

**Statement of Lowell Pimley, Deputy Commissioner of Operations  
Bureau of Reclamation  
U.S. Department of the Interior  
Before the  
Committee on Energy and Natural Resources  
Subcommittee on Water and Power  
United States Senate**

**Aging Water Resource Infrastructure in the United States  
July 25, 2013**

Chairman Schatz and members of the Subcommittee, I am Lowell Pimley, Deputy Commissioner of Operations of the Bureau of Reclamation (Reclamation). I am pleased to provide the Department of the Interior's perspective on Reclamation's asset management strategy to address our aging water and power infrastructure.

As the owner and operator of large numbers of facilities across the West, Reclamation is acutely aware of the many challenges faced by agencies operating and maintaining water and power facilities. In order to efficiently manage water resources, Reclamation is proactively maintaining and improving its existing infrastructure for system reliability, safety, and sustained water conservation, in an era of constrained budgets and changing climate. In light of the importance of Reclamation's infrastructure in the 17 Western States on the economy and environment, Reclamation continues to prudently decide how to invest available resources. Proactive engagement will be required to address many anticipated future water supply and power generation challenges and maintain economic productivity in communities served by Reclamation projects throughout the West. Anticipated increases in population, renewed emphasis on domestic clean energy development, and the need for adequate water supplies will place additional demands on Reclamation's infrastructure. Maintaining the key features of our infrastructure is becoming more costly over time due to the condition of some of the components, cost increases in the broader economy and the need for additional facilities rehabilitation, replacement, and extraordinary maintenance.

Reclamation's mission is to "manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public." We are the Nation's largest wholesale water supplier, and the 348 reservoirs we administer have a total storage capacity of 245 million acre-feet of water. We bring water to more than 31 million customers and provide approximately 20 percent of western farmers with water to irrigate about 10 million acres of farmland. We are also the Nation's second largest producer of hydroelectric power, generating more than 40 billion kilowatt-hours of energy each year. In the 111 years since Reclamation's creation, the Federal government has invested almost \$19 billion in original development costs for our facilities. In present value terms, the amount that the Federal government has spent to construct this infrastructure is estimated to be \$94.5 billion.

Most of Reclamation's major dams, reservoirs, hydroelectric plants, and irrigation systems are 60 or more years old.<sup>1</sup> All structures age over time. We monitor the condition of our facilities

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<sup>1</sup> <http://www.usbr.gov/power/data/recl-wid.pdf>

on an ongoing basis. We are working to invest in the maintenance and rehabilitation of these structures and their component systems, where needed.

Reclamation has long recognized the many challenges associated with managing a large portfolio of water and power infrastructure with a wide array of ages and conditions. In order to address the reliability, efficiency and safety of our portfolio of assets, Reclamation has developed several programs summarized below to address these issues, each targeted to address a specific type of challenge. Reclamation's Hydropower Modernization Initiative guides investments in our hydropower assets. Our Canal Inspection Program addresses canal safety and reliability. Our Dam Safety Program addresses design deficiencies and other factors contributing to conditions unsafe enough to justify corrective action. Reclamation's Facility Maintenance and Rehabilitation Program identifies, schedules and prioritizes necessary rehabilitation work at "reserved works," facilities where Reclamation still performs operations and maintenance. Our Associated Facilities Review of Operations and Maintenance Examinations is a longstanding process employed by Reclamation to track facility condition at facilities where operations and maintenance (O&M) responsibility has been transferred to others. Our authority for Extended Repayment of Extraordinary Maintenance assists non-Federal sponsors who have difficulty financing a large amount of extraordinary maintenance in a single year. And lastly, Reclamation's Title Transfer process facilitates situations in which the best course of action is to de-federalize a facility or associated asset. Through these existing programs, we are, and will continue to work to improve the way that we provide maintenance and rehabilitation of our entire portfolio of infrastructure to ensure that it is sound, safe, and reliable.

Reclamation partnered with the United States Army Corps of Engineers (USACE) to address infrastructure modernization challenges related to hydropower through the Hydropower Modernization Initiative (HMI), a program that assesses and prioritizes the investment needs of federally-owned hydropower facilities. The HMI Asset Investment Planning (AIP) program is designed to: 1) review the comprehensive list of power train assets and corresponding key attributes, 2) analyze and prioritize asset investment projects by year based on factors including Benefit-Cost Ratio, Net Present Value, and Risk, and 3) prioritize the allocation of annual budget dollars to maximize return on investment and reduce risks in the asset portfolio.

Results from the HMI allowed Reclamation to assess the potential for capacity increases at the 58 existing hydroelectric plants, and to estimate incremental energy increases from efficiency gains that would result from replacement of older turbine runners with modern runners, and to estimate potential greenhouse gas (GHG) offsets that could be credited to the incremental energy increases. The results of the study were presented in a 2010 Reclamation report entitled, *Assessment of Potential Capacity Increases at Existing Hydropower Plants*, which is available at <http://www.usbr.gov/power/AssessmentReport/USBRHMICapacityAdditionFinalReportOctober2010.pdf>

Improved technologies, as well as innovative construction processes, like the one occurring on the Joint Federal Project at Folsom Dam near Sacramento, assist Reclamation in managing costs while fostering collaboration. Together with USACE, Reclamation is undertaking a historic effort to jointly construct features that will address both safety of dams concerns, as well as expand flood protection for the City of Sacramento. Working together to design and construct features consistent with these two distinct activities, Reclamation and the USACE estimate the

joint project will lead to significant cost and time savings. Project construction has proceeded in phases by Reclamation and the USACE.

On April 17, 2008 Reclamation provided testimony before this committee focused on infrastructure improvement challenges related to Reclamation's canals and irrigation facilities. Our 2008 statement highlighted a canal failure in Nevada resulting in uncontrolled water releases into residential areas causing damage to homes. The canal, operated and maintained by the Truckee-Carson Irrigation District under a contract with Reclamation, provides water to agricultural and wetland uses in the Fernley and Fallon, Nevada areas. This canal was built over a hundred years ago.

In response to this failure \$10 million in funding was provided under the American Recovery and Reinvestment Act of 2009 to inspect Reclamation canals located in urbanized areas, where the consequences of a facility failure would typically be higher. From 2009 through 2012, Reclamation developed an inventory of canals located in urbanized areas and performed inspections of over 250 canal reaches representing more than 1,000 miles.

Reclamation also developed tools to assist in categorizing the observations on each canal reach, and expected actions associated with each rating category. For canal reaches identified as being in the "immediate action" or "follow-up monitoring" categories, additional technical analysis and/or field investigations were performed as needed. Based on additional technical analysis and field investigations, Reclamation has developed formal recommendations to address concerns for particular canal reaches in coordination with the regional and/or area office staff and the responsible operating entity. These recommendations are tracked until completion, similar to the recommendations resulting from Associated Facilities Review of Operations and Maintenance examinations, the longstanding process employed by Reclamation to track facility condition at facilities where operations and maintenance (O&M) responsibility has been transferred to others.

As these urbanized canal reaches are evaluated, categorized, and prioritized, the results have been used in determining future inspection frequencies and necessary activities under the program. This process is currently captured in Reclamation's temporary Directive and Standard, *The Bureau of Reclamation's Associated Facility Review of Operations and Maintenance Program - Inspection of Canal Reaches Located in Urbanized Areas* (FAC TRMR-55).

As a result of these inspections, responsible operating entities may need to provide additional funding for extraordinary operation and maintenance (XOM). Funding options such as the extended repayment authorities provided under Title IX, Subtitle G of Public Law 111-11 assist operating entities in funding this type of work. Reclamation continues to refine requirements to address XOM related to canals in urbanized areas, locations for these activities, and related funding needs.

In fiscal year 2014, Reclamation's Dam Safety Program will continue corrective actions underway at seven facilities across the West. Reclamation has also requested funds to study the need for potential corrective actions at 10 other facilities.

In 1948, Reclamation initiated a Facility Review Program to assess the condition of assets constructed by Reclamation and operated and maintained by non-Federal operating partners. These activities continue today and, as a result of our preventive maintenance philosophy and

related oversight initiatives, have successfully extended the service life of many of our water and power facilities beyond original expectations.

Reclamation's budget is carefully crafted to include an appropriate amount of repair, maintenance, and rehabilitation funding for each project. The President's Budget includes \$896 million across three accounts (Water & Related Resources, Indian Water Rights Settlements, and San Joaquin River Restoration) to accomplish this task. The Administration urges the Congress to fund the Bureau of Reclamation at the requested level to support these activities.

Our large portfolio of water resources infrastructure constantly presents new maintenance, replacement, and modification challenges. Similar to other agencies with such infrastructure, Reclamation has a fiduciary duty to maintain services to its power and water customers in a cost efficient manner and to meet other requirements including environmental and endangered species management obligations. The general wear and tear of Reclamation's facilities over time will inevitably lead to increased pressure on Reclamation and our 350 operating partners' budgets, and it will be a challenge to maintain user rates while keeping infrastructure service and reliability commensurate with past levels. As such, Reclamation and the operating entities anticipate an increase in infrastructure repair needs that will continue to grow over time and will inevitably and appropriately be reflected in user charges. As part of Reclamation's asset management strategy, regular operation and maintenance activities will be managed in concert with other programs and activities addressed in our strategy to improve efficiency and effectiveness in funding rehabilitation and replacement needs.

Procedurally, Reclamation's Facility Maintenance and Rehabilitation Program identifies, schedules and prioritizes necessary rehabilitation work at "reserved works," facilities where Reclamation still performs operations and maintenance. To fulfill these responsibilities, Reclamation provides studies and designs, purchases equipment and services, and provides the resources to support the overall maintenance and rehabilitation program. Project beneficiaries advance funds for annual O&M work performed by Reclamation. However, for some of our other facilities, rehabilitation and replacement needs may exceed annually available resources and could potentially increase the risk of service interruption. To fund this work, given that operating partners cover a substantial portion of the O&M costs, the use of the entity's reserve fund is one of the first places we look for funding. However, these funds may not be contractually required, nor sufficient to meet the amount needed for major rehabilitation and replacement work. In these cases, long-term financing may be an option.

One of the challenges we face is the varying economic strength of our operating partners. For some of these partners, the cost-share requirements associated with the review and repair activities are simply beyond their means. The Administration has and will continue to be opposed to projects that are authorized without adequate cost controls and built-in accountabilities to ensure that the Federal Government is not subject to undue costs. While circumstances for each project vary, in order for projects to be sustainable, the non-federal sponsors must be responsible for a fair share of project costs and, for facilities that are being operated and maintained by non-federal entities, these entities must be accountable for maintaining the assets.

A key component of Reclamation's mission is sound and reliable infrastructure. Reclamation will continue to assure the integrity and reliability of Federal water and power assets. While

Reclamation's reach across the West is widespread, our employees take the safety of our facilities and the protection of local customers and surrounding communities very seriously. To meet our obligations to the public, Reclamation ensures that our infrastructure is in good working order. I am very proud of our record to date.

This concludes my written statement. I would be pleased to answer any questions.