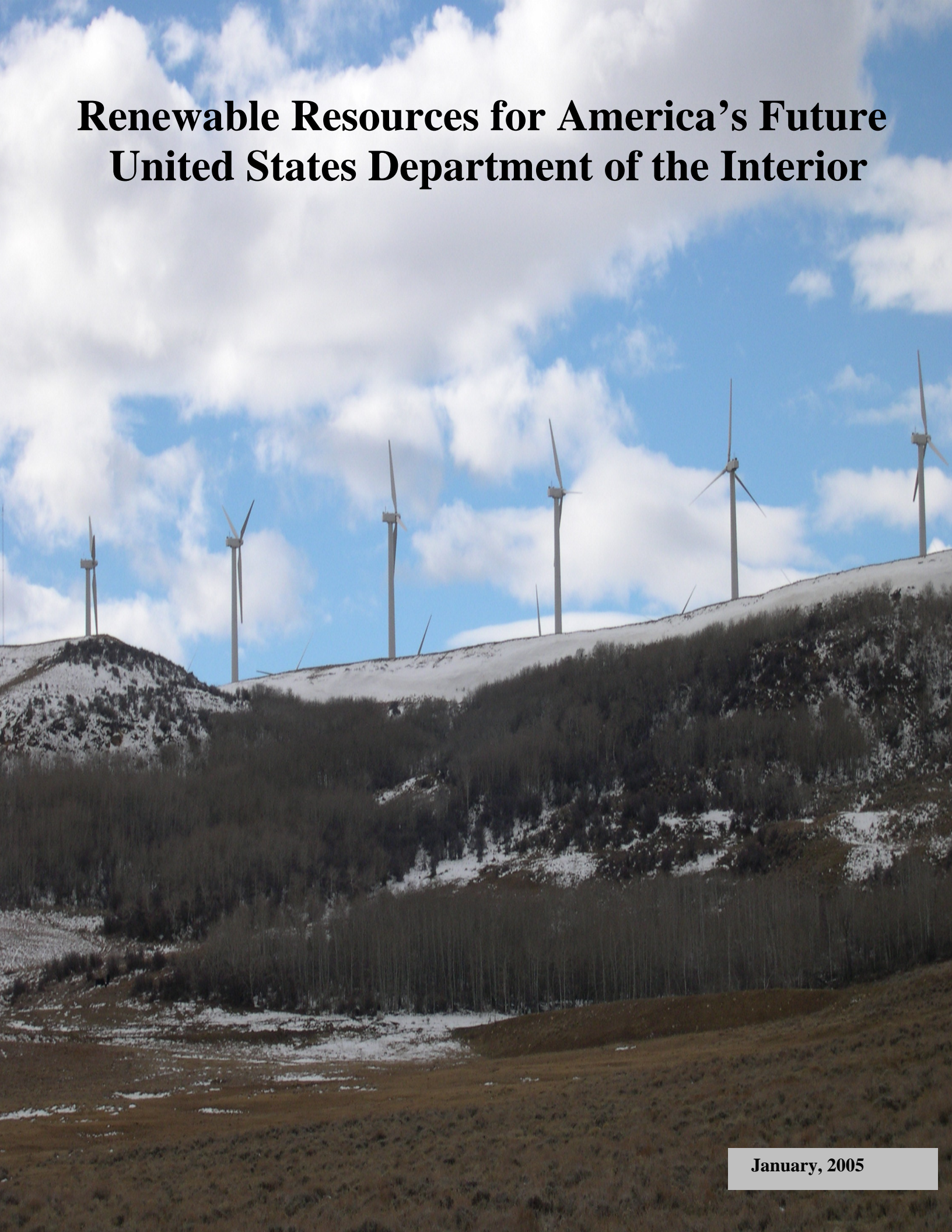


Renewable Resources for America's Future

United States Department of the Interior



January, 2005

Renewable Energy for America's Future
The U. S. Department of Interior
January, 2005

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Renewable Resources for America's Future

The U.S. Department of Interior

2004

Introduction

Energy is fundamental to America's quality of life, economic health and security. President Bush recognized the importance of a comprehensive energy policy to our country's well being and put an early focus on developing a plan to provide a dependable, diverse supply of affordable and environmentally sound energy to meet current and future needs.



One way our energy supply can be increased and diversified is through the production of renewable energy. Renewable energy uses naturally replenished energy from the sun, wind, water, earth's heat and vegetation to produce the energy we need in our lives.

Renewable energy currently supplies 9% of our energy supply. If we exclude hydropower, renewable energy supplies only 2% of the nation's electricity needs. Nonetheless, the growth in renewable energy generation over the past decade has been impressive—approximately 30% since 1990. This trend for non-hydropower renewable energy generation is expected to continue, both at home and abroad. Alternatively, the growth in hydropower has slowed over the last several decades. Today, hydropower contributes almost 95,000MW of generating capacity in the United States and over 14,700MW of that capacity is owned and operated by Interior's Bureau of Reclamation.

Today, Interior's public lands produce 17 percent of the nation's hydropower—which is virtually 100 percent of all residential electricity use in the state of Washington, or 27% of all West Coast residential electricity use. The public lands produce approximately 10 percent of all domestic wind energy and 48 percent of our nation's geothermal power.

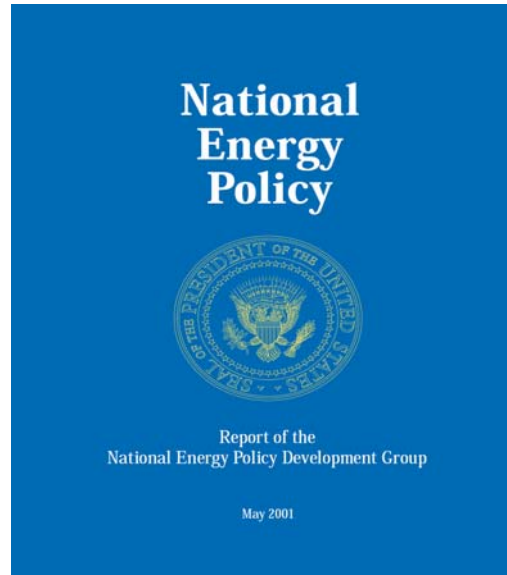
Renewable energy has inherent advantages: it is typically clean energy that does not produce greenhouse gases. Renewable resources occur naturally and abundantly. Electricity from renewable sources provides long-term pricing stability in what has been a volatile electricity market. And, in addition to providing power for remote areas far from power lines, the development of renewable energy can create jobs and revenue for rural communities.

There are also a number of barriers to the development of renewable energy. One is reliability. Wind and solar energy depend on the weather and therefore are not 100 percent reliable. Renewable energy also faces some of the same environmental challenges as fossil fuel development. Wind and geothermal projects throughout the United States face opposition over potential impacts to wildlife, view-sheds, and sacred sites. Probably the biggest barrier to renewable energy development is lack of available and affordable transmission capacity to deliver the energy to the customer.

The National Energy Policy- The Department of the Interior's Role

The National Energy Policy, published in May, 2001, recognizes the importance of a diverse portfolio of domestic energy. The Policy outlines thirteen recommendations designed to increase America's use of renewable and alternative energy.

Three of these recommendations require action by the Department of Interior.



The National Energy Policy 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 Secretary of the Interior to determine ways to reduce the delays in geothermal lease processing as part of the permitting review process.
- 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.*

*(Note: Legislation to direct bonus bids from the leasing of ANWR has not been approved by Congress. This recommendation will not be addressed in this report.)

In response to the National Energy Policy Recommendations, Secretary of the Department of the Interior, Gale Norton, and Secretary of the Department of Energy, Spencer Abraham, co-sponsored a national renewable energy conference in November, 2001. More than 200 representatives from renewable energy industries and state and tribal governments provided recommendations to expand the use of renewable energy. A second renewables conference chaired by Secretary Norton and Department of Energy Assistant Secretary, Dave Garman, was held in February, 2002.

An Interior Department working group was formed to address the conference recommendations and prepared a report, *Renewable Energy and the Department of the Interior: A Report to the Secretary*. Many of the recommendations in this report were included in an interagency report prepared jointly by the Department of the Interior and the Department of Energy, titled “*White House Report in Response to the National Energy Policy Recommendations to Increase Renewable Energy Production on Federal Lands, August 20, 2002.*”

www.doi.gov/news/pdf/FinalWhiteHouseReportwithAppendicies.pdf

This interagency report recommended that the Department of the Interior take five actions to promote the production of renewable energy.

The *White House Report in Response to the National Energy Policy Recommendations to Increase Renewable Energy Production on Federal Lands* recommends that:

1. The Department of the Interior and The Department of Energy continue the collaborative work of the Interagency Task Force;
2. The Department of Interior establish a biomass initiative;
3. USGS begin a new geothermal assessment of the Great Basin ;
4. BLM process all pending geothermal lease applications by fall of 2003; and
5. The Department of Interior establish an ombudsman to track all renewable energy actions and serve as a clearinghouse for information and issues causing concern or delay.

Interior Responds to the National Energy Policy Recommendations

1. The Department of the Interior and The Department of Energy continue the collaborative work of the Interagency Task Force

The Department of Energy and the Department of the Interior continue to work collaboratively on renewable energy development. The Departments of the Interior and

Energy are also working with the Department of Agriculture and other agencies to encourage the development of renewable energy sources, such as biomass.

In February 2003, the Department of the Interior's Bureau of Land Management (BLM) and Department of Energy's Energy Efficiency and Renewable Energy Office published a report, *Assessing the Potential for Renewable Energy on Public Lands*, that identified the potential for geothermal, wind, solar, and biomass resources on BLM lands in the Western United States, excluding Alaska. This GIS-based report identified renewable energy potential by land management planning units and found that 20 BLM planning units in seven western states have high potential for power production from three or more renewable energy sources. The report also identified the top 35 sites having high potential for near-term geothermal development. This report is available at www.osti.gov/bridge.

The Department of Energy continues to work with the BLM to further define the potential for renewable energy development on public lands. Recently, the Department of Energy joined the Departments of Agriculture and Interior in the formation of a Woody Biomass Utilization Group designed to further the use of biomass from federal lands.

2. The Department of Interior should establish a biomass initiative

The Departments of Agriculture and Interior are implementing the goal of the National Fire Plan, the President's Healthy Forest Initiative, the Healthy Forest Restoration Act and the Tribal Forest Protection Act of 2004 to address the risk of catastrophic wildfire on federal lands by thinning biomass density. On June 19, 2003, the Departments of Energy, Interior and Agriculture announced an initiative to encourage the use of woody biomass from forest and rangeland restoration and hazardous fuels treatment projects.



The three Departments signed a *Memorandum of Understanding on Policy Principles for Woody Biomass Utilization for Restoration and Fuel Treatment on Forests, Woodlands, and Rangelands*, supporting wood biomass utilization as a recommended option to use to reduce hazardous fuels rather than burning or employing other on-site disposal methods.

The three Departments, in coordination with the Western Governors Association, held a Bioenergy and Wood Products Conference January 20-22, 2004 in Denver to discuss opportunities for biomass utilization. As a result of the conference, the Departments agreed to establish an interagency biomass working group. The Department of the Interior and the U.S. Department of Agriculture's Forest Service (Forest Service) also pledged to provide a biomass utilization option in all service and timber sale contracts,

where appropriate, and work with the National Association of Conservation Districts to provide educational materials on biomass utilizations.

An interagency Woody Biomass Utilization Group has been informally established. It meets quarterly and is currently formalizing a charter. The Departments of Energy, Agriculture and Interior are currently represented. Other departments and agencies with biomass responsibilities are being encouraged to participate.

A new standard contract provision that will allow for the removal of biomass as part of all forest and rangeland thinning projects or any other contracts that cut vegetation was published in the Federal Register on August 27, 2004. Assistant Secretary, Policy Management and Budget, P. Lynn Scarlett directed Interior agencies to implement appropriate guidance so that all service contracts issued after September 9, 2004 and all timber contracts issued after October 1, 2004 allow for the option to remove wood biomass wherever ecologically appropriate and in accordance with law.

In June, 2004, the Department of the Interior, together with the Forest Service, signed a cooperative agreement on biomass utilization with the National Association of Conservation Districts (NACD) to increase public understanding of the benefits of using wood biomass to reduce fuel buildup on public lands. Some of the accomplishments to date include: publication of 10 articles in NACD's publication, *Forestry Notes*, distributed monthly to 3,000 Conservation District officials and over 1000 forestry professionals, agencies and organizations; publication of three articles in NACD's *News and Views*, distributed to 28,000 Conservation Districts and partners; and establishment of an agreement between NACD and the National Association of Resource Conservation and Development Councils to further the objectives of the NACD/DOI agreement. The National Association of Conservation Districts is also developing regional workshops on biomass utilization to encourage further dialogue and stakeholder involvement.

The Bureau of Land Management (BLM) has completed a biomass utilization strategy for increasing the utilization of biomass from BLM lands.

The Bureau of Indian Affairs is also analyzing options for Tribal involvement in biomass energy production. The U.S. Fish and Wildlife Service (Fish and Wildlife Service) and the National Park Service are considering appropriate actions in wood biomass utilization.

<h3>3. USGS begin a new geothermal assessment of the Great Basin.</h3>
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USGS continues to pursue funding for the Great Basin geothermal assessment. The last nationwide geothermal resource assessment was completed by USGS in 1979. BLM transferred \$100,000 to USGS in 2004 to assist in this effort.

4. BLM process all pending geothermal lease applications by fall of 2003

Since 2001, BLM has processed 200 geothermal applications, compared to 20 in the preceding four years. However, an increase in the number of new geothermal lease applications and the need for land use planning that supports the anticipated level of geothermal development continue to create a backlog. See appendix for BLM leasing statistics.

In 2003, the Interior Department approved licenses for two new 49MW geothermal power plants in California, the first such approvals in over 10 years. Once in production, these plants can supply power to close to 100,000 homes.

During the past 2 years, the BLM has approved two geothermal power plant expansions, one new 30MW power plant, and is currently processing licenses for two additional plants in Nevada.

5. The Department of the Interior establish an ombudsman to track all renewable energy actions and serve as a clearinghouse for information and issues causing concern or delay.

The Department of the Interior appointed a renewable energy ombudsman in November, 2003. This position reports to the Assistant Secretary Land and Minerals Management.

Interior Agencies Implement the National Energy Policy Recommendations



Bureau of Land Management

More than 20 National Energy Policy recommendations are directed at one or more of the BLM's energy-related responsibilities. The agency identified 54 short and long-term action items required to successfully implement the National Energy Policy. Renewable energy action items and their status are listed below.

Task 19. BLM will identify methods to expedite the processing of pending geothermal leases.

BLM and the Department of Energy's Energy Efficiency and Renewable Energy Office published *Opportunities for Near-Term Geothermal Development on Public Lands in the Western United States* in April, 2003. This report identified those BLM planning areas with high potential for near-term geothermal development. This information alerts

appropriate BLM field offices to consider geothermal energy development in their land use planning.

BLM is also developing an electronic filing system that will standardize geothermal lease processing steps and allow industry to apply for leases and do other business over the Internet.

Task 20. BLM will revise the Categorical Exclusion list to include geothermal resources and examine opportunities that could be added to the geothermal list.

This task examines expeditious ways to comply with the requirements of the National Environmental Policy Act when permitting geothermal activities. A categorical exclusion identifies a universe of geothermal activities that have no significant environmental impacts and therefore do not require further analysis in an Environmental Assessment (EA) or Environmental Impact Statement (EIS). Data collection and other work are proceeding on this task. Completion is expected in FY 2005.

Task 21. BLM will contract for a geothermal literature search and an identification of constraints to access.

In April, 2003, BLM and The Department of Energy's Energy Efficiency and Renewable Energy Office published *Opportunities for Near-Term Geothermal Development on Public Lands in the Western United States*. This report provided information on priorities for land-use planning in order to reduce process impediments to geothermal development on public lands.

Task 45. BLM will develop a strategy to encourage the use of biomass from public lands.

BLM will be supporting the three agency (DOI, DOE and USDA) Memorandum of Understanding on wood biomass utilization (June 19, 2003). The bureau is amending timber and service contracts to include consideration of biomass utilization. It is working with the National Association of Conservation Districts to provide information and training on biomass utilization to communities. BLM is also a member of the newly established Interagency Woody Biomass Utilization Group.

BLM has developed a biomass utilization strategy which contains short and long-term actions to encourage, and overcome barriers to, the use of biomass from public lands. Included in this strategy are efforts to develop tools, build expertise within and outside BLM and increase the percentage of acres treated with biomass utilized. BLM is also considering biomass demonstration sites to highlight, and transfer lessons learned from, successful biomass utilization efforts. BLM's biomass utilization strategy was completed and transmitted to BLM field offices August 16, 2004.

Going the Extra Mile to Promote Renewable Energy Development

Renewables

In July, 2004, Assistant Secretary for Land and Minerals Management Rebecca Watson signed a memorandum to the BLM encouraging consideration of all forms of renewable energy development in all current and future revisions of land use plans. BLM is currently engaged in a 10-year process to update all 162 land use plans.

The Department of Interior has developed an improved renewable energy website located at www.doi.gov/initiatives/energy2.html

Biomass

Biomass energy is the energy released through the burning of wood, other plant material, products made from plant materials (such as ethanol), and organic wastes. Nearly 75 percent of biomass energy is produced from the burning of wood and other plant materials.



Biomass energy ranks second to hydropower, generating 17 percent of all electricity produced from renewable resources. Biomass resources provide nearly 3 percent of America's total energy supply and generate about 1.5 percent of America's electricity.

About 24 percent of federal lands, principally in the West, have high potential for biomass energy production.

The Department of the Interior is working with other Federal agencies, state and local governments and tribes to encourage the utilization of biomass. On July 23, 2004, Secretary Norton announced a partnership with Jefferson County, Colorado and others, to conduct a feasibility study for a biomass facility in the county which would convert forest debris into electricity while reducing the risk of catastrophic fires.

In a Departmental Memorandum signed on April 8, 2004, Assistant Secretary, Policy, Management and Budget, Lynn Scarlett directed Interior agencies to take necessary action to implement the policy principles in the biomass Memorandum of Understanding between the Departments of Interior, Energy and Agriculture (June 2003).

The National Fire Plan directs Interior bureaus to "develop and expand markets for traditionally underutilized small diameter wood and other biomass as a value added outlet for excessive fuels that have been removed."

In the FY2003 Appropriation, Congress expanded the U.S. Forest Service's authority and granted BLM authority to enter into stewardship contracts in support of the goals of the National Fire Plan to reduce the risk of catastrophic wildfire through thinning. Experts suggest that thinning could provide enough electricity for 400,000 households for one year. Enhanced biomass utilization is a critical component to the successful use of stewardship contracting. Stewardship contracts allow contractors to keep wood products in exchange for providing the service of thinning trees and brush, removing dead wood and performing other types of forest and woodland restoration. Biomass utilization will provide a market value to the thinned materials that historically have had no value. These materials will be able to offset the cost of the thinning services. The length of stewardship contracts is up to 10 years – which can be a vital factor for a new biomass energy enterprise in search of funding.

There are three BLM stewardship contracts pending approval which propose to use biomass for energy production. In fiscal year 2004, over 27,000 tons of biomass were removed from BLM lands and put to productive use.

Wind

The public lands contribute approximately 10 percent of the nation's wind energy; however, there is great potential for this contribution to grow in the future. Today wind generates about 3 percent of all renewable electricity. About 18 percent of Federal lands, principally in the West have high potential for the development of wind. About 46 percent of the 261 million acres managed by the Bureau of Land Management have commercial wind-energy development potential.

In 2002, BLM issued a wind energy policy that provides bureau-wide guidance on the timely processing of wind energy rights-of-way. BLM issued a contract to Argonne National Laboratory in August 2003 for the preparation of a Wind Energy Development Programmatic EIS. The Programmatic EIS will address the future development of wind energy resources on BLM-administered public lands in the western U.S. The Notice of Intent for the Programmatic EIS was published in the Federal Register on October 17, 2003. Public scoping meetings to obtain comments for the Programmatic EIS were held in Salt Lake City, Boise, Cheyenne, Sacramento, and Las Vegas. The Draft EIS



was published for comment on September 10, 2004, and the Final EIS will be completed in July 2005. Wind classification maps detailing the potential of BLM lands are being developed as a part of the EIS. More information on the wind EIS effort may be found at www.windeis.anl.gov.

In 2004, BLM processed 26 applications for wind testing and energy production, compared to 26 in 2003, 9 in 2002 and 2 in 2001. In total, BLM has issued 63 wind authorizations since 2001, compared to 9 authorizations issued in the previous four years. The BLM currently administers 22 wind energy right-of-way authorizations which produce wind energy on public lands in California and Wyoming. These authorizations total approximately 5,000 acres and collectively have the capacity to generate about 500 megawatts of electrical power. An additional 63 right-of-way authorizations for wind energy site testing and monitoring activities are in Arizona, California, New Mexico, Utah, Idaho, Wyoming, Nevada, Oregon, Washington and Montana. Another 46 right-of-way applications are pending.

In 2004, thirteen applicants for wind right-of-ways withdrew their applications. However, BLM anticipates that recent congressional reauthorization of the wind energy production tax credit will create renewed interest in wind development on federal lands as well as pressure to bring existing right-of-ways into production by the tax credit deadline of January 2006. See appendix for locations of issued right-of-ways and pending applications.



Guidelines for Fish and Wildlife Conservation

The U.S. Fish and Wildlife Service's *Interim Guidelines for Avoiding and Minimizing Wildlife Impacts from Wind Turbines* have been out for public review since July 2003 with a 2-year comment period. During the past year, 2 multi-stakeholder meetings have been held with the wind industry, Federal and State agencies, and the environmental community to discuss the guidelines. Numerous comments and recommendations have been received to improve to the guidelines.

At the second multi-stakeholder meeting, the Service committed to 3 actions prior to finalization of the guidelines. These were: (1) writing a letter for distribution to FWS field offices, States, local planning agencies, non-government organizations, and the wind industry explaining the voluntary and flexible nature of the guidance and providing more detailed direction on how it is to be applied; (2) providing a description of the data that led to the recommendations concerning wind development in prairie grouse habitat; and (3) holding multi-stakeholder workshops on the guidelines and their implementation, to the extent possible. The letter to the field offices and others was signed by the Director on April 26, 2004, and distributed as promised. The detailed description of prairie grouse data has been drafted and is currently in review by members of the Service Wind Turbine Siting Working Group and other prairie grouse experts. A draft agenda and logistics for the multi-stakeholder workshops are currently being developed.

The Interim Guidelines and the April 26 Director's Memo on implementation of the guidelines are now available on the Service web site at www.fws.gov/habitat/ under Habitat and Resource Conservation, Federal Program Activities, Advanced Planning, Wind Energy. The guidelines contain indices on definitions related to wind energy development, relevant wildlife laws, procedures for endangered species evaluations and consultations, and other information.

Geothermal

Geothermal energy in the form of naturally occurring steam or hot water is used to generate electricity or to provide heat. Geothermal electricity accounts for nearly 4 percent of all electricity derived from renewable resources. Interior Department lands provide the resources for over 48% of our nation's geothermal power.



BLM manages 399 geothermal leases, 55 of which are capable of producing a total of 1275 MW. This is enough power for more than 1.2 million homes. Since 2001, BLM has processed 200 geothermal applications, a 1000 percent increase over the number of leases issued in the four previous years.

Electricity is currently being produced at 34 power plants from BLM geothermal resources in three States.

In California, enough geothermal energy is produced to meet the electricity needs of almost 2 million people, with about a fourth of that production from BLM leased land. At the Geysers in northern California, the world's largest geothermal development complex, about a third of the energy produced is from BLM leased land.

In Nevada, nine power plants using federal geothermal resources supply the equivalent of 170,000 households with electricity.

Solar

Solar technologies use the sun's energy and light to provide heat, light, hot water, electricity, and even cooling, for homes, businesses, and industry.

Solar generates about 0.1 percent of all electricity produced from renewable resources.

About 67 percent of Federal lands in the lower 48 States, primarily in the western United States, have high potential for concentrated solar thermal energy production and approximately 74 percent have high potential for photovoltaic solar energy production.

There are no pending applications or existing right-of-way authorizations on BLM public lands for large concentrated solar power (CSP) commercial generating facilities. However, BLM released a solar energy development policy October 20, 2004, that provides guidance to BLM Field Offices in the processing of right-of-way applications for solar energy projects on public lands. This Policy provides instructions for processing applications, clarifies the treatment of solar systems on other resource leases, and encourages the use of solar energy for BLM facilities.



There is significant potential for the installation and use of solar photovoltaic systems at existing and new Interior facilities. The Department of Interior operates more than 600 solar-powered facilities and 40 solar hot-water systems in the National Parks, National Wildlife Refuges and other agency lands. BLM generates a total of 185 MWh of electricity from photovoltaic systems each year. Varied uses of photovoltaics include water pumping, outdoor lighting, communication sites, weather and water monitoring, remote field stations, and visitor centers. More than 130 systems have been installed since 1995. These systems replaced fossil-fueled power generators with photovoltaics. The seasonal nature of the remote facilities and long hours of sun in the summer has made solar energy the most cost effective approach to supplying power at these locations.

Recent BLM solar photovoltaic projects include:

- 3kW Off-Grid system at the Washburn Ranch, Carrizo Plain National Monument, Bakersfield, CA
- 7.5kW Grid-connected system at Escalante Science Center, Grand Staircase-Escalante National Monument, Escalante, UT



Hydropower

Hydropower is the most prominent renewable energy generator, providing almost ten percent of all power generation in the United States. Hydropower generates 76 percent of all electricity produced from renewable resources.

The U.S. Bureau of Reclamation, the nation's second largest producer of hydropower, owns and operates about 17 percent of the hydropower capacity in the country.

While hydropower is a significant source of firm power generation, it can also play a critical support role for expanding renewable energy technologies in the western United States. Hydropower is reliable and quick to respond to changing energy demand. Some renewable energy sources are intermittent, fluctuating with the weather. Hydropower serves a "firming" resource, providing necessary voltage support and generation during the "down times" of intermittent renewable generation. Without this support, renewable technologies like wind would be unable to provide a marketable and reliable product to the electric power grid.



While few new hydropower plants are likely to be developed, many of the existing facilities can receive incremental upgrades that either improve the efficiency or increase the generating capacity of their units. The U.S. Bureau of Reclamation has begun a program of incremental upgrades to their facilities but cost constraints have slowed progress. Nevertheless, efficiency increases of 2 to 4% can be expected from these upgrades as they are implemented.

The Bureau of Reclamation also served as a participant in the development of the Western Renewable Energy Generation Information System (WREGIS). Co-sponsored by the Western Governors' Association and the California Energy Commission, WREGIS will be a single repository for renewable energy credits generated in the western states. A single repository will facilitate efficient markets for renewable energy credits by eliminating the need for buyers and sellers of credits to search for each other. As more opportunities for renewable energy trades occur, greater market opportunities will challenge emerging renewable technologies.

Renewable Energy and the Outer Continental Shelf (OCS)

Renewable energy generation has emerged as an important issue on the Outer Continental Shelf (OCS). Experts believe that off-shore wind energy has enormous growth potential. Several OCS wind and wave projects are being contemplated in the private sector. Cape Wind Associates has applied to the U.S. Army Corps of Engineers for permits to proceed with a wind farm in OCS waters off Cape Cod, Massachusetts.

Interior's Minerals Management Service (MMS) is a cooperating agency in the National Environmental Policy Act review process that the Corps is undertaking on the Cape Wind proposal. MMS is sharing its considerable expertise on marine environmental and engineering issues while also providing input concerning potential competing uses under the OCS Lands Act (i.e., offshore energy and nonenergy mineral resource exploration and development).



The statutes under which the offshore wind projects are currently reviewed do not provide all of the tools a seabed manager could use to fully consider and protect the government's economic and seabed-use interests. To address the need for clear authority in the OCS for renewable energy development, the Administration has proposed legislation that would give MMS the lead role in permitting alternative energy.

The proposed legislation was developed in consensus with all Federal agencies having any permitting responsibilities on the OCS and is designed to:

- support the National Energy Policy initiative to simplify permitting for energy production in an environmentally sensitive manner;
- support the Secretary's goal of facilitating renewable energy projects;
- clearly define the process for permitting alternate energy and related uses on the OCS;
- ensure that the Federal interest in such projects are protected; provide a focal point for both industry and other Federal agencies in reviewing and permitting such projects; and,
- cover a variety of nontraditional energy and energy-related projects on the OCS—including renewable energy projects.

The MMS legislative proposal was included in the comprehensive energy legislation considered by the 108th Congress.



Renewable Energy on Indian Lands

Renewable energy potential on Indian lands was documented in a report issued April, 2000 titled *Energy Consumption and Renewable Energy Development Potential on Indian Lands*. This report provides a general overview of wind, biomass, solar, and geothermal potential on Indian lands.

The Bureau of Indian Affairs (BIA) is using this general information to initiate analysis at the reservation level. In-depth feasibility studies will analyze estimated quantities of renewable resources, technologies, and economic viability of projects. Market studies and business and development plans are also being

developed in some locations. Economic evaluations of individual tribal projects will include scenarios with and without tax incentives and a detailed analysis will be made as to the applicability of tax incentives to individual tribal projects.

From September 2003 through March 2004, the Office of Trust Service, Division of Energy and Mineral Resources Management conducted Tribal consultation sessions on ways to increase energy and minerals resource development on Indian lands. These sessions were held in all regions of the United States and addressed renewable energy.

The following is a brief summary of BIA renewable energy projects initiated in fiscal year 2004:

Feasibility Studies for Renewable Energy

The Agua Caliente Band of Cahuilla Indians located in Palm Springs, California is preparing a strategic value analysis of the renewable resources on the Agua Caliente tribal lands. The project will include an assessment of the solar, wind, geothermal and possibly biomass resources on the tribal lands. To complement this resource assessment, the BIA will analyze applicable technologies and their economics, investigate regulatory issues, and assess environmental and cultural impacts to determine the feasibility of tribal energy self-sufficiency and creation of one or more businesses based on the resource.

Wind

Ninety-three reservations, primarily in the states of California, New Mexico, Nevada, Utah, Wyoming, Arizona, Montana, North Dakota, Minnesota and Wisconsin, have been identified as having high wind energy potential. The BIA is currently funding three wind energy feasibility studies: Bad River Band of the Lake Superior Tribe of Chippewa Indians (Wisconsin), Little River Band of Ottawa Indians (Michigan), and Chippewa Cree (Rocky Boy's) Tribe (Montana), each with similar wind energy potential. Most recently, the BIA funded an economic evaluation for a large scale wind energy project for the Ewiiapaayp Band of Kumeyaay Indians in Alpine, California.

Biomass

Almost all Indian lands have biomass energy potential from wood biomass, agricultural waste, and the growing and use of energy crops. The April 2000 report identified 118 reservations with high potential and 180 with medium to low potential for biomass energy production.



The Colville Confederated Tribes of the Colville Indian Reservation in Washington have proposed to establish the first large scale pilot project to determine the economic feasibility of biomass resource utilization on the reservation. The purpose of the project is to continue to obtain a healthier forest and produce energy on a sustainable basis in support of President Bush's Healthy Forest Initiative.

The Northern Cheyenne Tribe in Montana proposes to use small diameter forest biomass to provide steam and electricity to manufacture a high valued-added biobased product from agriculture residue. The integrated biorefinery will produce pulp, chemicals, high value specialty paper, forest products and energy. Long term contracts will be provided to several farmers; approximately 25 jobs will be created in the harvesting of the small diameter wood, in the sawmill and chipping plant, and in the pulp and paper factory; and revenue will be created from the sale of excess energy.

The Nez Perce Tribe in Idaho analyzed and is now pursuing the development of a biodiesel facility for using a value-added approach to renewable energy production. The Nez Perce Tribe is negotiating long term contracts with local farmers to purchase rotation crops of soy, canola and rape (soft oilseed). The soft oilseed will be crushed and made into biodiesel.

The Confederated Tribes of the Warm Springs Reservation in Oregon is studying the feasibility of producing energy from forest thinning projects. The BIA recently committed financial assistance to the Tribes to develop a business plan that would include biomass energy production. The Tribe is progressing towards delivery of a feasibility report by March, 2005.

Solar

The BIA assists tribes with small scale solar technologies that are capable of providing electricity to tribal facilities and individual Indian homes, especially on the Southwestern reservations.

The Skull Valley Band of Goshute Indians in Utah is completing a feasibility study on the development of a solar driven electric power generation plant that will provide power for the reservation, the tribal community center and create new jobs. The project will also provide excess power to be sold off reservation.

Outreach and Conferences

The BIA's Office of Trust Services' Division of Energy and Mineral Resources Management (DEMIRM) hosted a Biomass Energy Opportunities in Indian Country Conference in Denver, Colorado on September 14-16, 2004. The Department of Energy co-sponsored this conference which drew almost 100 participants, including tribal representatives, Federal, state and local government officials and representatives from private-sector renewable energy industries and organizations.

Conclusion

The Department of Interior is playing a major role in achieving the President's renewable energy goals, and is moving aggressively to implement the recommendations of the National Energy Policy. Interior has developed and is implementing new policies to promote increased development of wind, geothermal, solar and biomass energy resources on the public lands. A significant part of this effort involves removing administrative and other process barriers to reduce permitting backlogs while providing careful oversight to ensure these energy resources are developed in full compliance with existing laws and regulations and in an environmentally sound and economically feasible manner.



Working with other Federal Departments, State and local governments, Tribes, and local communities, the Department is applying innovative approaches to achieve an increase of renewable energy production, primarily on Interior-managed western lands.

Additionally, the Department promotes energy conservation and uses renewable energy resources in an increasing number of Department facilities throughout the country. It is estimated that over 400 Interior facilities- office buildings, campgrounds, weather and fire monitoring stations and traffic signs- are powered by wind and solar energy. The Department spent \$26 million for facility energy improvements in 2003 and conserved 32 percent more energy than it did in 1983. In 2003, the Department also purchased 923 watts of electricity from renewable sources,



enough to provide 5 percent of the power for the Main Interior building in Washington, DC. (The Main Interior Building houses over 2000 people.)

Although renewable energy resources comprise only a small percentage of the nation's total energy portfolio, they are a rapidly growing energy source and can provide a bright picture for America's energy future.

Appendices

- A. BLM Geothermal Leasing Statistics, Existing Leases
- B. BLM Geothermal Leases Issued, Producing Leases
- C. BLM Geothermal Leases Issued, totals by year
- D. Wind Energy Rights-of-Way, BLM, by Administrative State
- F. Websites Related to the Department of the Interior's Renewable Energy Programs

BLM GEOTHERMAL LEASING STATISTICS PUBLIC LAND STATISTICS

EXISTING LEASES, Competitive/ Noncompetitive

State	2000 Comp/Non	2001 Comp/Non	2002 Comp/Non	2003 Comp/Non	2004 Comp/Non
Arizona				0/1	0/1
California	73/16	70/16	59/13	60/13	57/13
Idaho					0/3
Nevada*	54/71	50/72	42/129	58/177	62/193
New Mexico	4/1	4/	4/0	6/0	4/0
Oregon	10/47	10/47	10/47	10/48	10/47
Utah	13/2	13/1	6/2	6/2	7/2
Total	154/137	147/136	121/191	140/241	140/259
Grand total	291	283	312	381	399

* 15 additional leases were issued during the 2001-2003 timeframe. Are not included in the table.

**BLM GEOTHERMAL LEASES ISSUED,
Competitive/Noncompetitive**

State	2000 Comp/Non	2001 Comp/Non	2002 Comp/Non	2003 Comp/Non	2004 Comp/Non
Arizona	0			0/1	
California	0				
Idaho	0				0/3
Nevada*	0	0/2	7/72	16/53	4/21
New Mexico	0			2/	
Oregon	0		0/1	0/1	
Utah	0		0/1		1/0
Total	0/0	0/2	7/74	18/55	5/24
Grand Total	0	2	81	73	29

*15 additional leases issued during 2001-2003 timeframe are not shown.

PRODUCING LEASES by Number, Generation GWh or btu

State	2000 #, GWh	2001 #, GWh	2002 #, GWh	2003 #, GWh	2004* #, GWh
California	23, 4,500	23, 4,400	23, 4,330	23, 5,458	
Nevada	22, 1,200	26, 1,200	26, 1,250	26, 1,300	
New Mexico			2, 2(btu)	2, 2 (btus)	
Oregon					
Utah	6, 250	6, 250	4, 230	4, 255	
Total	51, 5,950	55, 4401	55, 5,810	55, 7012	

*2004 information not yet available

BLM GEOTHERMAL LEASES ISSUED, totals by year

State	FY96	FY 97	FY98	FY99	FY00	FY01	FY02	FY03	FY04ytd
AZ								1	
CA									
ID									3
NV*	4	1	9	8		2	79	69	25
NM			1					2	
OR	1						1	1	
UT				1			1		1
Total	5	1	10	9	0	2	81	73	29

* 15 additional leases issued in 2001-2003 timeframe not shown.

Wind Energy Rights-of-Way Bureau of Land Management

State	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
Arizona					
Filed				3	4
Issued				1	4
Total Current				1	5
Pending				2	2
California					
Filed	1	1	4	17	10
Issued	0	1	1	7	4
Total Current	21	22	23	30	34
(Withdrawn)					(5)
Pending	1	1	4	14	15
Idaho					
Filed		2	5	2	0
Issued		1	1	2	1
Total Current		1	2	4	5
(Withdrawn)					(2)
Pending		1	5	5	2
Montana					
Filed				2	1
Issued				2	0
Total Current				2	2
Pending				0	1
Nevada					
Filed	1	2	10	25	9
Issued	0	0	5	9	11
Total Current	0	0	5	14	25
(Withdrawn)					(5)
Pending	1	3	6	24	17
New Mexico					
Filed			2	1	1
Issued			0	1	1
Total Current			0	1	2
Pending			2	2	2
Oregon					
Filed		1	0	3	2
Issued		0	1	2	2
Total Current		0	1	3	5
Pending		1	0	1	1

Wind Energy Rights-of-Way Bureau of Land Management

(continued)

	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
Utah					
Filed				3	2
Issued				0	2
Total Current				0	2
(Withdrawn)					(1)
Pending				3	2
Washington					
Filed			1	0	0
Issued			0	1	0
Total Current			0	1	1
Pending			1	0	0
Wyoming					
Filed	0	1	2	5	0
Issued	0	0	1	1	1
Total Current	1	1	2	3	4
Pending	0	1	2	6	4
Totals					
Filed	2	7	24	61	29
Issued	0	2	9	26	26
Total Current	22	24	33	59	85
(Withdrawn)					(13)
Pending	2	7	20	57	46

Note: The number of current pending applications includes a fairly large number of applications that are on hold at the request of the applicant due to future uncertainty regarding continuation of the Federal Production Tax Credit (PTC).

Websites Related to the Department of the Interior's Renewable Energy Programs

General

National Energy Policy www.whitehouse.gov/energy
Assessing the Potential for Renewable Energy on Public Lands www.osti.gov/bridge
White House Report in Response to National Energy Policy Recommendations to
Increase Renewable Energy on Federal Lands
www.doi.gov/news/pdf/FinalWhiteHouseReportwithAppendicies.pdf
Department of the Interior, Increasing the Availability of Renewable Energy Resources
www.doi.gov/initiatives/energy2.html
Greening the Department of Interior www.doi.gov/greening
Greening the Department of Interior, Energy and Water
www.doi.gov/greening/energy
Bureau of Land Management Energy Office www.blm.gov/energy
United States Geological Survey www.usgs.gov
Minerals Management Service www.mms.gov

Geothermal

BLM, Fluid Minerals (including Geothermal) www.blm.gov/nhp/300/wo310
Opportunities for Near-Term Geothermal Development in the Western United States
www.nrel.gov/docs/fy03osti/33105.pdf

Hydropower

Bureau of Reclamation www.usbr.gov/power

Biomass

National Association of Conservation Districts www.nacdnet.org
Bioenergy and Wood Products Conference, January, 2004
www.nifc.gov/biomass_conf.html
Biomass MOU, Healthy Forests Initiative, Biomass Utilization
www.healthyforests.gov/initiative/biomass.html
BLM's Biomass Strategy www.blm.gov/nhp/efoia/wo/fy04/im2004-227attach1.pdf

Wind

BLM Wind Energy www.blm.gov/nhp/what/lands/realty/wind_energy.htm
Wind Energy Development, Programmatic Environmental Impact Statement
www.windeis.anl.gov
Fish and Wildlife Service www.fws.gov/r9dhcbfa/windenergy.htm and
www.fws.gov/habitat

Solar

BLM Solar Policy www.blm.gov/nhp/what/lands/realty/solar_energy.htm