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Delivering Power



Powerplants located throughout the 17 Western States.

Reclamation produces power to help support the delivery of water and help meet the growing need for electric power in the Western United States in a cost-effective, environmentally sensitive way consistent with statutory authorities and water law. Reclamation's power program (<http://www.usbr.gov/power>) operates and maintains 58 hydroelectric powerplants that provide about 10 percent of the electric power in the Western United

States. Our plants generate about \$800 million in power revenues annually. Power revenues are used to pay the cost for building, operating, and maintaining our power-related facilities. In addition, power revenues also provide supplemental aid for irrigation, salinity control, and other authorized project uses.

We have led the hydropower industry with low costs and high reliability. By limiting financial resources and maintaining reliable facilities, we keep costs in check. Our generating equipment's increasing age will continue to test our abilities to maximize reliable power supplies, due to more frequent breakdowns and planned outages. The alternative is to closely monitor the equipment and provide appropriate preventive maintenance, which can substantially extend the normal life of this equipment.

Other challenges include preparing for an uncertain future in the power utility industry. Deregulation is evolving, and we're working closely with partners in the Federal marketing administrations to keep our project customers from being harmed in the new business environment.

Meeting Our Power Delivery Obligations

Reclamation's power generation is an important component in ensuring

power reliability in the West. Our hydropower resources are flexible enough to support the system by providing reliable power during times of peak power needs and emergencies, as well as quick recovery during blackouts. We will continue to find ways to meet this type of demand by increasing unit availability and reducing unplanned and “forced” outages.

We strive to deliver full value for our power products, as Federal power is marketed on a cost-to-produce basis. To keep costs low, Reclamation conducts condition-based maintenance, just-in-time capital investments, and rehabilitation work both to maintain the viability of our assets and to keep our units productive and the cost of power competitive.

Operating, Maintaining, and Upgrading Facilities to Deliver Power

Although hydropower facilities have high initial investment costs, these facilities can have life expectancies approaching 100 years with proper maintenance practices and replacement of generating components. Reclamation works diligently to reduce the cost of generating electric power while ensuring the long-term viability of our facilities. In FY 2003, Reclamation continued our

GPRA Goal for the Cost of Power Production

Annual Goal/Performance Measure: In FY 2003, deliver power at a cost that is as low as, or lower than, the cost of the 75th percentile for comparable hydropower facilities.

Performance Indicator: Number of megawatthours generated/number of megawatthours contracted.

Annual Target	Results	Goal Status
\$7,900	\$7,400	On target

Goal Notes: The cost of power production per megawatt capacity is preliminary data based on current FY 2003 financial data. The financial data have not yet been reviewed and verified. The final FY 2003 performance data will be provided in a FY 2003 Annual Performance and Accountability Supplemental Report published during the third quarter of FY 2004.

This measure continues into Interior's new strategic plan for FY 2003-FY 2008.

responsible maintenance practices, including:

- Conducting standardized facility reviews (power reviews of operations and maintenance) to identify and implement timely maintenance, replacements, upgrades, necessary modifications, and modernizations. These assessments detect potential problems before they disrupt power generation or reduce generating equipment life.
- Creating a condition rating system to identify production areas of greatest concern for maintaining reliability.
- Obtaining baseline data on facility condition for all Reclamation powerplants.
- Beginning development of a risk assessment tool, which will be able to prioritize limited maintenance and replacement dollars to maximize benefits and minimize risk.



GPRA Goal for Forced Outage Rates		
Annual Goal/Performance Measure: In FY 2003, attain a 3-percent or lower forced outage rate for Reclamation's conventional hydropower units.		
Performance Indicator: Number of hours out of service due to forced outage/number of hours in year (weighted according to megawatt capacity per unit).		
Annual Target	Results	Goal Status
3.0 percent	1.5 percent	Exceeds target
Data Source: Power Operations and Maintenance 59 Report.		
Goal Notes: Reclamation's forced outage rate was 1.5 percent for the year. This measure continues into Interior's new strategic plan for FY 2003-FY 2008.		

Thinking Outside the Box to Meet Power Demands

Our maintenance strategies minimize costs and maximize opportunities for generation. We have changed schedules or shortened outages to provide additional benefits to customers, including reducing overall system peak load demands by pumping water, which requires additional energy, during off-peak periods (nights and weekends). This frees up 600 megawatts for other power users during peak periods. Because 1 megawatt at Reclamation plants would serve the needs of 300 households, this significantly reduces our customers' needs to purchase expensive peak power.

Over the years, Reclamation has developed hydropower training at the facility, area, or regional level, often duplicating efforts and costs throughout the organization. Because training is resource driven,

Hoover Dam turbine shaft.

larger facilities often fare better than smaller facilities; and because our facilities are remote, training can be costly and time consuming. For these reasons, the Power Resource Office is developing a hydropower training course that could be used throughout Reclamation. This training course will be broad based and cover a wide range of topics, including electrical and mechanical theory, operations, maintenance, systems, safety, dam inspections, and administration. To develop this

course, we will look at what has already been developed throughout Reclamation and the hydropower industry and merge this material into an all-encompassing program. Once developed, the program could receive accreditation through the American Council on Education, which would allow individuals completing the courses to receive college credit accepted at over 1,700 accredited colleges and universities. We anticipate completion in FY 2005.

Reclamation's 58 powerplants, including the one at Glen Canyon Dam, generate an average of 42 billion kilowatthours of power, enough to serve 9 million people.



Improving Power Management Information to Provide Effective Power Deliveries

The Power Resource Office has recently sponsored a course in “Maintenance Excellence,” with the goal of educating facility and maintenance managers in the area of maintenance management, and a Power Leadership Course to reinforce the responsibilities Facility Managers have in managing Reclamation's power facilities.

Additionally, Reclamation has established a Power Maintenance Council to develop corporate maintenance management standards and to share “best practices” among regions and facilities, as well as to develop a set of standard preventative maintenance job plans.

Reclamation works closely with its power customers and the power marketing agencies that are responsible for marketing and delivering the power that Reclamation generates. These relationships are used to establish goals for performance and work out maintenance schedules to ensure generation during peak periods. An example of this effort is the Joint Operating Committee between Bonneville Power Marketing Administration, the U.S. Army Corps of Engineers, and Reclamation to coordinate water release and maintenance schedules.

Benchmarking to Identify Best Management Practices

Reclamation benchmarks our power production costs against similar Federal and other hydropower utilities and has consistently been among producers with the lowest costs, ranking above the 75th percentile for lowest-cost hydropower producer. For FY 2002, production costs for Reclamation powerplants greater than 500 megawatts in capacity were lower than those of any other operator and remained among the lowest in FY 2003.

Reclamation has worked closely with other hydropower producers to identify best practices for operating and maintenance strategies and has participated in best practice workshops to compare practices and costs.

Reclamation also shares best business practices with other electric power producers. For example, Reclamation is working with Hydro Quebec, a large Canadian electric utility, and the U.S. Army Corps of Engineers to develop a new risk assessment tool. This tool will help us establish priorities for limited maintenance and replacement dollars to maximize benefits. Reclamation has improved operation and maintenance practices at facilities with best practices documentation, direct interchange between management and staff, training classes, and workshops.

Reclamation develops an annual business plan. This year's plan identified these key initiatives:

- Enhance the security, reliability, and long-term viability of Reclamation's power facilities.
- Strategically position Reclamation's power program by identifying emerging issues and trends (such as industry deregulation and restructuring and changes to power system requirements) and developing appropriate corporate responses.
- Continue developing a power program succession plan that will train the next generation of facility managers, engineers, and craftsmen for our generation facilities.
- Develop a cohesive power community by improving individual and organizational relationships.

Grand Coulee Dam is North America's largest hydroelectric facility, with an average annual output of 20 billion kilowatthours, enough to power two cities the size of Seattle.



Improving Technology to Tap Currently Unused Power Production Capabilities

To improve and modernize facilities, Reclamation has teamed with Bonneville Power Administration to assess opportunities for investments to enhance power generation. As a result of this effort:

- Reclamation is replacing 18 turbine runners at Grand Coulee Dam over 8 years (in FY 2003, it began replacing 4 turbine runners). Grand Coulee Dam's capacity is 6,809 megawatts, so small increases in efficiency can provide a greater amount of energy with the same amount of water. This program is expected to increase efficiency by 3 to 5 percent, the equivalent of adding a 100-megawatt powerplant to the system.
- Reclamation is replacing five turbine runners at Shasta (in FY 2003, it replaced the first turbine runner). Shasta's capacity is 629 megawatts, and this 4-year project will increase efficiency by 3 to 5 percent—about 25 megawatts.
- Reclamation is rebuilding the dormant Boise Diversion Dam Powerplant for an additional 2.5 megawatts of capacity and is planning to come online with that facility during FY 2004.

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Security, Safety, and Law Enforcement

To ensure Reclamation's ability to meet its core mission of delivering water and power, we continued extraordinary measures to secure key facilities and National Critical Infrastructures. Reclamation expanded its existing security program to address new threats of terrorism and establish law enforcement authorities.

The Office of the Director of Security, Safety, and Law Enforcement was created in FY 2002, with responsibility for four functional areas:

- Security
- Safety and occupational health
- Dam safety
- Law enforcement

These four functional areas have been moved into one secure location with secure communications.

Reclamation continued to work closely with Interior's Office of Law Enforcement and Security and the Office of the Inspector General (OIG) in implementing its security and law enforcement programs. The OIG has indicated that Reclamation is taking a suitable approach in implementing its security program.

Physical Security

A top down independent review of Reclamation's security program was completed in FY 2003, and recommendations for enhancing the security program are being implemented.

The main effort in physical security in FY 2003 was the implementation of security enhancements at Reclamation's 55 most critical facilities. The vulnerability risk assessments conducted by contracted security experts at those 55 facilities in FY 2002 resulted in 1,378 accepted recommendations, with 738 (or 53.6 percent) of those recommendations implemented in FY 2003.

- Many of these were quick response recommendations that could be implemented without requiring additional resources, such as installing locks on gates and doors, adding lighting, limiting public access, or changing operational procedures.
- Decision documents for all 55 facilities were completed and contain recommendations that would require significant additional resources (for example, hiring additional guards, installing new traffic barriers or other structural

modifications, installing alarm systems, or installing camera surveillance system).

- Work in implementing all recommendations resulting from the first 55 risk assessments will continue through FY 2004 and FY 2005.

In FY 2003, Reclamation completed risk assessments at the 96 next most critical facilities. Recommendations for enhancing security, resulting from those assessments, will be implemented beginning in FY 2004.

Reclamation plans to complete risk assessments on all remaining facilities in FY 2004.

Electronic Security

A significant part of the security program is ensuring electronic security. Reclamation places top priority on information technology (IT) security. We are certifying and accrediting system security to protect information and operations. A major challenge with expanded E-Government is maintaining the balance between open communication and security. IT security requirements and technology change rapidly and require ongoing attention.

Safety

In FY 2003, Reclamation continued to improve workplace safety performance in the Safety and

Occupational Health program. The Elephant Butte Power Plant was awarded Star status, the highest award level, in the Department of Labor Occupational Safety and Health Administration (OSHA) Voluntary Protection Program (VPP). Elephant Butte was the first, and continues to be the only, Interior site to achieve such status. The VPP is the premier recognition program in the Department of Labor for exemplary safety programs. In the VPP, management, labor, and OSHA establish cooperative relationships at workplaces to implement a comprehensive, performance-based safety management system to prevent harm to people, property, and the environment.

Safety of Dams

Reclamation fosters the responsibility for delivering a reliable water source by providing appropriate assessments and necessary modifications at its facilities. This work includes activities under the Safety of Dams Program. More detail concerning specific Safety of Dams Program modification activities is presented in table 15 in the Supplemental section. In FY 2003, Reclamation accomplished the following:

- Completed 50 comprehensive facility reviews.
- Completed interim Safety of Dams risk reduction actions at Bull Lake Dam, Riverton Unit, Wind Division, and Pick-Sloan

Missouri Basin Program, by modifying the spillway to reduce overtopping risks.

- Completed Safety of Dams risk reduction actions at Wickiup Dam, Deschutes Project, Oregon, to address risks associated with the stability of the dam during seismic events.
- Began Safety of Dams modifications to the following dams:
 - ▶ Deer Creek Dam, Provo River Project, Utah
 - ▶ Deadwood Dam, Boise Project, Idaho

As a result of the Safety of Dams modifications, Reclamation is able to restore and/or sustain reservoir capacity for future water deliveries.

Law Enforcement

A law enforcement program is now a critical part of Reclamation's safety. Enactment of Public Law 107-69 (November 12, 2001) allows use of non-Interior law enforcement officers to enforce Federal laws on Reclamation lands.



In FY 2002, officers detailed from the National Park Service and the Fish and Wildlife Service were used by regional law enforcement officers to help initiate Reclamation's law enforcement program. In FY 2003, Reclamation hired a Senior Law Enforcement Official to oversee implementation of the law enforcement program and, through the Bureau of Land Management, began the process of hiring five permanent regional law enforcement officers.

(Lower left) Workers examine spillway conduits at Los Banos Detention Dam as part of facility reviews.

(Lower right) Exploration and grouting activities in outlet works chute structure at Virginia Smith Dam, Nebraska, help evaluate identified risks.



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Other Benefits of Reclamation Projects



- Attract private sector investments and management expertise.
- Involve citizens in decisionmaking to ensure that recreation development meets public needs.

Planning and Designing to Manage Resources Effectively

To determine the best uses for project lands, Reclamation works with non-Federal managing partners and the public to prepare Resource Management Plans for individual reservoirs. These plans cover all resources, including recreation. To more effectively integrate recreation within Reclamation's planning in FY 2003, we:

- Reviewed and recommended legislative actions to improve recreation management.
- Updated recreation and concession policies, directives and standards, and other guidelines to reflect results of studies, surveys, and on-the-ground experiences.
- Completed the *Resource Management Plan Guidebook* that provides direction for developing, monitoring, and



Providing Recreation Benefits

As an ancillary benefit to Reclamation projects, we play a role in meeting the increasing demand for recreation: our 288 lakes throughout the 17 Western States attract boaters, anglers, campers, and hikers. Reclamation lakes account for 8 percent of total visits to Federal lands, with over 90 million visits a year. Visitors to Reclamation lakes and facilities contribute about \$6 billion a year to local and regional economies and provide some 27,000 non-Federal jobs. As a matter of strategy to make our dollars stretch further, we will:

- Work with other Federal land management agencies and State, county, and local partners to develop, manage, and cost-share recreation projects.

There are more than 90 million visits to Reclamation-created lakes and Federal lands each year.

updating Resource Management Plans (see <<http://www.usbr.gov/main/library/rmpg/rmpg.pdf>>).

- Completed *Sign Guidelines* to help field offices provide direction and guidance for the use of project lands and facilities (see <<http://www.usbr.gov/pmts/planning/signguide/index.htm>>).
- Developed the *Water Recreation Opportunity Spectrum Guidebook* to help recreation and resource professionals make better decisions about recreation use and management. This is a tool to help inventory, plan, and manage water recreation resources—it is a dynamic system developed to encourage a variety of water recreation activities on Reclamation projects. This guidebook can help facilitate communication and collaboration among local, State, and Federal agencies, communities, businesses, and stakeholders.
- Distributed the *Recreation Facility Design Guidelines* for Reclamation and managing partners to help plan and design recreation facilities, improve the budget process, reduce design costs, provide consistent designs, and meet regulatory compliance standards. These guidelines further improve our ability to make our facilities accessible to

all people (see <<http://www.usbr.gov/pmts/architecture/recfac/>>).

- Used the Accessibility Data Management System as a planning and design tool to manage and track Reclamation's accessibility program to ensure that recreation facilities and programs meet accessibility standards. In FY 2003, Reclamation used this system with non-Federal managing partners to improve access on facilities we are managing.

To determine the types and patterns of current recreation use and the desired future recreation needs, we updated our Recreation Data User Survey (approved by the Office of Management and Budget), which provides valuable information on recreation uses, demands, and trends. We also participated in Interior's national satisfaction surveys on access and quality of services.

Increasing Access to Let Everyone Enjoy Our Lakes

Increased access means physical and programmatic access to recreation facilities and a variety of recreation activities. Reclamation is committed to providing physical access to our facilities, and our goal is to achieve a basic level of accessibility at all recreation sites by the year 2010.

GPRA Goal for Increasing Access to Recreation Areas

Annual Goal/Performance Measure: By the end of FY 2003, provide access for the disabled by ensuring that Reclamation's recreation and public areas meet accessibility standards.

Performance Indicator: Percent of sites accessible.

Annual Target	Results	Goal Status
7 percent	12.8 percent	Exceeds target

Data Source: Accessibility Data Management System.

Goal Notes: In FY 2003, 12.8 percent of Reclamation's recreation facilities are accessible. The target was exceeded because it was set based on incomplete baseline data, which was still being gathered during FY 2003.

Interior has developed a new strategic plan for FY 2003-FY 2008 that contains this measure in a revised form.

Reclamation's Accessibility Program inventories and evaluates our facilities to determine the baseline level of access. From there, Reclamation develops action plans for each site to identify and schedule what measures will be taken (for example, removing barriers for the physically disabled and captioning videos for the hearing impaired). To date, we have inventoried and evaluated 70 percent of Reclamation's sites and facilities. In FY 2003, 12.8 percent of Reclamation's recreation sites were fully accessible for the public to enter and enjoy. To improve access to a variety of recreation activities, we have also:

- Extended boat ramps at a number of lakes to provide boaters and anglers access to the water in low water years.
- Added a new 30 unit full-service campground and 90 boat trailer and vehicle parking spaces at Navajo Reservoir, Colorado.
- Completed a new group pavilion at Willard Bay Reservoir, Utah.

- Helped the Stutsman County Park Board, North Dakota, construct a new accessible swim beach, parking lot, and fishing pier at Jamestown Reservoir.
- Refurbished existing roads, campgrounds, and interpretive signs to meet an expected four-fold increase in visitation at Clark Canyon Reservoir, Montana, from the Lewis and Clark Bicentennial Commemoration, which started this year and extends into 2006. Clark Canyon Reservoir is the site of Camp Fortunate, where Sacajawea was reunited with her brother and the Lemhi Shoshone Tribe.

Reclamation will continue to work to increase access by developing directives and standards for recreation and accessibility planning, design, and management. These guidelines are scheduled to be completed in FY 2004. We are also participating in meetings and workshops with organizations such as the National Association of State Park Directors to identify barriers to, and solutions for, management actions.

Working With Partners to Address Challenges and Opportunities

Congress has authorized recreation development and management primarily in partnership with Federal, State, county, and city governments—with nearly 200 State,

county, and city parks at Reclamation projects. Working closely with these entities is the most efficient way to identify critical needs and priorities for cost sharing and provide needed recreation facilities and services.

Attracting private sector investments and management expertise helps the managing entity provide the desired facilities and relieves the general taxpayer of the financial burden. Reclamation works with many groups to develop business plans and commercial services plans that identify where commercial recreation can best serve needs. This citizen-centered, market-based approach is in keeping with *The President's Management Agenda* and Secretary Norton's *Plan for a Citizen-Centered Government*.

As States, counties, and cities face limited budgets, they are more inclined to return the recreation management to Reclamation in a "turnback." We're exploring opportunities to prevent turnbacks by developing a study to determine the cause of turnbacks, identify areas at risk of being turned back, and find solutions to prevent future turnbacks.

Open communication with managing partners will be critical to designing action plans and implementing solutions—for example, cooperating with State Park departments to extend boat ramps during low-water periods. Examples of opportunities we are pursuing include:

- Participating in the Secretary's Take Pride in America service program to improve volunteer efforts.
- Identifying funding for recreation access systems through the Public Lands Highway program.
- Providing training and guidance on applying the Water Recreation Opportunity Spectrum system to Reclamation lakes.
- Working with interest groups such as the Western States Tourism Policy Council to inform the visiting public of recreation opportunities.
- Conducting customer satisfaction surveys and implementing suggestions.
- Working with Laughlin, Nevada, and Bullhead City, Arizona, to develop recreation facilities on Reclamation lands.

GPRA Goal for Recreation Reviews

Annual Goal/Performance Measure: By the end of FY 2003, complete recreation management reviews at recreation areas (this is a cumulative goal—the total includes the number of reviews completed between FY 2000-FY 2002).

Performance Indicator: Number of areas reviewed.

Annual Target	Results	Goal Status
157	155	Not met

Data Source: Reviews.

Goal Notes: Reclamation has achieved 98 percent of the performance target and is slightly behind schedule due to scheduling and resource priorities. Interior has developed a new strategic plan for FY 2003-FY 2008 that does not contain this measure in its present form.

This measure will be discontinued in FY 2004.