list of comprehensive plans.[17] Project specific goals and objectives can also be extrapolated from existing local, regional, or national goals, or the Services may develop project specific resource goals and objectives based on best available information and professional judgement. The Services should share these goals with participants early in the licensing process.[18] If the Services develop resource goals and objectives, they should be consistent with existing Federal, state, regional, and tribal watershed, management or

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[15] 16 U.S.C. 1531 et seq.

[16] 16 U.S.C. 1801 et seq.

[17] 18 CFR 2.19.

[18] ITF, December 2000. Report on Agency Recommendations, Conditions, and Prescriptions under Part I of the Federal Power Act.

resource plans.

Given the limited time available during FERC's licensing process, the resource goals and objectives initially developed should be based on existing information. If, for example, historical passage has been blocked by the project, the resource would benefit by the attributes of a connective population (e.g., gene flow, additional habitat, etc.), a fishery could be improved by a fishway, or fish passage is consistent with applicable plans and programs, then the Services would base their initial resource goals and objectives on these needs. The Services may refine their goals and objectives based on new or additional information as it is either acquired during the licensing process or developed post-licensing.

c) Determine Need and Feasibility

Early in the process, the Services use available information and professional judgement to consider whether fishways are needed and feasible. Although important information may not be available at that time, information is typically available to identify, for example, whether fish are or were historically present in the project area, the status of the target species, existing habitat constraints, etc.

While the Services are assessing whether a fishway is needed, they should gather available information to determine whether fishway development is technically feasible. This information includes general engineering design and construction options, biological requirements of the target species, and project specific information where it exists. For example, information pertinent to these parameters includes the following: (a) project design and operations; (b) an assessment of the existing fishway facilities (if applicable); (c) adult and juvenile fish behaviors in and around the project (for determining appropriate fishway technology); (d) spatial and temporal distribution of the target species; (e) stream geomorphology, hydrology and hydraulics (particularly in the vicinity of the project); and (f) engineering requirements of the various fishway design options. Not all of this information will be available in all cases. However, general fishway design information is available and can be used to inform the Services' preliminary assessment.

If a fishway prescription is appropriate and construction of a fishway is technically feasible, the Services will work with the applicant or licensee and other stakeholders to develop additional information and study requests for tailoring the fishway prescription to project specific features and effects.

d) Develop Information and Study Requests

If the Services determine that fishways are appropriate for a given project, they should identify information and study requests that would refine the initial consideration of fishway need and feasibility and result in a more thoroughly developed fishway prescription. Studies requested during the fishway prescription process should be developed to tailor the prescription to project specific features and effects. When the Services identify their information and study requests they should work with the applicant or licensee, Indian tribes, affected Federal and state agencies, and other stakeholders to develop methods for securing the information. These efforts are generally initiated during pre-filing consultation but may also occur after a license application is filed and

will occur during post-licensing actions.[19] The Services' resource goals and objectives and preliminary conclusions regarding need and feasibility may be modified based on information developed during the process.

Early in pre-filing consultation, FERC regulations provide opportunity for the Services to request an applicant or licensee to implement studies and to provide information needed for possible fishway development.[20] These requests should be consistent with the criteria provided in FERC's regulations[21] and should focus on project specific information. The more project specific information that the Services have, the more a prescription can be tailored to project effects. The Services should demonstrate a clear nexus between project effects and the resources being studied as well as between information needs and statutory responsibilities.[22]

The criteria for study and information request set out in FERC's regulations generally include:[23] (a) the basis for the Services' request; (b) the resource issues and the Services' resource goals and objectives; (c) a study methodology and an explanation of why this is the preferred method;[24] (d) a statement that the proposed study methodology is generally acceptable; and (e) an explanation of how the studies and information requested will help the Services address project impacts through the development of a fishway prescription, and how the fishway prescription will help to achieve the Services resource goals and objectives.

In accordance with the ITF, the Services' study requests should also: (a) explain their resource goals and objectives; (b) discuss study objectives; (c) suggest study methodology; (d) demonstrate clear nexus between project impacts and resources being studied; (e) suggest data collection and analysis techniques; (f) identify the link between information needs and statutory responsibilities; and (g) indicate if a study is needed to assess project effects for the purpose of developing a fishway prescription.[25] In addition, the Services can provide advice on who should conduct the studies.[26] The Services should consider practicality and cost when developing study requests if applicable information is provided.[27]

Throughout the study process, the Services should work with the applicant or licensee to

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[19] Prefiling: 18 CFR 4.38(b)(4) for new licenses and 18 CFR 16.8(b)(4) for relicenses; Post-filing: 18 CFR 4.32.

[20] 18 CFR 4.38(b)(4) for new licenses and 18 CFR 16.8(b)(4) for relicenses.

[21] 18 CFR 4.38(b)(4) for new licenses and 18 CFR 16.8(b)(4) for relicenses.

[22] ITF, December 2000. Report on Improving the Studies Process in FERC Licensing.

[23] 18 CFR 4.38(b)(4) for new licenses and 18 CFR 16.8(b)(4) for relicenses.

[24] 18 CFR 4.38(b)(1)(vii).

[25] ITF, December 2000. Report on Improving the Studies Process in FERC Licensing.

[26]ITF, December 2000. Report on Improving the Studies Process in FERC Licensing.

[27] ITF, December 2000. Report on Improving the Studies Process in FERC Licensing.

scope, design, and implement studies in the manner requested by the Services.[28] This coordination can include check points throughout study implementation to ensure that information is being developed as requested. If disputes arise regarding study need, design, or implementation, the Services should identify how decisions would be made based on the available information ensuring adequate fish protection.

Whenever possible, the Services should submit study requests to the applicant or licensee during pre-filing consultation. However, after the license application is filed with FERC, the Services are given opportunities to file additional studies and/or information requests with FERC.[29] [30] Circumstances that may be appropriate for the Services to submit post-filing information requests include changes to the project, incomplete pre-filing studies or requested studies not implemented by the applicant, or changed circumstances. Although FERC generally does not grant these requests, it is more likely that FERC will approve the study requests if it is clear that FERC will need the information for their NEPA analysis. If FERC approves post-filing study requests, the Services should work with an applicant or licensee to ensure that these studies are implemented as requested by the Services.

In all cases, the specific study designs and results should be included in the Services' administrative record. In addition, any assessment that the Services may have regarding the studies that were conducted should be included in the administrative record (e.g., the Services assessment of how well the studies were implemented, whether the results were within specified precision levels, whether the conclusions were consistent with the data collected, etc.).

2. Develop Preliminary Fishway Prescription

Based on existing information, information developed during the licensing process or a post licensing action, other available information, best professional judgement, and technical expertise, the Services determine whether a fishway prescription is needed and feasible and whether they will prescribe in light of other circumstances (e.g., would fish passage facilities at a downstream project be necessary to achieve the anticipated benefits of a fishway prescription at

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[28] ITF, December 2000. Report on Improving the Studies Process in FERC Licensing.

[29] The criteria for additional studies or information requests set out in FERC's regulations generally include: (a) describe the recommended study; (b) explain who should conduct and participate in the study; (c) describe the methodology and its scientific acceptance of this methodology; (d) explain the study objectives; (e) discuss how the study and information will be useful in furthering resource goals that are affected by the proposed project; (f) estimate how long the study will take to complete; (g) explain why the study objectives cannot be achieved using the data already available; (h) explain why the request was not made during the pre-filing consultation process; and (i) show good cause why the Services request should be considered by FERC. [Tendering Notice (18 CFR 4.32 for new licenses and 18 CFR 16.9(c) and (d) for relicenses)].

[30] FERC typically requests motions to intervene in its acceptance notice of the application. See section G.

an upstream project). If a fishway prescription is developed, the Services should draft and file a preliminary prescription and reservation of authority with FERC for inclusion in their draft NEPA document.

A preliminary prescription consists of initial terms and conditions, standards, and/or conceptual designs to accomplish safe, timely, and effective fish passage. A preliminary prescription may take the form of general directives, specific standards, designs (i.e., scaled drawings showing plan views, elevation views, water-surface profile, and cross-sectional views), criteria or plans. The Services should include the basis for the prescription, reference relevant supporting documents already filed with FERC, and include additional information used by the Services.

For a variety of reasons, fishway technologies are more effective for some species than others. For some species there may be no means to provide passage. In addition, sometimes fishways are not needed at the time of license issuance, but may be needed in the future, such as when passage at a downstream dam has been implemented. If the Services determine that fish passage is not feasible or not needed at the time, the Services should reserve their section 18 authority, when appropriate, with FERC.[31]

a) Guidance for Formulating Preliminary Fishway Prescription

The Services formulate their preliminary prescriptions to include terms and conditions for the construction, operation, maintenance, and long term monitoring of fishways, and to include a reservation of authority. A preliminary prescription is formulated in support of the Services' resource goals and objectives, is linked to project impacts, and is based on best available information and professional judgement. Relevant information used as a basis to formulate a fishway prescription can include the following: information and study results compiled throughout the process; fish management, restoration or natural resource plans; historical records; scientific and technical literature; scientific expertise; and any other related information available to the Services. A fishway prescription will address project effects. The more project specific information the Services have, the more the prescriptions can be tailored to address project effects. To ensure timely filing, the Services need to start formulating their preliminary prescriptions as soon as information is gathered.

If the Services remain uncertain regarding the fishway design, their fishway prescriptions will resolve uncertainty in favor of assuring adequate fish protection. In addition, in certain circumstances when uncertainty prevents appropriate environmental measures from being identified for the term of a license, adaptive management may be appropriate. However, adaptive management is not a substitute for completing studies during the prefiling stage, nor for developing a comprehensive fishway prescription. A prescription that includes adaptive management should, at a minimum, include:[32] (1) measurable objectives; (2) initial fish passage measures supported by biological information; (3) an effective monitoring program or studies designed to evaluate whether objectives are being met; (4) procedures for revising initial fish passage measures, when appropriate, as new or additional information becomes available; and

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[31] See section H.

[32] ITF, December 2000. Report on Improving the Studies Process in FERC Relicensing.

(5) provisions for licensees and the Services to consult on developing, implementing, and adjusting the plan. Additionally, it is important to develop all adaptive management conditions in a format that is enforceable by FERC. This means that a licensee must have sole responsibility for implementing the actions.

The Services should work with an applicant or licensee, other Federal agencies, states, Indian tribes, and other stakeholders to develop their preliminary prescription. This should be an iterative process, with the Services addressing concerns raised by an applicant or licensee and other stakeholders to the extent practical, while ensuring adequate fish passage and timely filing. The Services should consider existing fishway designs, where appropriate, and will consider passage options proposed by an applicant or licensee so long as sufficient information is provided and fish passage requirements can be met to the satisfaction of the Services. In addition, when sufficient information is provided, the Services will consider a less expensive option that meets their resource goals and objective.[33]

It is not the goal of the Services to engineer the final design of a fishway. Accordingly, the Services may leave the final engineering details to an applicant or licensee and approve their proposed design once the Services have determined that it adequately addresses their fish passage requirements. The Services may consider experimental technology once it has been tested and proven to be as effective as conventional means for meeting the Services' resource goals and objectives. The Services may also consider experimental technology if no other options are available.

While each agency has its own responsibilities and authorities, they should develop the same or consistent prescriptions. The Services will coordinate among themselves, including staff that work on Endangered Species Act (ESA) and essential fish habitat (EFH) issues, to resolve inconsistencies and reconcile any conflicts between their prescriptions and any other recommendations they may have for the protection, mitigation for damages to, and enhancement of fish and wildlife resources.[34]

b) Items that May be Included in a Fishway Prescription

Fishways include the physical structures, facilities, devices, and related project operations and measures that are necessary for fish passage. The particular fishway prescribed for a specific site is based on the most effective combination of these elements that best accomplishes safe, timely and effective fish passage. As a result, the fishway prescription for a given project is unique even though it may share elements in common with other projects. Although not inclusive, the items described below provide examples of fishways. There may be other means to provide fish passage including new technologies and unique project-specific requirements not considered in this guidance. The Services may consider experimental technology once it has been tested and proven to be as effective as conventional means for meeting the Services' resource goals and objectives. The Services may also consider experimental technology if no other

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[33] ITF, December 2000. Report on Agency Recommendations, Conditions, and Prescriptions under Part I of the Federal Power Act.

[34] ITF, December 2000. Report on Agency Recommendations, Conditions, and Prescriptions under Part I of the Federal Power Act.

options are available. Potential experimental technologies should be thoroughly developed during the study periods. The examples listed below would only be included in the Services' prescription if they were key elements of the fishway, as defined in this guidance and by Congress.

The Services' fishway prescriptions may include, but are not limited to: fish ladders (e.g. pool-and-weir, vertical slot, ice harbor, Denil, and Alaska steeppass types); fish-lifts, locks or elevators; lock operations; and/or other conveyance structures used for attracting, passing, conveying, guiding, repelling, or excluding fish (e.g. rock slopes, bypasses, screens, traps, barriers, gates, tunnels, flumes, pipes, spillways, galleries, channel alterations, notches, and breaches); water flows or spill and schedules for operating conveyance structures; pumps to recover flows for reuse or generation; and plunge pools, modified stream channels, or other structures or devices designed to safely return fish to the river.

The Services may prescribe various hydraulic, mechanical, electrical or electronic components necessary to ensure the effectiveness of fishways. These may include, but are not limited to: pumps, valves, and automated control systems; gates, hoists, and pulley mechanisms of a fish-lift; mechanisms required to adjust the entrance and exit gates of fish ladders or downstream passage facilities to ensure that sufficient hydraulic conditions are provided; screen-cleaning devices; and tank trucks, barges, other vehicles for transporting fish, or construction and maintenance of roads specific to fishways.

The Services may prescribe facilities that include structures, devices, and measures necessary to isolate, capture, and transport fish to a desired location, or count or convey fish. Trap and haul facilities, for example, may be prescribed and may include: a trap; holding area; sling, chute, or sluice for handling captured fish; and a tank truck, barge, or other vehicle for transporting fish to the new location or construction and maintenance of roads needed to haul fish. In addition, fish counting facilities may be prescribed and may include all the structures and devices necessary to count fish, including a viewing station, tally or counting devices, and video cameras to record fish that pass. Downstream migrant facilities may be prescribed and may include all of the structures and devices necessary to convey fish around a powerhouse.

To help ensure their effectiveness, fishways may also include, but are not limited to: performance standards; schedules and operations to coincide with fish passage needs; the number of lifts per unit time at a fish elevator; time tables or schedules for daily and seasonal operation and maintenance of fishways; the timing and opening of gates to manage and shape spills to attract and guide fish to a downstream migrant facility or an entrance to a fishway; the timing of turbine sequencing (first on, last off) to avoid masking attraction flows for fish moving upstream. The Services may also prescribe the location of facilities, structures, and devices; level or range of gas saturation; water temperature; or types of construction materials.

The Services may also prescribe a volume of water necessary for the conveyance of fish through a fishway or attraction of fish to a fishway; the hydraulic and biomass capacity of a pool in a fish ladder or the hopper in a fish-lift; the correct water surface elevation profile in a fish ladder; the proper approach velocity in front of a screen; the size or cross-sectional area of a screen; standards for fish passage, operation, maintenance, and inspections; proper intensity of lighting to attract fish to the entrance of a fish-ladder or fish-lift, or to facilitate fish passage through covered channels or downstream migrant facilities; biological and hydraulic evaluations to ensure design standards and biological requirements are met; and site evaluations to compare alternative locations for a fish-ladder entrance or a downstream migrant facility. Fishway

prescriptions may also include site access for purposes of inspection, monitoring, and evaluation necessary to ensure that fishways are operating as intended.

The Services may also prescribe studies for collecting additional information if necessary to more thoroughly develop the fishway, post-construction evaluations to ensure that fishways are operating as expected, and long-term monitoring to ensure that, once achieved, resource goals and objectives continue to be met throughout the license term. Studies should be specific to developing the fishway itself, including those parameters discussed previously.[35] Post-construction evaluations may include, but are not be limited to, evaluating the number or percentage of fish using a fishway, evaluating the injury and survival of fish using the fishway, evaluating survival through the project (including the effects of predation), and determining the effect of project operations on fish passage. Long-term monitoring should include periodic assessment of specific key factors including fishway effectiveness; the direct, indirect and delayed effects of project operations on fish survival; verification that other passage features of the project continue to perform as needed; and a specific schedule for long-term monitoring requirements. The Services would subsequently prescribe any modifications to the existing fishway that are necessary to ensure that their resource goals and objectives are, or can be achieved.

3. File Preliminary Prescription and Schedule, and Request Public Comment

The Services file their preliminary prescriptions with FERC[36] in response to FERC's notice declaring that the application is Ready for Environmental Analysis (REA notice).[37] The Services should check FERC's scoping documents for a tentative schedule of when the REA notice will be issued[38] given that FERC's 60-day response period is a short time for the Services to formulate and coordinate their prescriptions. The Services should inform an applicant or licensee and FERC that in order to provide preliminary prescriptions that are as well developed as possible, the Services need to receive all information requested in a timely fashion.[39] The timing for filing preliminary prescriptions in a post licensing proceeding will depend on the circumstances of the proceeding.

The Services' submission includes the following:[40] (1) a preliminary fishway prescription; (2) a rationale for the prescription; (3) reference to supporting documents already filed with

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[35] See section F2.

[36] All filings should be sent to the Office of the Secretary, FERC, 888 First Street, NE, Washington, DC, 20426.

[37] 18 CFR 4.34(b) and the Policy for Review of Mandatory Conditions Developed by the Departments of the Interior and Commerce in the Context of Hydropower Licensing (MCRP Policy), January 2001.

[38] ITF, December 2000. Report on FERC Noticing Procedures in Hydroelectric Licensing.

[39] MCRP Policy, January 2001.

[40] MCRP Policy, January 2001.

FERC; (4) a schedule for submitting the modified prescription;[41] and (5) a request for comments. The schedule will indicate that the Services expect to submit their modified prescriptions within 60 days after the close of FERC's draft NEPA comment period. The schedule will also state that if the Services receive substantial or new information during the NEPA comment period, more time may be required to file their modified prescriptions.[42] The request for comments on the Services' preliminary prescriptions will invite comments and supporting information within 60 days from the end of the REA notice comment period. The fishway prescription should also include a reservation of authority to address changing conditions or new information. Submission of preliminary prescriptions will be signed by the FWS Regional Director or NMFS Regional Administrator or their designee.[43] The Services file an original and eight copies of their submission with FERC. In addition, copies of this submission will be provided to the applicant or licensee and to the project service list.

If the Services decide that a fishway prescription will not be filed at that time, then they should reserve their section 18 authority, when appropriate, with FERC.[44] The Services provide the reservation of authority in response to FERC's REA notice. The reservation of authority should include the Services' rationale for this action.[45]

4. Receive Comments and Modify Fishway Prescription

The Services may receive comments and relevant supporting evidence through their 60-day comment period following submission of their preliminary prescriptions or reservation of authority, and may also receive subsequent comments during FERC's draft NEPA comment period. Comments on fishway prescriptions may also be included in comments provided to FERC on its draft NEPA document.[46] The Services should review all comments as they are received to ensure adequate time for consideration, and will respond to the comments when filing their modified prescription with FERC.[47]

The Services should review FERC's draft NEPA document and all comments received on the NEPA document that address their preliminary prescriptions. Based on this review, the Services should modify their prescriptions, as needed, and respond to comments.[48] Even if the actual language of the prescription does not change, the process of public comment provides

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[41] See also 18 CFR 4.34(b)(1)(i).

[42] MCRP Policy, January 2001.

[43] 209 DM 6.7 and 242 DM 1.1A for FWS.

[44] See section H.

[45] MCRP Policy, January 2001.

[46] MCRP Policy, January 2001.

[47] MCRP Policy, January 2001.

[48] MCRP Policy, January 2001.

relevant support for the Services' modified prescription and the administrative record.[49] The Services will consider less expensive options where sufficient information is provided by an applicant or licensee, and the option meets the Services' resource goals and objectives.[50] The Services should coordinate on their modified prescriptions and response to comments to resolve inconsistencies.[51] The Services should also coordinate among themselves, including with staff that work on ESA and EFH issues, and others to ensure that there are no inconsistencies between their modified prescriptions, and other conditions and recommendations.[52] The Services exercise best professional judgment in developing their modified fishway prescriptions based on best available information. The Services' prescription document may vary in format and scope, but will include the basis of their decision to prescribe fishways and a response to comments.[53] All of this information should be included in the Services' administrative record.

5. File Modified Fishway Prescription and Supporting Administrative Record

Within 60 days after the close of the draft NEPA comment period, the Services will submit to FERC an original and eight copies of their modified prescriptions, response to comments, an index of the administrative record, and a schedule for filing the administrative record.[54] These materials will also be provided to an applicant or licensee, the project service list, and all entities that commented on the prescription.[55] Submission of modified prescriptions will be signed by the FWS Regional Director or NMFS Regional Administrator or their designee.[56] The Services anticipate that they will file their modified prescriptions in advance of FERC's issuance of its final NEPA document.[57]

The Services adhere to the 60 day schedule unless substantial or new information provided during the NEPA comment period requires additional review time.[58] In those

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[49] MCRP Policy, January 2001.

[50] ITF, December 2000. Report on Agency Recommendations, Conditions, and Prescriptions under Part I of the Federal Power Act.

[51] MCRP Policy, January 2001.

[52] ITF, December 2000. Report on Agency Recommendations, Conditions, and Prescriptions under Part I of the Federal Power Act.

[53] MCRP Policy, January 2001.

[54] MCRP Policy, January 2001.

[55] MCRP Policy, January 2001.

[56] 209 DM 6.7; 242 DM 1.1A for FWS.

[57] MCRP Policy, January 2001.

[58] MCRP Policy, January 2001.

infrequent situations when additional time is needed, the Services will submit to FERC, the project service list, and all entities that commented on the prescription, a letter providing explanation of the need for additional time and a schedule for submitting their modified prescriptions.[59]

The Services' schedule for filing their administrative record will be based on the time needed to copy and mail the record.[60] The records should be filed as soon as possible after the modified prescriptions are submitted to FERC. If the Services' administrative record includes information already filed with FERC, there is no need for the Service to refile that information. The Services will file an original and three copies of their administrative record with FERC, and provide one copy to the applicant.[61] The Services should also provide copies of their administrative record, in whole or in part, to any requestor.

G. Motions to Intervene

FERC typically requests motions to intervene in its acceptance notice of the application. Interventions should be filed in accordance with FERC's regulations and applicable Departmental procedures.[62] The Services should file a motion to intervene in all proceedings in which they plan to file a preliminary fishway prescription and/or a reservation of authority. This is necessary to preserve their ability to fully participate in the proceeding and their right to appeal the licensing decision.

H. Reservation of Authority to Prescribe Fishways

A reservation of authority allows the Services to request that FERC reopen a license based on new information, technological innovations, or changed circumstances (e.g., if a new species is listed, or passage has recently been constructed at a downstream dam) that may warrant prescription of a new fishway or modifications to an existing fishway. A reservation also provides notice to a licensee that additional fishway prescriptions may be needed during the 30 to 50 year license term.

It is within the Services' discretion to prescribe a reservation of authority.[63] This may occur at the time of licensing, if the Services determine that fish passage is not needed or feasible then they should reserve their authority. Additionally, when the Services issue fishway prescriptions they should also reserve their authority to accommodate future fish passage needs for project design modifications, changes in resource goals and objectives, and other circumstances that cannot be discerned or predicted at the time of licensing. When considering acting on a reservation of authority, the Services should meet with a licensee and other interested parties to discuss their anticipated action.

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[59] MCRP Policy, January 2001.

[60] See Section E and MCRP Policy, January 2001.

[61] MCRP Policy, January 2001.

[62] 18 CFR 385.214.

[63] Wisconsin Public Service v. FERC, 32 F.3d 1165 (7th Cir. 1994).

I. Post-Licensing Modification of Fishway Prescriptions

Post-licensing modifications of a fishway prescription are a necessary mechanism to ensure effective fish passage after a license is issued. A fishway prescription may be modified by the Services after license issuance to address a number of factors, such as conditions of settlement or licensing; a change in local or regional conditions, technology, management emphasis, or ecological status; availability of new information; the listing of a new species under the ESA; amendments to project design or operation; a need for new or improved fishways at the project; or a change in law. Once the fishway is operating effectively, future modifications will be based on an established need that is supported by substantial evidence, as determined by the Services. Once initiated, the Services will follow the prescription process described in section F.

Post-licensing modifications of a fishway prescription may occur in a number of ways. A fishway prescription may be modified after a license is issued based on comments and new information received during a request for rehearing. During the term of a license additional information, monitoring and evaluation, or increased technical expertise may also provide the basis for post-licensing modification of a fishway prescription. Environmental changes may require modification of a prescription to maintain or restore the ability of a fishway to pass fish in a safe, timely, and effective manner. Additionally, the development and implementation of comprehensive natural resource plans, including applicable state, regional, tribal, or Federal fish or fishery management plans, may also warrant fishway prescription modifications to meet new or revised management goals. For these and other similar circumstances, the Services should meet with a licensee and other interested parties to identify the need for and specific type of modification required.

J. Alternative Licensing Process

FERC developed the alternative licensing process (ALP) to facilitate greater pre-filing participation among stakeholders (e.g. applicant or licensee, state and Federal agencies, Indian tribes, landowners, and non-governmental organizations) with the intent of achieving settlement on all or some of the issues at a particular project and to conduct an environmental analysis. The ALP is also intended to facilitate concurrent development and review of an applicant's pre-filing consultation (including studies) with the necessary environmental review pursuant to NEPA, a state's Clean Water Act water quality certification, and the ESA or other Federal statutes, if needed.

As in any FERC proceeding, the Services must ensure that their fishway prescriptions are based on substantial evidence. Accordingly, the Services should explain to the stakeholders that the Services still need certain basic information to provide an adequate basis for their decisions, regardless of the extent to which the parties agree with these decisions. When participating in an ALP, the Services will following the general prescription process and information needs outlined in section F of this document, but recognize that the filing requirements will be different.

In some cases, an offer of settlement that includes the Services' fish passage measures is filed with the final license application. In these situations, when FERC issues their notice requesting comments, interventions, and protests, the Services will separately file the fish

passage measures included in the settlement agreement as their fishway prescription.[64] The Services may then receive comments on their prescriptions.[65] If the Services receive comments and substantive and new issues not previously identified are raised, the Services' prescriptions and/or settlement agreement may need to be modified. In those instances, the Services will discuss the comments and their appropriate resolution with participants. If the Services determine, after discussion with the participants, that the comments warrant a change in their prescriptions, the Services will modify their prescriptions accordingly within the parameters of the settlement agreement to the extent practical.[66]

The Services should request that FERC include their fishway prescriptions as numbered articles in a licensing order and should include a reservation of authority in their fishway prescription to address new information or changed conditions.[67] If the Services are not a party to the offer of settlement, then the fishway prescription process described in section F of this document applies (recognizing that pre-filing consultation and NEPA scoping were completed during pre-filing).

K. Non-Power Licenses, Decommissioning, and License Exemptions

In specific cases, the Services may request fish passage under non-power licenses or during project decommissioning, provided FERC maintains jurisdiction over the project. The intent of these fish passage measures is to ensure that fish can successfully pass the impoundments for as long as the impoundments remain in place. If the project will be removed or modified to allow volitional passage, requested measures should be limited to providing interim passage commensurate with the time required to complete these efforts.

There are two types of small hydroelectric project license exemptions: (1) small conduit hydroelectric facilities[68] and (2) small hydroelectric projects of 5 megawatts or less.[69] The process for obtaining an exemption is the same as those required for a license, with a few exceptions, including that all fish and wildlife recommendations are mandatory.[70] When the Services develop fish passage measures for a license exemption, they will follow the general process outlined in section F of this guidance.

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[64] Although FERC may request that the Services file draft prescriptions pre-filing, the Services should not file a fishway prescription until the final application has been filed and the formal proceeding has been initiated.

[65] MCRP Policy. January 2001.

[66] MCRP Policy, January 2001.

[67] See section H.

[68] 18 CFR 4.31(b)(2).

[69] 18 CFR 4.31(c)(2).

[70] 18 CFR 4.34.

L. Relationship to the Endangered Species Act (ESA)

The fishway prescription guidance discussed in this document is intended to assist the Services in exercising their authorities under section 18 of the FPA. The requirements for conserving threatened and endangered species are separately set forth in the ESA and implementing regulations.[71]

The Services should coordinate fish passage efforts with endangered species staff as early as possible to ensure that the conservation needs of both listed and unlisted species are considered in the prescription. The fishway prescription should be integrated with the ESA section 7(a)(2) consultation process that FERC is responsible for initiating with the Services.[72] In licensing efforts, the consultation process should be completed before the license is issued. Although ESA consultation and fishway prescription development are separate processes, they should be completed concurrently and be consistent. In cases of settlements, the Services should consider ESA issues throughout the negotiations.

M. National Environmental Policy Act (NEPA) Compliance

The Services provide preliminary prescriptions to FERC for inclusion in their NEPA analysis of the proposed project. This allows the prescriptions to be analyzed in the context of the entire project. After FERC completes the draft NEPA document, the Services submit modified fishway prescriptions, if necessary, based on the NEPA analysis and other factors, and provide them to FERC for inclusion in the final NEPA document and in the license.

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[71] 16 U.S.C. 1531 et seq.; 50 CFR part 402.

[72] ITF. December 2000. Improving Coordination of ESA section 7 Consultation with the FERC Licensing Process.

Steve Williams

Steven A. Williams, Director, Fish and Wildlife Service
Department of the Interior

5/6/02
Date

William T. Hogarth, Assistant Administrator for Fisheries
National Marine Fisheries Service, NOAA

Date

United States Department of the Interior

OFFICE OF THE SOLICITOR
WASHINGTON, D.C. 20240

In Reply Refer To:
FWS.CW.0490

NOV 18 1987

To: Frank Dunkle
Director
Fish and Wildlife Service

From: Charles P. Raynor
Assistant Solicitor
Fish and Wildlife

Subject: "Enhancement" under the Electric Consumers' Protection Act of 1986

You have requested our opinion concerning the nature and extent of the term "enhancement" in relation to the Service's recommendations given during the Federal Energy Regulatory Commission's (FERC) licensing and relicensing process. Congress provided for such recommendations in the Electric Consumers' Protection Act of 1986 (ECPA), Pub. L. No. 99-495, 1986 U.S. Code Cong. & Ad. News (100 Stat. 1243) (to be codified at 16 U.S.C. §§ 791 et seq.) You indicated your interest in knowing our views whether Congress intended there to be a distinction between the terms "mitigation" and "enhancement"and how broadly "enhancement" could be interpreted.

As requested, this opinion is intended to guide the Service's efforts to develop recommendations for a new Departmental policy regarding hydropower licensing. It does not represent Solicitor's Office endorsement or approval of such a Departmental policy nor is it intended to be used in negotiation with FERC. At this stage, it is for the Service's guidance only.

The starting point for interpreting a statute is the language of the statute itself. CPSC v. GTE Sylvania, Inc., 447 U.S. 102, 108 (1980). Although neither enhancement nor mitigation are defined in ECPA or the Federal Power Act (FPA), 16 U.S.C. §§ 791(a) et seq., which was amended by ECPA, it is clear that Congress did not intend these terms to be synonymous.

Congress repeatedly used both terms throughout ECPA with no indication that the words are to be interchanged. For example, section 3 of ECPA provides that FERC shall give equal consideration to several factors during the licensing process, including "energy conservation, the protection, mitigation of damage to, and enhancement of, fish and wildlife ... . ECPA § 3(a), 100 Stat. 1243. (Emphasis added.) Section 3(b) of ECPA specifically amends section 10(a) of the FPA to include the terms

"adequate protection, mitigation, and enhancement of fish and wildlife ... . ECPA § 3(b), 100 Stat. 1244. ECPA further states that appropriate resource agencies, including the Fish and Wildlife Service, may recommend conditions to FERC in order to "adequately and equitably protect, mitigate damages to, and enhance, fish and wildlife ... . ECPA § 3(c), 100 Stat. 1244. (Emphasis added.) Since Congress specifically mentioned both terms, it would seem illogical to assume their meanings were intended to be synonymous and therefore redundant. This conclusion is supported by the discussion of the Conference Report on the House Floor. 132 Cong. Rec. H8956 (daily ed., Oct. 2, 1986) (statement of Cong. Dingell).

Although Congress did not specifically define these terms, some guidance is given in the legislative history. During the consideration of the Conference Report, Congressman Dingell specifically addressed the issue of the definitions of these critical terms. Quoting from an earlier related report, he said:

> It has been suggested that the terms "protect, mitigate, and enhance" should be defined. The committee did not chose to do so in recognition of the fact that these terms are not new to those concerned with this resource, [fish and wildlife] and because such a definition might later prove more limiting than anticipated.

132 Cong. Record, H8956 (daily ed. Oct. 2, 1986). Hence, these terms are not to be narrowly construed or unduly limited.

Unless otherwise defined, words of statutes will be interpreted as taking their ordinary, contemporary common meaning. Perrin v. U.S., 444 U.S. 37, 42 (1979). The meaning of a word may also be defined by the use of other words associated with it in the statute. Winter v. Hollingsworth Properties, 587 F. Supp. 1289, 1294 (1984)(rev'd on other grounds). In addition, the definition of certain terms, such as these, may also be indicated if such words are "terms of art" where the statute deals with a particular discipline. U.S. v. Cuomo, 525 F.2d. 1285, 1291 (5th. Cir. 1976). Here, terms such as "mitigation" and "enhancement" are indeed "terms of art" to the particular agencies affected by the legislation, i.e., Fish and Wildlife Service. Such words may, accordingly, be defined by their common or ordinary usage in this context.

In light of the words within ECPA itself, it would seem reasonable that Congress has intended to instruct FERC to equally consider the importance of fish and wildlife during the licensing and relicensing procedure. The use of the three terms, "protect", "mitigate" and "enhance" suggest at least a three pronged approach. Protection could be defined as the first prong, considering the protection of existing fish and wildlife

resources at the proposed or existing hydroelectric project. Mitigation could be the measures which should be taken to make up for the environmental damage resulting from the licensing or relicensing of the project. The third prong, enhancement, could be defined in terms of some level of actual improvement of fish and wildlife resources. It is also reasonable to assume that pre-project conditions can be considered when the Service is determining its recommendations. There is no indication that Congress intended that "enhancement" be limited to existing conditions surrounding a particular hydroelectric project at the time of relicensing.

> In exercising its responsibilities in relicensing, the conferees expect FERC to take into account existing structures and facilities in providing for these nonpower and nondevelopmental values. No one expects FERC to require an applicant to tear down an existing project. But neither does anyone expect "business as usual." Projects licensed years earlier must undergo the scrutiny of today's values as provided in this law and other environmental laws applicable to such projects, if nonpower values cannot be adequately protected, FERC should exercise its authority to restrict or, particularly in the case of original licenses, even deny a license on a waterway. The goal of amended section 4 is to assure a true multiple use of water resources.

H. Conf. Rept. 99-934, 99th Cong. 2d Sess. 22 (1986)

Although the Service is authorized to make recommendations concerning the protection, mitigation and enhancement of fish and wildlife resources, it is FERC that decides which conditions to require of the applicant concerning these resources. However, should FERC not adopt the recommended conditions, it must publish its reasons for not adopting the conditions. See 16 U.S.C § 803, as amended by ECPA.

Finally, we concur with the suggestion that the Service consider the formulation of an interpretative rulemaking or Service policy to assure that its recommendations to FERC are based upon uniform criteria. Should you have any questions, do not hesitate to contact me or Randall Luthi of my staff at 343-7957.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
WASHINGTON, D.C. 20240

ADDRESS ONLY THE DIRECTOR,
FISH AND WILDLIFE SERVICE

In Reply Refer To:
FWS/ES

OCT 29 1987

Memorandum

To: Acting Associate Solicitor, Conservation and Wildlife

From: Acting Director

Subject: Request for Opinion Regarding Enhancement of Fish and Wildlife Pursuant to the Electric Consumers Protection Act (Act)

The Act requires that the Federal Energy Regulatory Commission, in deciding whether to issue any license, shall "...give equal consideration to the purposes of energy conservation, the protection, mitigation of damage to, and enhancement of fish and wildlife..." in addition to power and development purposes. Conditions for such protection, mitigation and enhancement are to be based on recommendations received from the Fish and Wildlife Service, the National Marine Fisheries Service, and the State fish and wildlife agencies pursuant to the Fish and Wildlife Coordination Act.

It appears that Congress intended that a distinction be made between the terms "mitigation" and "enhancement;" however, these terms are not defined. A better understanding of Congressional intent in this matter is important to efforts to develop recommendations for a new Departmental policy regarding hydropower licensing.

This memorandum requests your opinion as to the nature and extent of enhancement of fish and wildlife anticipated under the Act.

Please provide this opinion to me by November 10, 1987.

United States Department of the Interior

OFFICE OF THE SOLICITOR
Washington, D.C. 20240

M-37005
Memorandum

JAN 19 2001

To: Secretary
Director, Bureau of Land Management

From: Solicitor

Subject: Whether Public Lands Withdrawn by Executive Orders 6910 and 6964 or Established as Grazing Districts are "Reservations" within the Meaning of Section 4(e) of the Federal Power Act

I. Introduction

Section 4(e) of the Federal Power Act (FPA[1]) gives the Secretary of the Interior (Secretary) authority to impose conditions on licenses issued by the Federal Energy Regulatory Commission (FERC[2]) for hydropower projects located on "reservations" under the Secretary's supervision. See 16 U.S.C. §§ 796(2), 797(e); see also Escondido Mut. Water v. La Jolla Band of Mission Indians, 466 U.S. 765 (1984). Specifically, section 4(e) provides:

> That licenses shall be issued within any reservation only after a finding by the Commission that the license will not interfere or be inconsistent with the purpose for which such reservation was created or acquired, and shall be subject to and contain such conditions as the Secretary of the department under whose supervision such reservation falls shall deem necessary for the adequate protection and utilization of such reservations.

16 U.S.C. § 797(e).

This conditioning authority was reserved to the Departments of the Interior, Agriculture and War at the time the FPA was enacted to allow, in the words of the U.S. Supreme Court, "the individual Secretaries to continue to play the major role in determining what conditions would be

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[1]Title I of the FPA was originally enacted as the Federal Water Power Act of 1920, ch. 285, 41 Stat. 1063. A 1935 amendment changed the name to the Federal Power Act. See Act of Aug. 26, 1935, ch. 687, § 213, 49 Stat. 838, 863 (codified at 16 U.S.C. § 79la). This Opinion generally refers to the 1920 Act and its amendments as the Federal Power Act or the FPA.

[2]In 1977, the Federal Energy Regulatory Commission replaced the Federal Power Commission (FPC), which had been established by the Federal Power Act. See 42 U.S.C. § 7172(a).

included in the license in order to protect the resources under their respective jurisdictions." Escondido, 466 U.S. at 775.[3]

From its enactment in 1920, the FPA's definition of "reservations" has remained essentially unchanged[4]:

> "reservations" means national forests, tribal lands embraced within Indian reservations, military reservations, and other lands and interests in lands owned by the United States, and withdrawn, reserved, or withheld from private appropriation and disposal under the public land laws; also lands and interests in lands acquired and held for any public purposes; but shall not include national monuments or national parks.

16 U.S.C. § 796(2).

The FPA also contains a definition of "public lands," which also has remained essentially unchanged since 1920: "'public lands' means such lands and interest in lands owned by the United States as are subject to private appropriation and disposal under public land laws. It shall not include 'reservations', as hereinafter defined." 16 U.S.C. § 796(l). The FPA's drafters appeared to assume that these terms ("reservations" and "public lands") would together describe all of the lands owned by the United States subject to the Commission's licensing authority.

This Office has previously determined that the Secretary has the authority under section 4(e) of the FPA to issue conditions for hydropower projects located on several categories of Bureau of Land Management (BLM) lands, including the Oregon and California and Coos Bay Wagon Road lands (O&C Act lands), Wilderness Study Areas, and Public Water Reserve (PWR) No. 107 lands. See Memorandum from Associate Solicitor, Energy and Resources, to Director, BLM, on "'Reservations' and the Public Lands under the Federal Power Act" (Aug. 16, 1985) [hereinafter "1985 Opinion"]. The BLM has also considered numerous other categories of lands as "reservations" for purposes of the FPA, including National Petroleum Reserve lands, California Desert Conservation Area lands, Areas of Critical Environmental Concern, Outstanding Natural Areas, Wild and Scenic Rivers designations, Land Utilization Project lands,

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[3]In its original form, the Federal Power Commission was composed of the Secretaries of the Interior, War and Agriculture. See FPA § 1, 41 Stat. 1063 (1920). In 1930, the Commission was changed by removing the Secretaries from membership, and substituting five appointed commissioners. See Act of June 23, 1930, ch. 572, 46 Stat. 797. The fact that the Commissioners were, in the original design, the heads of the Cabinet Departments managing most federal lands helps to provide an understanding of the issue addressed in this Opinion.

[4]The originally enacted version is found at 41 Stat. 1063-64 (1920). The definition was amended in 1935 to reflect the 1921 exclusion of national monuments and national parks from the FPA's general purview and by making plural the 1920 Act's reference to "public purpose" in the second clause. See Act of Aug. 26, 1935, ch. 687, tit. II, § 201, 49 Stat. 838 (1935); see also Act of March 3, 1921, ch. 129, 41 Stat. 1353 (codified at 16 U.S.C. § 797a); H.R. Rep. No. 74-1318, at 22 (1935) ("The only definitions of the present act which are changed are those of 'reservations' and 'corporations'. The definition of the former term has been amended to exclude national parks and national monuments. Under an amendment to the act passed in 1921, the Commission has no authority to issue licenses in national parks or national monuments. The purpose of this change in the definition of 'reservations' is to remove from the act all suggestion of authority for the granting of such licenses.").

Watershed Reserves, and Designated Wilderness Areas. See Letter from Robert F. Burford, Director, BLM, to Hon. Richard H. Lehman, House of Representatives (Mar. 23, 1988) [hereinafter "Burford letter"]. The BLM accordingly has in some cases formulated section 4(e) conditions on licenses for hydropower projects on such lands, just as federal land management agencies like the Forest Service, Fish and Wildlife Service, and Bureau of Indian Affairs have formulated conditions under section 4(e) for the federal lands under their management jurisdiction. See, e.g., Southern Cal. Edison v. FERC, 116 F.3d 507, 518 (D.C. Cir. 1997) (discussing BLM section 4(e) conditions for lands within a watershed reserve).

The question this Opinion addresses is whether "reservations" under the FPA includes lands managed by the BLM which are (a) "withdrawn . . . and reserved" by Executive Order 6910 (Nov. 26, 1934) and Executive Order 6964 (Feb. 5, 1935), or (b) established as grazing districts under the Taylor Grazing Act (TGA). (For simplicity, this Opinion refers to the lands reserved by the Executive Orders and the lands within grazing districts collectively as "TGA lands.")

The Associate Solicitor concluded in 1985 that TGA lands are not "reservations" within the FPA's definition. See 1985 Opinion at 5. This has been the position of the Department ever since (see, e.g., Burford letter, supra), but it has not gone unquestioned. The issue was noted in a House Committee Report in 1988. H.R. Rep. No. 100-950, pt. I, at 3 (1988) (Secretary "does not appear" to have section 4(e) authority over "Taylor Grazing lands"[5]); see also id. at 11 n.2 (minority report noting that "when the FERC was asked to respond to questions about its 4(e) authority, it treated all BLM lands as if they were reserved or withdrawn from the public domain"); Amendments to Federal Land Rights-of-Way Authorities: Hearing on H.R. 3593 Before the Subcomm. on Nat'l Parks and Public Lands of the House Comm. on Interior and Insular Affairs, 100th Cong. 149 (1988) (FERC told the Committee that it had not been resolved whether lands administered by the BLM are "reservations" for the purposes of the FPA and said "[f]or the purposes of answering these questions, BLM lands will be treated as reservations").

In 1989, while addressing the question of whether BLM and the Forest Service had authority to require FERC-licensed hydroelectric projects located on lands under their management to obtain rights-of-way under the Federal Land Policy and Management Act (FLPMA), 43 U.S.C. § 1761, the Comptroller General stated that "[u]nder the FPA's definition of 'reservation,' all of the . . . 'public lands' (other than national monuments and parks), over which BLM has jurisdiction, are reservations." See "The FPA, FLPMA, and the Respective Roles of FERC and the Land Management Agencies," Dec. Comp. Gen. 2, B-230729 (July 7, 1989). The Comptroller General's statement that BLM public lands qualify as FPA reservations did not go unnoticed by the BLM or Congress.

A few weeks later, Chairman Dingell of the House Committee on Energy and Commerce wrote

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[5]It appears that the Committee Report's statement regarding "Taylor Grazing lands" was directed solely to lands established as grazing districts, and not to lands that are withdrawn by the Executive Orders of 1934/35. Compare H.R. Rep. No. 100-950, pt. I, at 3 (1988) (reporting that "Taylor Grazing lands . . . account for 34% of the BLM lands") with 1997 Public Land Statistics 9 tbl.5 (reporting that 34% of the public lands under the exclusive jurisdiction of the BLM were within grazing districts).

the Secretaries of the Interior and Agriculture and the Chairman of FERC asking them for their views and comments on the CG's Opinion. Letter from John D. Dingell, Chairman, House Comm. on Energy and Commerce, to Secretary of the Interior Manuel Lujan, Jr., et al. (July 31, 1989). BLM Director Cy Jamison later wrote Congressman Lehman, saying that "[s]ince the Comptroller General's opinion provides only a conclusion on this question, we cannot accept that position at this time. We are asking the Solicitor's Office to re-examine this question and will advise you of the conclusion reached." Letter from Cy Jamison, Director, BLM, to Hon. Richard H. Lehman, House of Representatives (Oct. 30, 1989). The BLM Director had earlier asked the Associate Solicitor for "re-examination of this issue in light of the Comptroller General's Opinion and advise [sic] whether your 1985 Opinion should be modified. We would like to accept the Comptroller General's Opinion." Memorandum from Director, BLM, through Deputy Assistant Secretary, Land and Minerals Management, to Associate Solicitor, Energy and Resources (Sept. 18, 1989).[6]

Attorneys in what was then the Division of Energy and Resources subsequently drafted a memorandum for the Associate Solicitor's signature which concluded that the issue "is not susceptible to a ready response. Arguments may be advanced to support either a positive or a negative response to [the] question, but neither line of reasoning provides a definitive answer." Draft Memorandum from Associate Solicitor, Energy and Resources, to Director, BLM, on "'Reservations' under the Federal Power Act" at 13 (June 1, 1990) [hereinafter "1990 Draft Memorandum"]. The 1990 Draft Memorandum, which was never signed, recommended adherence to the existing administrative practice of not imposing section 4(e) conditions on TGA lands until the courts provided more clarification. Id. The position expressed in the 1985 Opinion has been followed in practice by the BLM and by FERC. See, e.g., Idaho Water Resource Board, 84 FERC ¶ 61,146, at p. 61,792 & n.20 (1998); Henwood Assocs., 50 FERC ¶ 61,183, at p. 61,556 & n.53 (1990); id. at 61,573 (Trabandt, Comm'r, dissenting).

Ongoing and upcoming FERC licensing proceedings for new and previously-licensed hydropower projects has led the BLM to ask me to fully review this question and provide definitive guidance. This opinion is the result. After careful consideration, and for the reasons set out below, I conclude that the TGA lands are "reservations" for purposes of section 4(e) of the FPA. Because the term "reservations" is, as the Supreme Court has noted, "artificially" defined in the FPA to carry out the specific purposes of section 4(e), my conclusion is limited to that context. FPC v. Tuscarora Indian Nation, 362 U.S. 99, 111 (1960). For example, this conclusion does not mean that TGA lands qualify as reservations or reserved lands carrying with them federal reserved water rights. Therefore the conclusion in a previous Solicitor's Opinion, 86 Interior Dec. (I.D.) 553, 592 (1979), that "no reserved water rights were created by the [Taylor

[6]At least one academic commentator has also questioned whether withdrawal of BLM lands for classification purposes might create reservations for purposes of section 4(e). See Teresa Rice, Beyond Reserved Rights: Water Resource Protection for the Public Lands, 28 Idaho L. Rev. 715, 741 (1991-92) ("The status of these lands under section 4(e) is not clear.").

Grazing] Act,"[7] is not affected by this Opinion, which is strictly based on and limited to the meaning of "reservations" for purposes of the FPA.

II. Background: Nineteenth Century Land Laws, the Taylor Grazing Act, and the "Withdrawal" of the Public Lands

The congressional intent behind the FPA's definition of "reservations" is illuminated by the history of the FPA in relation to the contemporary federal public lands policy and laws. From the early days of the Republic throughout nearly all of the nineteenth century, the basic policy regarding public lands was to dispose of them. The laws providing for their disposition were commonly referred to as "the public land laws." They included the so-called entry acts (such as the preemption and homestead statutes) which, when fully complied with, resulted in the divestiture of title to public lands to individuals. They also included laws governing transfers to corporations, such as the railroad land grant acts.

By the end of the nineteenth century, however, public lands policy was evolving toward retention of many public lands in federal ownership, accomplished through the "withdrawal" of lands from the application of the public land laws, and also sometimes the "reservation" of lands for particular purposes. Withdrawals were accomplished both by the Congress and the Executive. See United States v. Midwest Oil, 236 U.S. 459 (1915). By 1901, about 50 million acres of the public domain had been withdrawn as forest reserves. Within a few years, that figure had about tripled.[8] In 1910, Congress delegated broad withdrawal and reservation authority to the Executive under the authority of the Pickett Act, ch. 421, § 1, 36 Stat. 847 (1910) (codified at 43 U.S.C. § 141 (repealed 1976) (also called the General Withdrawal Act).[9]

While the FPA was being debated in Congress, many of the "public land laws" providing for private appropriation and disposal of the public domain were still in effect, and new ones were still being enacted. For example, the Stock-Raising Homestead Act, enacted in 1916, eventually resulted in the disposition of title (other than minerals, which were reserved to the United States)

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[7] Cf. Pamela Baldwin, Congressional Research Service Report for Congress: Legal Issues Related to Livestock Watering in Federal Grazing Districts (Aug. 30, 1994) (hereinafter, CRS Report).

[8] See George Cameron Coggins et al., Federal Public Land and Resources Law 111-12 (4th ed. 2000). National parks were reserved as early as 1872, when Yellowstone was set aside as a "public park or pleasuring-ground," Act of Mar. 1, 1872, ch. 24, § 1, 17 Stat. 32 (1872) (codified at 16 U.S.C. § 21); national forests were reserved beginning in 1891 with the General Revision Act, ch. 561, § 24, 26 Stat. 1095, 1103 (1891) (codified as amended at 16 U.S.C. § 471) (repealed 1976); and federal wildlife refuges were reserved at least as early as 1903, when Pelican Island was set aside, Exec. Order of Mar. 14, 1903.

[9] Other federal laws contained more specific withdrawal and reservation authority. See, e.g., Antiquities Act of 1906, ch. 3060, 34 Stat. 225 (codified as amended at 16 U.S.C. §§ 431-33).

of some thirty million acres of federal land.[10] The FPA's legislative history reflects congressional awareness of the fact that public lands policy was then in a transitional period between disposal and retention, and the definitions in the Act reflected this awareness.[11]

During this era the distinction between "public lands" on the one hand, and "withdrawn" and "reserved" lands on the other, was generally apparent. As described in the 1934 House Committee Report on the bill that would become the TGA, "[t]hese public lands form a vast domain . . . . Their surface is now and always has been a great grazing common free to all users. The grazing resources of these lands are now being used without supervision or regulation . . . ." H.R. Rep. No. 73-903, at 1 (1934); see also Omaechevarria v. Idaho, 246 U.S. 343 (1918).

However, the distinction between "public lands," and "reserved" and "withdrawn" lands became thoroughly blurred with enactment of the TGA later that year and the events that followed in its wake. Pub. L. No. 73-482, ch. 865, 48 Stat. 1269 (1934) (codified as amended at 43 U.S.C. §§ 315-315r). As noted by a leading public land historian (and the BLM's first Director):

> One consequence of the establishment of permanent types of federal land units by reservation of public domain was to create some confusion as to the meaning of the latter term. . . . [The term 'public domain'] gradually came to be applied to the land not yet reserved or set aside for continued management. . . . With the passage of the Taylor Grazing Act, even this land is in a sense reserved.

Marion Clawson & Burnell Held, The Federal Lands: Their Use and Management 29 (1957); see also Baldwin, CRS Report, supra note 7 (examining the legislative, judicial, administrative and historical support for categorizing TGA lands as reserved).

Although the story is complex in its details, as discussed in the next few paragraphs, the bottom line for purposes of the legal question before me is simple: TGA lands are "withdrawn, reserved or withheld from private appropriation and disposal under the public land laws" in terms that fit the definition of "reservations" in the FPA. 16 U.S.C. § 796(2).

The TGA authorized the Secretary to "establish grazing districts" on the "vacant, unappropriated, and unreserved lands" of the United States. § 1, 48 Stat. 1269 (1934) (codified as amended at 43 U.S.C. § 315). It also provided that public notification of a proposal to establish grazing districts "shall have the effect of withdrawing all public lands within the exterior boundary of such proposed grazing districts from all forms of entry of settlement." Id. at 1270. That Act originally limited the creation of grazing districts on public lands to eighty million acres. See id. at 1269.

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[10] See Coggins et al., supra note 8, at 80. At least ten million acres of public domain were entered every year up until 1922; although entries decreased thereafter, they amounted to as much as 5 million acres in 1931. See Marion Clawson, The Federal Lands Revisited 35 (1983).

[11] See, e.g., H.R. Rep. No. 64-66, pt. 2, at 25 (1916) ("Development of Water Power: Views of the Minority") ("Until now the national policy has been to convey the absolute title to the land in whatever way it may be disposed of. But it is now proposed to hold the title to the land in the Federal Government and lease it on long leases. This would be a radical change in Governmental policy.").

Because, as the Supreme Court put it, "the Taylor Grazing Act as originally passed in 1934 applied to less than half of the federal lands in need of more orderly regulation," Andrus v. Utah, 446 U.S. 500, 513 (1980), President Franklin Delano Roosevelt turned to his authority under the Pickett Act of 1910.[12]

FDR issued two sweeping executive orders that effectively withdrew all the public lands from disposal. The first order applied to twelve States in the far West. See infra note 13. In those States, all "vacant, unreserved and unappropriated public land [was] . . . temporarily withdrawn from settlement, location, sale or entry and reserved for classification" for "the purpose of effective administration of the provisions of [the TGA]." Exec. Order No. 6910 (Nov. 26, 1934), reprinted in 54 I.D. 539 (1934). A little more than two months later, FDR acted again. This time he ordered "all the public lands" in twelve other States "temporarily withdrawn . . . and reserved for classification" for "the purpose of the effective administration of the [Land Program authorized by title II of the National Industrial Recovery Act of 1933 (NIRA), ch. 90, § 202, 48 Stat. 195, 201]." Exec. Order No. 6964 (Feb. 5, 1935), reprinted in 55 I.D. 188, 189 (1935).[13] FDR's orders led to this terse conclusion in the General Land Office's 1935 Annual Report: "Because of the withdrawals made by the Executive orders . . . there were no unreserved public lands at the close of business on June 30, 1935." 1935 G.L.O. Ann. Rep. 12.

Acting in the wake of FDR's Executive Orders, Congress amended section 7 of the TGA in June of 1936 to provide for the further classification of the lands "withdrawn . . . and reserved" by these Orders or within grazing districts:

> [T]he Secretary of the Interior is hereby authorized, in his discretion, to examine and classify any lands withdrawn or reserved by Executive order of November 26, 1934 (numbered 6910) and amendments thereto, and Executive order of February 5, 1935 (numbered 6964), or within a grazing district, . . . and to open such lands to entry, selection, or location for disposal in accordance with such classification under applicable public-land laws . . . . Such lands shall not be subject to

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[12]The Pickett Act of 1910 authorized the Executive to "temporarily withdraw from settlement, location, sale, or entry any of the public lands of the United States including the District of Alaska and reserve the same for water-power sites, irrigation, classification of lands, or other public purposes to be specified in the orders of withdrawals." § 1, 36 Stat. 847 (repealed 1976). "[S]uch withdrawals or reservations shall remain in force until revoked by [the President] or by an Act of Congress," id., and therefore in law and in practice Pickett Act withdrawals can continue indefinitely. See, e.g., Mecham v. Udall, 369 F.2d 1, 4 (10th Cir. 1966).

[13]Unlike the 1934 Executive Order, which withdrew "all of the vacant, unreserved and unappropriated public land" (emphasis added) in AZ, CA, CO, ID, MT, NV, NM, ND, OR, SD, UT, and WY, the 1935 Executive Order withdrew "all the public lands" in AL, AR, FL, KS, LA, MI, MN, MS, NE, OK, WA, and WI, though it specifically exempted from its effect all "[p]ublic lands . . . which are on the date of this order under an existing reservation for a public purpose . . . so long as such existing reservation remains in force and effect." The slight change in language in the 1935 Order might have been the result of some of the confusion that had resulted from the language of the 1934 Executive Order. See Executive Withdrawal Order of November 26, 1934, as Affecting Taylor Grazing Act and Other Prior Legislation, 55 I.D. 205, 209 (Feb. 8, 1935); Executive Withdrawal Order of November 26, 1934, as Affecting Mineral Permits and Leases and Rights of Way-"Vacant, Unreserved, and Unappropriated Public Land" Construed, 55 I.D. 211 (Feb. 20, 1935).

> disposition, settlement, or occupation until after the same have been classified and opened to entry: *Provided,* That locations and entries under the mining laws . . . may be made upon such withdrawn and reserved areas without regard to classification and without restrictions or limitation by any provision of this Act.

Act of June 26, 1936, ch. 842, § 2, 49 Stat. 1976 (codified as amended at 43 U.S.C. § 315f).

Several decades later, the Supreme Court came to address this mid-1930s activity in Andrus v. Utah, 446 U.S. 500 (1980). It noted that the discretionary classification authority Congress gave the Secretary in the 1936 amendment to section 7 of the TGA "was consistent with the dominant purpose of both the Act and Executive Order No. 6910 to exert firm control over the Nation's land resources through the Department of the Interior." 446 U.S. at 519. The Court characterized the effect of these actions this way: "In sum, the Taylor Grazing Act, coupled with the withdrawals by Executive Order, 'locked up' all of the federal lands in the Western States pending further action by Congress or the President, except as otherwise permitted in the discretion of the Secretary of the Interior for the limited purposes specified in § 7." 446 U.S. at 519; see also 1937 G.L.O. Ann. Rep. 1-2 ("Since the passage of . . . the Taylor Grazing Act, as amended . . . , and the withdrawal of the public lands from entry by Executive orders . . . , the work of the General Land Office has undergone a very decided change. Conservation rather than disposals is the dominant note in the administration of the public lands under existing laws.").

The vast majority of the lands withdrawn by the 1934 Executive Order (No. 6910) were later included within grazing districts.[14] Once so included, they were removed from the application of the 1934 Order. See Exec. Order No. 7274 (Jan. 14, 1936), reprinted in 55 I.D. 444 (1936) (amending Executive Order 6910 "by excluding from the operation thereof all lands which are now, or may hereafter be, included within grazing districts duly established . . . so long as such lands remain a part of any such grazing district"). Of course, these lands remain withdrawn by the terms of the TGA itself "from all forms of entry of settlement" and "shall not be subject to disposition, settlement, or occupation until after the same have been classified and opened to entry." 43 U.S.C. §§ 315, 315f; see also 43 C.F.R. § 2400.0-3 (1999) ("Classification under section 7 [of the TGA] is a prerequisite to the approval of all entries, selections, or locations" on BLM lands, with certain exceptions). Lands covered by the 1934 Executive Order that are not within grazing districts remain subject to the 1934 Order and section 7 of the TGA. The 1935 Executive Order (No. 6964) generally remains applicable to the lands it withdrew and "reserved for classification." Some TGA lands also have been withdrawn or reserved for other purposes.

In a variety of instances, public lands initially "withdrawn . . . and reserved" by the 1934/35 Executive Orders were subsequently opened to entry and disposal through the TGA's classification process. Usually such lands were specifically classified (or reclassified) in order to dispose of them. The net effect is that basically all the public lands that have been classified and

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[14]The most recent available information is that nearly 135 million acres of BLM land are within grazing districts, leaving a little more than 43 million acres of BLM land in the lower 48 States outside of these districts. See 1999 Public Land Statistics 13-14 tbl. I-4 ("Public Lands Under Exclusive Jurisdiction of the Bureau of Land Management, Fiscal Year 1999").

opened to disposal have either been disposed of or have since been reclassified for retention. See, e.g., Lujan v. Nat'l Wildlife Fed'n, 497 U.S. 871, 876 (1990) (by 1970, "'virtually all' of the country's public domain . . . had been withdrawn or classified for retention") (citing Public Land Law Review Comm'n, One Third of the Nation's Land 52 (1970)); 43 C.F.R. § 2400.0-3(a) (1999, adopted in 1970) ("All vacant public lands, except those in Alaska, have been, with certain exceptions, withdrawn from entry, selection, and location under the non-mineral land laws by [the Executive Orders of 1934/35] . . . and by the establishment of grazing districts . . ."). In FLPMA, enacted in 1976, Congress firmly stamped its imprimatur on this evolution when it declared as "the policy of the United States that (1) the public lands be retained in Federal ownership, unless as a result of the land use planning procedure provided for in this Act, it is determined that disposal of a particular parcel will serve the national interest." 43 U.S.C. § 1701(a); see also id. § 1712 (development, maintenance and revision of land use plans).

III. The Plain Language of the FPA

The FPA's definition of "reservations" refers to "lands and interests in lands owned by the United States, and withdrawn, reserved, or withheld from private appropriation and disposal under the public land laws." 16 U.S.C. § 796(2) (emphasis added). BLM lands that have been established as grazing districts, as well as BLM lands that continue to be governed by the Executive Orders, all seem to fit squarely within the plain meaning of this definition. That is, because TGA lands are not "subject to disposition, settlement, or occupation until after the same have been classified and opened to entry," 43 U.S.C. § 315f, they would seem properly to be considered "reservations" under the FPA, 16 U.S.C. § 796(2).

IV. The Legislative History of the FPA

The FPA's legislative history supports this plain meaning. The proviso of section 4(e) was derived from House Bill 16673, 63d Cong., 2d Sess. (1914), which provided, in pertinent part, that hydropower projects could be permitted on federal reservations upon a finding by the "chief officer of the department under whose supervision . . . [a] reservation falls that the lease will not injure, destroy, or be inconsistent with the purpose for which such . . . reservation was created or acquired." H.R. Rep. No. 63-842, at 1-2 (1914). This bill did not define the term "reservations," however, which resulted in some discussion on the House floor over the exact scope of that term. The discussion reflected a general agreement that Executive withdrawals under the Pickett Act were properly described by the terms "withdrawn" and "reserved." See, e.g., 51 Cong. Rec. 13701, 13795 (1914) (statements of Rep. Ferris) (referring to Pickett Act withdrawals as "withdrawn" lands and "Executive-order reservations"); id. at 13703 (statement of Rep. Mondell) ("The term 'reserved' is used to designate lands that are withdrawn temporarily under some form of withdrawal, such as the general withdrawal [i.e., the Pickett] act.").

In 1918, the Secretaries of the Interior, Agriculture, and War submitted a bill to Congress that was, with some minor modifications, enacted as the FPA two years later. See H.R. 8716, 65th Cong., 2d Sess. (1918); Escondido Mut. Water v. La Jolla Band of Mission Indians, 466 U.S.

765, 773 n.15 (1984); FPC v. Tuscarora Indian Nation, 362 U.S. 99, 111-12 (1960). The bill adopted the concept for the 4(e) proviso from House Bill 16673, and, following on the earlier discussion on the House floor, specifically defined the term "reservations" to include all lands "withdrawn, reserved, or withheld from private appropriation and disposal under the public-land laws." H.R. 8716, 65th Cong., 2d Sess. (1918). Thus, the legislative history is consistent with the idea that the FPA's definition of "reservations" includes withdrawals under the Pickett Act.

V. Judicial Guidance

The Supreme Court has determined the meaning of "reservations" in the FPA by, not surprisingly, focusing on the statutory definition. See FPC v. Tuscarora Indian Nation, 362 U.S. 99, 111 (1960) (holding that certain lands which were part of the Tuscarora Indian Reservation were not FPA "reservations" because they were owned in fee simple by the Tribe, and thus not "owned by the United States," as required under § 3 of the FPA, 16 U.S.C. § 796(2)). As the Court there noted, "Congress was free and competent artificially to define the term 'reservations' for the purposes it prescribed in that Act[, a]nd we are bound to give effect to its definition of that term." Id.

The Supreme Court has, in sum, regarded the FPA definition as simple and straightforward: "'Public lands' are lands subject to private appropriation and disposal under public land laws. 'Reservations' are not so subject." FPC v. Oregon, 349 U.S. 435, 443-44 (1955).[15] The Court has also concluded that lands withdrawn under the authority of the Pickett Act are reservations within the meaning of the FPA. See id. at 438 n.5, 439 n.6, 443, 444.

Lower courts have also concluded that TGA lands are withdrawn and reserved for purposes of other statutes, although they have not addressed the question in the context of the FPA. For example, in Red Canyon Sheep Co. v. Ickes, 98 F.2d 308 (D.C. Cir. 1938), the plaintiff challenged a proposed exchange involving public lands that had been withdrawn by Executive Order 6910 and later established as a grazing district under the TGA. Applicable law permitted the United States to exchange only "unreserved and unappropriated public lands." Act of June 25, 1935, ch. 308, 49 Stat. 422 (1935). The court declared that "the exchange is not authorized by the Act" because the public lands were, since the issuance of the 1934 Executive Order, "presently reserved and appropriated lands," rather than "unreserved and unappropriated public lands" as required by the exchange statute. 98 F.2d at 322. Other cases demonstrate a similar understanding of the status of TGA lands. See, e.g., Finch v. United States, 387 F.2d 13 (10th Cir. 1967); Carl v. Udall, 309 F.2d 653 (D.C. Cir. 1962).

The Supreme Court's characterization of the purpose of the section 4(e) conditioning authority also sheds some light on its applicability to TGA lands. Specifically, the Court has viewed this

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[15]Some lower court opinions involving FPA hydropower licenses do not slavishly follow this terminological construct, and instead use the term "public lands" as meaning generally federal lands, even in cases where reservations like national forests are involved. See, e.g., Montana Power v. FPC, 185 F.2d 491 (D.C. Cir. 1950).

authority as reflecting Congress's desire for "the individual Secretaries to continue to play the major role in determining what conditions would be included in the license in order to protect the resources under their respective jurisdictions." Escondido Mut. Water v. La Jolla Band of Mission Indians, 466 U.S. 765, 775 (1984). These "'special responsibilities,'" id. at 774 (quoting O.C. Merrill Memorandum[16]), are as appropriately found on BLM lands that are reserved from disposal by President Roosevelt's withdrawals or established as grazing districts, and that are currently managed under the organic authority of FLPMA, as they are on other federal lands like national forests.

VI. Administrative Agency Guidance

The FPC long ago endorsed the reasoning which leads to the conclusion that TGA lands are "reservations" within the meaning of the FPA. A 1921 Opinion of the FPC's Chief Counsel (which ends with a notation, "Approved by the Commission") concluded that lands withdrawn under the Reclamation Act of 1902 qualified as FPA reservations. "Classes of Withdrawals Included in Reservations Subject to the Federal Water Power Act" (May 4, 1921), reprinted in 2 FPC Ann. Rep. 220 (1922) [hereinafter "FPC Opinion"]. The question addressed in that Opinion which is pertinent to the issue before me was whether "second form" withdrawals under section 3 of the Reclamation Act are reservations under the FPA.[17] The 1902 Act generally permitted the Secretary to "withdraw from entry, except under the homestead laws, any public lands believed to be susceptible of irrigation from [reclamation project] works," ch. 1093, § 3, 32 Stat. 388 (1902) (emphasis added). The Chief Counsel noted that while the 1902 Act essentially forbade the Secretary from withdrawing such lands under the homestead laws, it was amended in 1910 to put these lands off limits to homestead entry "until such time as the Secretary of the Interior issues public notice, which notice operates to remove them out of the classification of withdrawn lands and restores them as lands subject to entry, in conformity with the act." FPC Opinion at 221 (citing Act of June 25, 1910, ch. 407, § 5, 36 Stat. 836 (codified as amended at 43 U.S.C. § 436)). Focusing on the general language of the FPA's definition of "reservations," the Chief Counsel reasoned that these second form withdrawals are, until issuance of the public notice, lands "'*withdrawn, reserved, or withheld from private appropriation and disposal under the public land* laws,'" and therefore qualify as FPA reservations. FPC Opinion at 221 (quoting 16 U.S.C. § 796(2)) (emphasis in FPC Opinion). This reasoning applies equally to TGA lands, which, as discussed above, "shall not be subject to disposition, settlement, or occupation until after the same have been classified and opened to entry." 43 U.S.C. § 315f; see also 43 C.F.R. § 2400.0-3 (1999).

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[16]"O.C. Merrill, one of the chief draftsmen of the Act and later the first Commission Secretary, explained that the creation of the Commission 'will not interfere with the special responsibilities which the several Departments have over the National Forests, public lands and navigable rivers.' Memorandum on Water Power Legislation from O.C. Merrill, Chief Engineer, Forest Service, dated October 31, 1917, App. 371." Escondido at 774.

[17]The Opinion also concluded that "first form" withdrawals under the 1902 Reclamation Act and "game preserves, bird preserves, etc." are FPA reservations.

As the FPC Counsel's reasoning shows, the determination of whether federal land has been "reserved" for purposes of the FPA is not affected by the fact that the lands could become available for entry by some future executive action. That is, the Secretary could, simply by issuing a public notice, open land that had been temporarily withheld from homesteading under the provisions of the 1910 Act, but this possibility was not enough to remove the land from the FPA's definition of reservations. Similarly, national forest lands have always been considered reservations even though until 1962, the Secretary of Agriculture retained the authority to classify them as open to entry and disposal under the Forest Homestead Act. See Act of June 11, 1906, ch. 3074, §§ 1-2, 34 Stat. 233 (1906) (codified as amended at 16 U.S.C. §§ 506, 507) (repealed 1962); Act of Mar. 4, 1913, ch. 145, § 1, 37 Stat. 842 (codified as omitted at 16 U.S.C. § 512).[18] The legislative history of the Taylor Grazing Act reflects a similar understanding of the TGA lands. See, e.g., 78 Cong. Rec. 6347 (1934) (statement of Representative Ayers concerning the Taylor Grazing bill) ("the bill takes in all of the land in all of the public-domain States and puts the land into a reserve, the same as the national forest reserve. After these reserves are created in this manner, then on application to the Secretary of the Interior the lands therein may be set aside and homestead entries may be permitted upon them.").

The Department of the Interior has also generally regarded the TGA lands to be "reserved" in a variety of contexts. For example, in 1935, the Solicitor addressed the question whether lands withdrawn by Executive Order 6910 but not included within a grazing district may be leased for grazing purposes pursuant to section 15 of the Taylor Grazing Act, 43 U.S.C. § 315m. Executive Withdrawal Order of November 26, 1934, as Affecting Taylor Grazing Act and Other Prior Legislation, 55 I.D. 205, 209 (Feb. 8, 1935). The Solicitor answered in the negative because section 15 authorizes the Secretary to lease only "'vacant, unappropriated, and *unreserved* lands.'" Id. (emphasis in the 1935 Opinion). "Having been reserved by the said Executive Order," the Solicitor concluded, "they may not be leased for that purpose so long as the order remains in force." Id.[19] See also Carl v. Udall, 309 F.2d 653, 658 (D.C. Cir. 1962) (speaking of the "reservation" of land under the 1934/35 Executive Orders) (quoting Nelson A. Gerttula, A-23158 (Dec. 31, 1941)); J.A. Allison and Mark L. Johnson, 58 I.D. 227, 234 (1943) (same); Executive Withdrawal Order of November 26, 1934, as Affecting Mineral Permits and Leases and Rights of Way-"Vacant, Unreserved, and Unappropriated Public Land" Construed, 55 I.D. 211 (Feb. 20, 1935) (same). And see discussion infra note 21.

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[18]The fact that TGA lands may be disposed of by sale or exchange, for example, also does not exclude them from FPA reservation status. See, e.g., 43 U.S.C. § 1716(a) (providing that BLM and National Forest System lands may be "disposed of by exchange" where "the Secretary concerned determines that the public interest will be well served by making that exchange"); 36 C.F.R. Pt. 254 (2000) (regulations for the sale and exchange of National Forest System lands); Exec. Order Nos. 7048 (May 20, 1935), 7235 (Nov. 26, 1935), and 7363 (May 6, 1936), reprinted in 55 I.D. 261, 401, 502 (1935-36) (amending Executive Orders 6910 and 6964 to permit sales, exchanges and leases).

[19]Several months later, a new executive order authorized the Secretary to issue leases under section 15 of the TGA on lands withdrawn by Executive Order 6910 whenever the Secretary determined that such lands may be "properly subject to such . . . lease and [are] not needed for any public purpose." Exec. Order No. 7235 (Nov. 26, 1935), reprinted in 55 I.D. 401 (1935).

Many of the TGA lands do remain subject to private appropriation pursuant to the Mining Law of 1872, see 30 U.S.C. § 22, but this does not operate to exclude them from FPA "reservation" status. The FPA has long been applied to include within its definition of reservations lands which are open to appropriation under the Mining Law, but which are otherwise withdrawn or reserved. For example, the national forests also generally remain open to mineral entry, yet they are specifically cited in the FPA's definition of "reservations" as satisfying the definition. See 16 U.S.C. § 478. See also Southern Cal. Edison v. FERC, 116 F.3d 507, 518 (D.C. Cir. 1997) where the court upheld BLM conditions imposed under the FPA's section 4(e) on lands that were "withdrawn from settlement, location, filing, entry or disposal under the land laws of the United States" to protect Los Angeles' water diversions, but which were by the same statute "at all times [to] be open to exploration, discovery, occupation, and purchase permit or lease under the mining or mineral leasing laws of the United States." Act of Mar. 4, 1931, ch. 517, §§ l-2, 46 Stat. 1530, 1547-48 (1931). As the Supreme Court pointed out in Udall v. Tallman, 380 U.S. 1, 19-20 (1965):

> [T]he term 'public land laws' is ordinarily used to refer to statutes governing the alienation of public land, and generally is distinguished from both 'mining laws,' referring to statutes governing the mining of hard minerals on public lands, and 'mineral leasing laws,' a term used to designate that group of statutes governing the leasing of public lands for gas and oil. Compare Title 43 U.S.C., Public Lands, with Title 30 U.S.C., Mineral Lands and Mining.

This conclusion is consistent with the legislative intent of the FPA because the Secretary retains the kind of "special responsibilities" for TGA lands that the Supreme Court has recognized as underlying the section 4(e) authority. See Escondido Mut. Water v. La Jolla Band of Mission Indians, 466 U.S. 765, 774 (1984); see, e.g., 43 U.S.C. § 1732 (directing the Secretary's management of BLM lands, including those subject to appropriation under the Mining Law).

VII. The 1985 Associate Solicitor's Opinion

The Associate Solicitor for Energy and Resources concluded that TGA lands were not "reservations" for purposes of the FPA because they "lack the necessary element of being dedicated for some public purpose." 1985 Opinion at 5. In one paragraph of analysis, the Associate Solicitor read the FPA's definition of reservations as "contemplat[ing] that a particular purpose for the lands has already been determined." Id. Because FDR's Executive Orders "only withdrew, but did not dedicate the lands for some particular usage, Taylor Grazing lands do not fall within the FPA's definition of 'reservations.'" Id.

This reasoning is not persuasive. First, the statutory definition refers to withdrawals or reservations (i.e. lands "withdrawn, reserved, or withheld from private appropriation and disposal

under the public land laws"). 16 U.S.C. § 796(2); see also FPC Opinion, supra.[20] Second, TGA lands were set aside for identifiable public purposes as required by the Pickett Act (authorizing the President to "withdraw . . . and reserve" public lands for "public purposes to be specified in the orders of withdrawals," ch. 421, § 1, 36 Stat. 847 (repealed 1976)). The 1934 withdrawal was "for the purpose of effective administration of the provisions of the [TGA]," which, the Order stated, "provides, among other things, for the prevention of injury to the public grazing lands by overgrazing and soil deterioration; provides for the orderly use, improvement and development of such lands; and provides for the stabilization of the livestock industry dependent upon the public range; and . . . provides for the use of public land for the conservation or propagation of wild life." Exec. Order No. 6910 (Nov. 26, 1934), reprinted in 54 I.D. 539 (1934).[21] The 1935 withdrawal was "for the purpose of the effective administration of the [Land Program authorized by NIRA, § 202, 48 Stat. 201]," which the Order stated "contemplates the use of public lands . . . for projects concerning the conservation and development of forests, soil, and other natural resources, the creation of grazing districts, and the establishment of game preserves and bird refuges." Exec. Order No. 6964 (Feb. 5, 1935), reprinted in 55 I.D. 188-89 (1935). This Order also recognized that NIRA provides that the Land Program "shall include among other matters, the conservation and development of natural resources, including control, utilization, and purification of waters, prevention of soil or coastal erosion, and flood control." Id. at 188; see also NIRA § 202, 48 Stat. 201 (1933).[22]

Other withdrawals of public lands under the authority of the Pickett Act have long been recognized as being "reservations" within the meaning of the FPA, and no important differences

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[20]The Associate Solicitor's reference to lands being "dedicated for some public purpose" may have been influenced by a separate clause in the definition of reservations that refers to lands "held for any public purposes." However, this clause is separated from the rest of the definition with a semicolon and the word "also," and refers to acquired lands (i.e. "also lands and interests in lands acquired and held for any public purposes"). 16 U.S.C. § 796(2).

[21]In 1935, the Solicitor addressed the question of "whether a grazing district can be established and superimposed on land withdrawn under [Executive Order 6910]." Executive Withdrawal Order of November 26, 1934, as Affecting Taylor Grazing Act and Other Prior Legislation, 55 I.D. 205, 209 (Feb. 8, 1935). Section 1 of the TGA generally authorizes the Secretary to "establish grazing districts . . . of vacant, unappropriated, and unreserved lands" and it prohibits the establishment of grazing districts on "lands withdrawn or reserved for any other purpose except with the approval of the head of the department having jurisdiction thereof." 48 Stat. 1269 (codified as amended at 43 U.S.C. § 315). The Solicitor relied on this exception in concluding that grazing districts could be established on lands affected by Executive Order 6910 so long as the necessary approval was obtained. See 55 I.D. at 209. The Solicitor's reasoning reflected an understanding that such lands were "withdrawn or reserved for a[] . . . purpose" (and that they were not "vacant, unappropriated, and unreserved lands"), 43 U.S.C. § 315.

[22]The TGA states that the purposes of grazing districts are "to regulate their occupancy and use, to preserve the land and its resources from destruction or unnecessary injury, [and] to provide for the orderly use, improvement, and development of the range." 43 U.S.C. § 315a; see also Pub. Lands Council v. Babbitt, 120 S.Ct. 1815, 1819 (2000) ("The Taylor Act seeks to 'promote the highest use of the public lands.' 43 U.S.C. § 315. Its specific goals are to 'stop injury' to the lands from 'overgrazing and soil deterioration,' to 'provided for their use, improvement and development,' and 'to stabilize the livestock industry dependent on the public range.' 48 Stat. 1269.").

exist between them and TGA lands for purposes of this analysis. The 1985 Associate Solicitor's Opinion itself recognized one important category of Pickett Act withdrawals as being FPA "reservations." That is, President Coolidge invoked his authority under the Pickett Act,[23] to withdraw for public use vacant, unappropriated and unreserved public lands surrounding springs or water holes on public lands. See Exec. Order of April 17, 1926 ("Public Water Reserve No. 107"), reprinted in 51 L.D. 457 (1926). The Associate Solicitor distinguished these from the TGA lands on the ground that PWR 107 lands were "reserved" as well as "withdrawn." 1985 Opinion at 5-6. Yet like the Executive Order for PWR No. 107 lands, the TGA Executive Orders not only withdrew lands "from settlement, location, sale or entry," but also reserved the lands for public purposes under the authority of the Pickett Act. Compare Exec. Orders No. 6910 (Nov. 26, 1934) and 6964 (Feb. 5, 1935) with Exec. Order of April 17, 1926 ("Public Water Reserve No. 107"). Thus, the 1985 Opinion's differential treatment of these withdrawals is unconvincing.

The 1985 Opinion also suggested that the FPA's definition of "reservations" may have contemplated only "a 'permanent' reservation" as opposed to "temporary withdrawals" because the statutory definition names military reservations and national forests.[24] I am not persuaded that any significance can be drawn from the examples used in the definition in this regard. Early legislative history indicates that Congress intended the definition of "reservations" to include all withdrawals and reservations, whether temporary or permanent. See discussion supra Part IV. The House version of the bill that became the FPA contained only the substance of the definition that appeared in the 1920 Act, without including any references to specific categories such as national forests or military reservations. See, e.g., H.R. Rep. No. 65-715 (1918). These references were added later by the Senate. See S. Rep. No. 66-180 (1919). The Supreme Court has said that "[i]t seems entirely clear that no change in substance was intended or effected by the Senate's amendment, and that its 'recasting' only specified, as illustrative, some of the 'reservations' on 'lands and interests in lands owned by the United States.'" FPC v. Tuscarora Indian Nation, 362 U.S. 99, 112 (1960). The 1985 Opinion did not discuss this Supreme Court opinion.

Finally, as noted earlier, many other "temporary" withdrawals have long been considered "reservations" for FPA purposes. See, e.g., FPC v. Oregon, 349 U.S. 435, 438 n.5, 439 n.6, 443, 444 (1955). PWR No. 107 lands were, like the TGA Executive Orders, withdrawn and reserved under the authority of the Pickett Act. The 1921 FPC Counsel's Opinion acknowledged that second form withdrawn lands were only "withh[e]ld . . . from entry . . . until public announcement of the date when water could be applied." FPC Opinion at 221. And the 1985 Opinion itself said that "wilderness study areas" on public lands "must be considered as 'reservations' under the FPA" even though it recognized that the areas might become open to appropriation once wilderness studies were complete on the lands and Congress had acted on them. 1985 Opinion at 7.

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[23] See also Stock-Raising Homestead Act of 1916, ch. 9, § 10, 39 Stat. 865 (codified as amended at 43 U.S.C. § 300) (repealed 1976).

[24] This suggestion was in a footnote in its introductory background section (1985 Opinion at 3 n.3), and not in its discussion of the Taylor Grazing Act.

VIII. The Relationship Between Section 4(e)'s Conditioning Authority and BLM's Right-of-Way Authority

The Comptroller General's 1989 Opinion, which was referred to in the introduction to this Opinion (see discussion supra p. 3) stated that all BLM-managed "'public lands' . . . are reservations" within the meaning of the FPA. The CG was, however, addressing a somewhat different question; namely, whether BLM and the Forest Service had authority to require FERC-licensed hydroelectric projects located on lands under their management to obtain rights-of-way under FLPMA (43 U.S.C. § 1761). The CG answered this question in the affirmative, and this conclusion was accepted by FERC, Henwood Assocs., 50 FERC ¶ 61,183 (1990), but then overturned by the Ninth Circuit, California v. FERC, 966 F.2d 1541 (9th Cir. 1992).

Congress quickly responded to the 9th Circuit's decision in the Energy Policy Act of 1992, Pub. L. No. 102-486, tit. XXIV, § 2401, 106 Stat. 3096-97 (codified at 43 U.S.C. § 1761). There Congress "reiterate[d] and clarif[ied]," albeit prospectively, the authority and responsibility of the BLM to require and condition rights-of-way for FERC-licensed hydropower projects that would occupy any BLM lands. H.R. Rep. No. 102-474, pt. VIII, at 98, reprinted in 1992 U.S.C.C.A.N. 2316. The House Committee Report described the purpose of the provision as to "assure" that federally-licensed hydropower projects requiring such rights-of-way "would not substantially degrade the natural and cultural resources of the affected lands, or interfere with their mangement [sic] for other purposes under applicable law." Id. at 153, reprinted at 2371.

While this statute reflects a congressional concern that BLM (along with the Forest Service) has authority to protect the resources under its management from adverse effects from federally licensed hydropower projects, this authority over rights-of-way does not duplicate BLM's authority under section 4(e) of the FPA. Most important, it essentially extends only to new projects proposed after 1992, or to existing projects that seek to expand onto additional BLM lands after 1992. See 43 U.S.C. § 1761(d). Thus, section 4(e) conditioning remains the primary means for the Secretary to insure the protection of the resources under BLM's management from the impacts of pre-1992 FPA hydropower development.

IX. Practical Effects of this Opinion

At first blush, the conclusion that the TGA lands, which comprise well over one hundred million acres of public land, ought now to be considered "reservations" under the FPA would seem to work a major change in the relicensing process. For a number of reasons, however, the practical effect of this Opinion is limited.

First, most TGA lands are in arid areas and contain few hydropower projects as a result. Second, as noted earlier, a considerable amount of BLM land is already considered a "reservation" under the FPA (e.g., O&C Act lands, Wilderness Study Areas). Third, many BLM lands are adjacent to other federal lands that have always been considered reservations under the FPA. Accordingly, BLM's conditioning authority on its lands is likely to be exercised in a manner similar to that exercised by the neighboring federal agencies, principally the U.S. Forest Service.

Finally, I have determined to make this Opinion prospective only; that is, it authorizes BLM to submit section 4(e) conditions to FERC in all future licensing proceedings,[25] and in all pending proceedings where such conditions reasonably can be formulated and submitted for incorporation into a license by FERC. I have determined not to limit the application of this Opinion simply to applications filed in the future because FERC licensing proceedings may continue for many years, and often there is considerable time at the beginning of the process when information is being gathered. Agency section 4(e) conditions generally are not even solicited by FERC until months, and in some cases years, after the license application is filed. See, e.g., 84 FERC ¶ 61,107, at pp. 61,536-38 (1998) (describing the extreme example of the Cushman Project licensing proceedings, in which conditions and recommendations were not solicited by FERC until 20 years after the proceedings were initiated). We will, however, not seek to reopen existing licenses to add section 4(e) conditions based on this Opinion.

X. Conclusion

The plain language of the FPA, its legislative history, pertinent case law, and administrative rulings all compel the conclusion that BLM-managed lands that are "withdrawn . . . and reserved for classification" by Executive Orders 6910 and 6964 and those that are established as grazing districts, are "reservations" under the FPA. Therefore, I conclude that the Secretary has authority to issue mandatory conditions on licenses issued by FERC for hydropower projects located on such lands under his jurisdiction, and the 1985 Associate Solicitor's conclusion to the contrary is hereby overruled. Accordingly, when the BLM deems that section 4(e) conditions are "necessary for the adequate protection and utilization of" Taylor Grazing Act lands, 16 U.S.C. § 797(e), it should submit them to FERC in all pending licensing proceedings where they reasonably can be formulated and submitted for incorporation into licenses by FERC, and in all future licensing proceedings.

This Opinion was prepared with the substantial assistance of Scott Miller of the Division of Indian Affairs and S. Elizabeth Birnbaum, formerly Special Assistant to the Solicitor and now Associate Solicitor for Mineral Resources, and benefitted from a careful review by Richard J. Woodcock of the Division of Land and Water.

John D. Leshy
Solicitor

I concur:

Secretary

January 19, 2001
Date

[25]The references to licensing proceedings include proceedings for new licenses for previously licensed projects, as well as for new projects (which FERC calls "original licenses").