



— BUREAU OF —
RECLAMATION

Reclamation Hydropower Strategic Action Plan

Hydropower Management Team
FY 2021 - 2026

Mission Statements

The U.S. Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; honors its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated Island Communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Reclamation Hydropower Strategic Action Plan

prepared by

Hydropower Management Team

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Cover Photo: Night view of Glen Canyon Dam during an Experimental High Flow Release in November 2012. (Reclamation/Andy Pernick)

Strategic Vision

Reclamation's hydropower program will position itself as a leader in the energy industry, for the benefit of current and future generations, by making sound business decisions, applying innovative solutions to complex problems, and being responsive to changes in the energy industry.

Strategic Vision Goals and Objectives

To realize the strategic vision, the plan lays out three goals plus targeted objectives that support each goal.

Goal 1: Ensure Reclamation hydropower is a valuable part of the long-term national energy portfolio.

Objective 1: Demonstrate the value of hydropower.

Objective 2: Work with our partners to educate and engage the public in communicating the importance of hydropower.

Goal 2: Customer satisfaction is core to the long-term success of Reclamation hydropower.

Objective 1: Achieve cost stability of hydropower resources while maintaining high reliability.

Objective 2: Maximize benefits of hydropower through increased efficiencies.

Objective 3: Enhance scientific capacity and technological tools necessary to increase hydropower performance.

Objective 4: Maximize collaboration with partners to maintain cutting edge technology and efficiencies in providing hydropower.

Goal 3: Invest in our people to ensure Reclamation continues to employ a skilled, dedicated, and capable workforce.

Objective 1: Cultivate and enhance an effective and diverse workforce to meet current and future challenges in delivering reliable water and power.

Objective 2: Provide a positive and safe work environment to support employee development and performance.

Strategic Action Plan

To achieve the goals and objectives of the Strategic Vision, the Hydropower Management Team developed an action plan. This plan includes twelve projects over the next five years that will address each of the objectives identified under the Strategic Vision goals.

Strategic Action Plan Approach

The twelve projects are broken into 2 Tiers. Tier 1 projects will be completed first and will build the foundation on which the Tier 2 projects will be built. Projects will be led by a mix of Regional and Power Resources Office staff, and each project lead will assemble a team of subject matter experts from across Reclamation to support the projects. Team leads will also identify and develop metrics for each project to measure success.

Project Start	Project Topic	Goal 1 Objectives	Goal 2 Objectives	Goal 3 Objectives
Tier 1	Maintenance Strategy – Investigate and Develop	1	1,2,3,4	1,2
Tier 1	Work to streamline Acquisitions Process		1,2,4	
Tier 1	Investigate methods to improve communication and sharing of lessons learned that can benefit the hydropower program		1,2,3,4	1,2
Tier 1	Develop A Strategy for Recruitment of Qualified People into Hydropower Jobs			1
Tier 1	Investigate and implement initiatives to enhance employee satisfaction			1, 2
Tier 1	Ensure Federal Hydropower Is Accurately Valued in Energy Markets	1		
Tier 2	Develop Tools to Inform a Capital Investment Prioritization Plan		1	
Tier 2	Investigate Best Practices for Outage Planning and Coordination		1,2,4	
Tier 2	Enhance and Expand the Use of Optimization at Reclamation Hydropower Facilities		1,2,3,4	
Tier 2	Develop a Communication Plan to Engage Partners in Delivering Hydropower’s Value Message to Stakeholders and the Public	2		
Tier 2	Perform Economic Study on Reclamation Hydropower Rates	1	1,3	
Tier 2	Explore Alternative Government Funding Methods/Streams for Most Advantageous Arrangements	1	4	

The completion of these projects will lead to organizational improvements that will ensure Reclamation hydropower remains valuable, and that our people and mission remain a primary focus.

Strategic Action Plan Project Descriptions

Project Title:	Investigate and Develop a Reclamation Maintenance Strategy							
Abstract:	The goal of this project is to address maintenance resource adequacy issues by defining alternative maintenance strategies that can be applied to assets to focus resources on critical assets. The project will focus on reliability of the assets, while offering flexibility in maintenance approaches. The strategy will culminate in a new FIST 6-2 defining alternative strategies, when and how to implement, and give sensor and technology options as alternatives to traditional maintenance inspections.							
Objectives:	<ul style="list-style-type: none"> • Develop alternatives to Reclamation's existing maintenance approach • Install flexibility as a feature of the maintenance program • Focus maintenance resources on the most critical assets 							
Tier:	Years 1 - 2							
Goals & Objectives	Goal 1		Goal 2				Goal 3	
	Obj 1	Obj 2	Obj 1	Obj 2	Obj 3	Obj 4	Obj 1	Obj 2
	•		•	•	•	•	•	•



A 2000-ton rotor is removed for maintenance from the generator at Grand Coulee's Third Powerplant. (Reclamation)



A new turbine runner is installed at Kortes Powerplant, WYAO, Missouri Basin Region.
(Reclamation/Billy Bright)

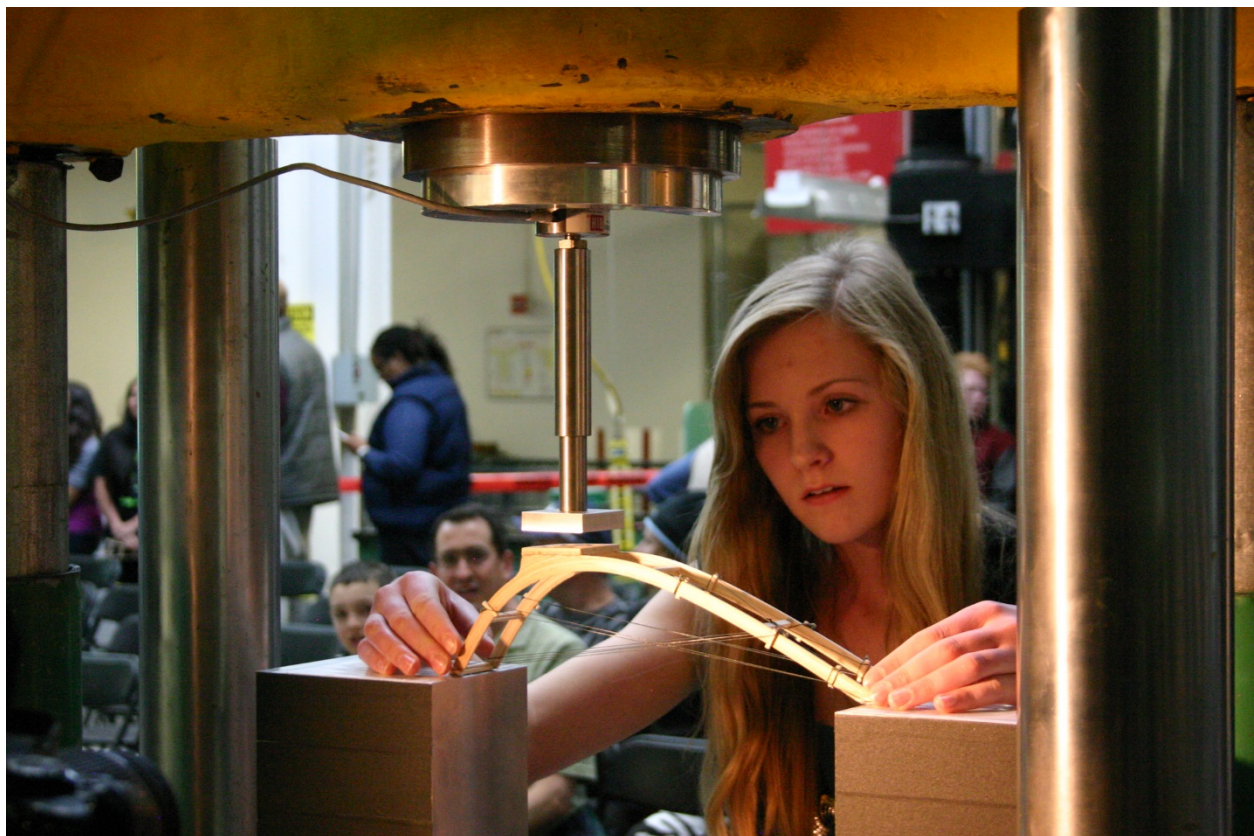
Project Title:	Work to Streamline Acquisitions Process							
Abstract:	Challenges exist within the Reclamation hydropower business line in regards to the time, effort, and cost required to navigate the acquisitions process while ensuring supply chain risk is addressed to procure goods and services for essential hydropower projects. This project seeks to develop relationships between the hydropower community the Acquisitions community and the intelligence community to understand mutual needs and requirements, and to seek alternative strategies to streamline the acquisitions of goods and services. Reclamation will continue to evolve it's efforts regarding IDIQ contracts for powertrain equipment, and we will seek new solutions to allow faster ordering, standardized equipment, and streamlined processes.							
Objectives:	<ul style="list-style-type: none"> • Increase reaction time for emergent work • Simplify ordering process for common equipment • Promote equipment standardization • Implement supply chain risk mitigation strategies for critical equipment 							
Tier:	Years 1 - 2							
Goals & Objectives	Goal 1		Goal 2				Goal 3	
	Obj 1	Obj 2	Obj 1	Obj 2	Obj 3	Obj 4	Obj 1	Obj 2
			•	•		•		



The Hoover Dam Fire Brigade performing training exercises to stand ready to protect and rescue facility workers. (Reclamation)

Project Title:	Investigate Methods to Improve Communication and Sharing of Lessons Learned that can Benefit the Hydropower Program							
Abstract:	Lessons learned and best practices within Reclamation's power program tend to remain in regional or even facility silos, and are not consistently shared throughout the organization. This project would seek to improve communication processes and seize opportunities to allow these lessons to be shared across the power community. Increasing information sharing and implementing best practices will lead to operation and maintenance efficiency improvements, provide for a safer work environment, and ensure a more reliable power system.							
Objectives:	<ul style="list-style-type: none"> • Become a learning organization • Share lessons learned and best practices across regions • Review existing, and explore new, opportunities for communication 							
Tier:	Years 1 - 2							
Goals & Objectives	Goal 1		Goal 2				Goal 3	
	Obj 1	Obj 2	Obj 1	Obj 2	Obj 3	Obj 4	Obj 1	Obj 2
			•	•	•	•	•	•

Project Title:	Develop A Strategy for Recruitment of Qualified People into Hydropower Jobs							
Abstract:	Safe, efficient, and reliable hydropower generation requires many areas of specialized skills. A gap analysis for training needs across the organization can help inform future recruitment efforts to target specific needs. The project will look at needs in trades, engineering, and other support roles within hydropower. The project will also identify potential resources to focus recruitment efforts, and outline a plan to attract potential talent from those resources.							
Objectives:	<ul style="list-style-type: none"> • Identify personnel needs not currently being met by recruitment • Identify resources that produce candidates with identified needs • Develop a strategy to target and recruit candidates with necessary skills 							
Tier:	Years 1 - 2							
Goals & Objectives	Goal 1		Goal 2				Goal 3	
	Obj 1	Obj 2	Obj 1	Obj 2	Obj 3	Obj 4	Obj 1	Obj 2
							•	



A student prepares to test her bridge in the 48th Annual Colorado High School Bridge Building Competition at a Bureau of Reclamation lab in Denver. (Reclamation)

Project Title:	Investigate and Implement Initiatives to Enhance Employee Satisfaction							
Abstract:	Develop programs to ensure Reclamation employees are well trained, knowledgeable, and experienced throughout the hydropower business line. Retaining this staff ensures local expertise, makes efficient use of training expenses, and promotes equipment reliability. Improving worker satisfaction will help retain employees within Reclamation. Career satisfaction is promoted by doing enjoyable work, the ability to learn new skills, the opportunity to engage in special projects, and opportunities to advance one's career. Recognition of accomplishments, commensurate pay for the position, and retention bonuses will also help ensure Reclamation retains its most talented staff. This project will work to investigate strategies for improving these strategies.							
Objectives:	<ul style="list-style-type: none"> • Brainstorm way to increase worker satisfaction through training, opportunities, and career growth • Create a safe and positive culture in the hydropower facilities • Work to retain talented staff through enjoyable work, well defined career paths, and recognition 							
Tier:	Years 1 - 2							
Goals & Objectives	Goal 1		Goal 2				Goal 3	
	Obj 1	Obj 2	Obj 1	Obj 2	Obj 3	Obj 4	Obj 1	Obj 2
							•	•



A jackhammer crew excavating rock for the construction of Friant Dam in March of 1940. (Reclamation/B.D. Glaha)



The town of Coulee Dam shines at night below the Grand Coulee Pumping Plant. (Reclamation)

Project Title:	Ensure Federal Hydropower is Accurately Valued in Energy Markets							
Abstract:	<p>Federal hydropower provides ancillary services to support the bulk electric system beyond energy generation. These services include: black start readiness, reactive power generation, voltage and frequency support, fast ramp rates, among others inherent to hydropower generation. Quantifying the value of these services to our customers, along with the monetary value of these services on the open market, can serve to inform customers of the value of the product beyond the energy (MWH) rate. Assessing who receives the most benefits from these ancillary services can help inform discussions and rate decisions.</p>							
Objectives:	<ul style="list-style-type: none"> Quantify hydropower's value to the energy market beyond energy generation Analyze the financial value of Federal Hydropower ancillary services on the open market Determine who benefits the most from Federal Hydropower ancillary services 							
Tier:	Years 1 - 2							
Goals & Objectives	Goal 1		Goal 2				Goal 3	
	Obj 1	Obj 2	Obj 1	Obj 2	Obj 3	Obj 4	Obj 1	Obj 2
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Project Title:	Develop Tools to Inform a Capital Investment Prioritization Plan							
Abstract:	The timing of capital investment and replacement decisions is key to the mission of the agency. Waiting too long to make critical investments presents unnecessary risk to the reliability of the equipment. Making these investments too early is a mismanagement of financial resources, and leads to cost over-runs and increased rates. A tool to prioritize investments based on asset condition and criticality will provide the business case for investment needs due to asset health degradation. Utilization of the tool will increase reliability of the fleet while providing cost-stability for year-over-year budgets.							
Objectives:	<ul style="list-style-type: none"> Quantify risk to the mission by assessing asset health and criticality Develop a methodology to rank investments based on risk Implement a tool to make a business case for capital investment decisions 							
Tier:	Years 3 - 5							
Goals & Objectives	Goal 1		Goal 2				Goal 3	
	Obj 1	Obj 2	Obj 1	Obj 2	Obj 3	Obj 4	Obj 1	Obj 2
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A new wide-head turbine runner is brought in at Hoover Dam to improve unit operating characteristics. (Reclamation/Alex Stephens)

Project Title:	Investigate Best Practices for Outage Planning and Coordination							
Abstract:	Timing and duration of generator outages have a direct impact on our rates. Ill coordinated outages can needlessly incur excessive costs. Extended forced outages from findings during routine outages have been an issue for Reclamation historically. This project will develop best practices for coordination with WAPA/BPA on timing of outages during advantageous cost times, communication of the status of forced outages, and contingency planning when performing routine maintenance. In addition, the project will look at costs of routine outages, and the economics of overtime to return equipment to service sooner.							
Objectives:	<ul style="list-style-type: none"> Enhance coordination and communication with WAPA/BPA on outages Develop plans and contingencies for findings in routine outages Analyze costs of outages and economics of overtime 							
Tier:	Years 3 - 5							
Goals & Objectives	Goal 1		Goal 2				Goal 3	
	Obj 1	Obj 2	Obj 1	Obj 2	Obj 3	Obj 4	Obj 1	Obj 2
			•	•		•		

Project Title:	Enhance and Expand the Use of Optimization at Reclamation Hydropower Facilities							
Abstract:	At this time, optimization systems are available at most (but not all) Reclamation power facilities and are used primarily for facility/unit-level power optimization. This project will ensure all power facilities have access to optimization systems and investigate opportunities to incorporate optimization solutions into broader, water and power resource planning, modeling, and general decision-making to achieve system-level efficiencies.							
Objectives:	<ul style="list-style-type: none"> Employ the use of technology-based, decision support tools to achieve operational efficiencies Ensure optimization systems are available/in use at Reclamation Projects and facilities Build on facility/unit-level optimization solutions to inform broader, water and power resource planning and decision-making to achieve system-level efficiencies 							
Tier:	Years 3 - 5							
Goals & Objectives	Goal 1		Goal 2				Goal 3	
	Obj 1	Obj 2	Obj 1	Obj 2	Obj 3	Obj 4	Obj 1	Obj 2
			•	•	•	•		

Project Title:	Develop a Communication Plan to Engage Partners in Delivering Hydropower's Value Message to Stakeholders and the Public							
Abstract:	Public perception of hydropower shapes the political landscape for legislation at the Federal, state and local levels. Educating the public on hydropower's role in a clean, reliable, stable electric grid can help pave the way for Governments to support new and existing hydropower sites. This project will seek to engage partners to develop and spread hydropower's message to the public. This project will capitalize on the project to "Ensure Federal Hydropower is Accurately Value in Energy Markets" to inform the message to the public as well as to stakeholders.							
Objectives:	<ul style="list-style-type: none"> • Garner public support to recognize hydropower as a clean, renewable resource • Tout Federal Hydropower's contributions to a reliable grid • Communicate Federal Hydropower's value to stakeholders 							
Tier:	Years 3 - 5							
Goals & Objectives	Goal 1		Goal 2				Goal 3	
	Obj 1	Obj 2	Obj 1	Obj 2	Obj 3	Obj 4	Obj 1	Obj 2
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California Governor Goodwin Knight speaks at the Folsom Dam Dedication ceremony on May 5, 1956. (Reclamation/L.R. Murphy)

Project Title:	Perform Economic Study on Reclamation Hydropower Costs							
Abstract:	Evaluate and document all internal and external cost drivers that are included in the rate setting processes. Allow the study to inform Reclamation on the next steps to effectively reduce those cost drivers, any potential mitigation measures, and related actions.							
Objectives:	<ul style="list-style-type: none"> • Document primary internal (presumably by Reclamation Project) and external cost drivers • Evaluate external cost drivers (environmental, etc.) • Evaluate internal cost drivers (O&M costs, etc.) • Allow study to inform next steps 							
Tier:	Years 3 - 5							
Goals & Objectives	Goal 1		Goal 2				Goal 3	
	Obj 1	Obj 2	Obj 1	Obj 2	Obj 3	Obj 4	Obj 1	Obj 2
	•		•		•			

Project Title:	Explore Alternative Government Funding Methods/Streams for Most Advantageous Arrangements							
Abstract:	Project to evaluate the use of alternative funding methods/streams to alleviate burdens on traditional power customers. Alternatives may be project and/or cost-specific and may include non-reimbursable funding and/or non-traditional funding partners. Evaluation of alternatives is to consider impacts to existing commitments, contractual obligations, etc. with traditional power customers.							
Objectives:	<ul style="list-style-type: none"> • Investigate alternative funding methods/streams that alleviate burdens on traditional power customers • Alternatives are to operate in harmony with existing commitments, contractual obligations, etc. made with traditional power customers 							
Tier:	Years 3 - 5							
Goals & Objectives	Goal 1		Goal 2				Goal 3	
	Obj 1	Obj 2	Obj 1	Obj 2	Obj 3	Obj 4	Obj 1	Obj 2
	•					•		