

**Statement of Camille Calimlim Touton
Commissioner
Bureau of Reclamation
U.S. Department of the Interior
before the
U.S. Senate Committee on Energy and Natural Resources
January 11, 2022**

Hearing to “examine the opportunities and challenges for maintaining existing hydropower capacity, expanding hydropower at non-powered dams, and increasing pumped storage hydropower.”

Chairman Manchin, Ranking Member Barrasso and members of the Committee, I am Camille Calimlim Touton, Commissioner for the Bureau of Reclamation (Reclamation). I am pleased to provide the views of the Department of the Interior (Department) on Reclamation’s efforts to protect and enhance existing investments in hydropower and promote the development of new hydropower. We view implementation of hydropower production in an environmentally-responsible manner to be an important source of clean energy and a key element of our nation’s energy portfolio. We also recognize the growing challenges we face to hydropower production as a result of historic drought and low runoff conditions across the West. We believe there are opportunities for investment as we implement the Bipartisan Infrastructure Law (Infrastructure Investment and Jobs Act). We share the Committee’s interest in this clean resource, and my statement will detail what we believe is a strong Reclamation track record in the promotion of sustainable and low-carbon hydropower development across the West.

Reclamation is the second largest producer of hydropower in the country. Reclamation owns and operates 53 hydroelectric plants, comprising over 14.7 million kilowatts of installed capacity. Each year on average, Reclamation plants generate 40 billion kilowatt hours of electricity (the equivalent demand of 3.7 million homes), yield nearly one billion dollars in power revenues, and displace approximately 17 million tons of carbon dioxide. Reclamation’s hydropower program supports Administration and Department clean energy and climate change initiatives by increasing hydropower capabilities and value, and facilitating incremental, carbon-neutral energy generation.

My testimony will first address on-going efforts to protect the existing federal hydropower investment, followed by an overview of on-going efforts to promote new hydropower development. I would also like to discuss the challenges we face to our system due to drought, reduced runoff conditions, and low reservoir elevations.

For context, the average Reclamation hydroelectric plant is now over sixty years old.¹ To ensure the continued reliability, efficiency, and safety of our aging hydropower assets, Reclamation’s operation, maintenance, and replacement program continually looks for opportunities to upgrade and modernize our assets through capital improvements, while working closely with Department of Energy’s Power Marketing Administrations (such as the Western Area Power Administration), which market the hydropower, and federal preference customers. Reclamation has replaced 35 turbines since 2009, yielding an approximate three percent efficiency increase at each affected unit and allowing for an additional 340-million-kilowatt hours of annual generation. During that same period, Reclamation updated six generators, increasing generating capacity by approximately 40,000 kilowatts.

A recent example of our investment includes Reclamation awarding a \$12,000,000 contract to Andritz Hydro Corporation in September 2021 to replace and refurbish components of three electric generators at Canyon Ferry power plant in Montana. The work will be done in increments of \$2-4 million over a three-year period starting in July of 2022. The new and refurbished equipment will allow for the safe, reliable, and continued operation of the generating units that produce hydropower.

Reclamation works closely with its federal power customers, who in many instances fund these replacements, to time these replacements where they make the most economic sense. Last month, Reclamation and the Bonneville Power Administration announced the completion of the major overhaul of hydroelectric power generating units 22, 23 and 24 inside the Nathaniel “Nat” Washington Power Plant at Grand Coulee Dam. Each unit was taken apart down to the turbine runner and rebuilt; approximately 6.5 million pounds of steel was removed from each unit. As a result, the generating units will operate with less wear and tear, making them more reliable and efficient. The Grand Coulee Dam is the largest power generating complex in the United States and the hydropower workhorse of the Columbia River. The dam has a nameplate capacity of more than 6,800 megawatts and annually supplies more than 20 billion kilowatt hours of clean, low-carbon electricity to the region.

Reclamation also protects the existing federal hydropower investment through technological innovation. For example, Reclamation has developed computer-based unit dispatch optimization systems which allow plants to maximize generation per acre foot of water by operating more efficiently.

These systems have been deployed in all Reclamation regions overseeing federal hydropower operations, allowing for over 100,000 megawatt-hours in incremental generation, annually – with additional generation benefits expected in future years. In addition to incremental power output,

¹ https://www.usbr.gov/power/facil/Reclamation_Hydroelectric_Powerplants_Summary_Table_12_20.pdf

optimization systems deliver water conservation benefits as less water is required to meet generation commitments.

Reclamation is also investing in corporate data infrastructure and data analysis capabilities with federal and industry partners. Investments allow for a more risk-based, data-driven approach to power facility asset management, enabling Reclamation to optimize maintenance strategies and achieve operational efficiencies.

To further protect and derive value from existing hydropower resources Reclamation entered into the Federal Hydropower Memorandum of Understanding (MOU) in 2020 with the Department of Energy and US Army Corps of Engineers. The 2020 MOU extends a long-standing collaborative, interagency partnership that began in 2010. The 2020 MOU promotes coordination and collaboration across five topic areas: Asset Management, Value of Hydropower, Workforce, Water Supply Reliability, and Environmental Outcomes.

Reclamation has also developed a Hydropower Strategic Plan to ensure Reclamation hydropower remains a long-term, cost-competitive clean energy resource, delivering value to our customers and stakeholders. The Hydropower Strategic Plan defines goals, objectives, and actions related to ensuring long-term hydropower value; achieving customer satisfaction; and investing in the program workforce. The Hydropower Strategic Plan and the 2020 MOU are complementary efforts that will help Reclamation plants remain a valuable and flexible resource into the future.

Reclamation is committed to facilitating the development of non-federal hydropower on our existing federal projects via our Lease of Power Privilege (LOPP) permitting process or through Federal Energy Regulatory Commission (FERC) licensing. We are also actively implementing P.L. 113-24, Bureau of Reclamation Small Conduit Hydropower Development and Rural Jobs Act, and the pumped storage LOPP authorities under the Bipartisan Infrastructure Law (Infrastructure Investment and Jobs Act), P.L. 117-58.

Acting on this commitment, Reclamation has developed a number of resources to aid prospective developers, namely two public resource assessments identifying technical hydropower potential on Reclamation Projects. We've also streamlined our LOPP permitting process and developed a LOPP website with guidance and materials for Reclamation staff, developers, and stakeholders.² In total, 14 LOPP facilities currently operate on Reclamation Projects, comprising 53 megawatts (MW) of capacity. Ten of the 14 facilities were brought online since 2009.

Our hydropower system also faces tremendous challenges due to the historic drought facing the West. This can be seen most prominently in the Colorado River Basin, which is experiencing a 22 year drought, resulting in Lakes Mead and Powell reaching their lowest levels since initial

² <https://www.usbr.gov/power/lopp>

filling decades ago. As the elevation of Lake Mead, the reservoir behind Hoover Dam, has dropped over the last 22 years, the effectiveness of the existing turbines producing hydropower at Hoover Dam has been reduced. Current projections for hydropower generation at Hoover Dam indicate that there is a relatively high probability of a 0.5 percent to 2.5 percent reduction in hydropower generation from year to year over the next 5 years.³ In an effort to protect this resource, Reclamation and the Hoover power contractors have made, and will continue to explore, efficiency and reliability improvements for hydropower generation. One of the more significant improvements to date was the 2017 replacement of the 5th of 17 power generating turbines with wide-head turbines, which operate more efficiently at lower lake levels. Reclamation will continue to assess hydropower improvements at Hoover Dam based on cost-effectiveness considerations and the best available information on runoff and elevation conditions.

Moving upstream in the Colorado River Basin, hydropower production at Glen Canyon Dam faces even more significant challenges as production has dropped about 16 percent and its capacity has decreased about 20 percent since the year 2000. Over the past year, runoff conditions in the Basin were the second lowest on record. Most recently, the December 2021 24-month study⁴ showed a decrease of forecasted inflow in the spring into Lake Powell, the reservoir behind Glen Canyon Dam, by 1.5 million acre-feet. Recent forecasts also show the possibility of Lake Powell dropping below a designated target elevation of 3,525 feet by as early as February 2022. This elevation is critical because it is just 35 feet above the minimum power production pool elevation of 3,490 feet. The continued extremely dry hydrology combined with already low reservoir levels means we are entering new and unpredictable operational conditions at Glen Canyon Dam, and other key facilities across the West. These dry conditions across the West are impacting hydropower production and will also impact water deliveries in 2022 across the Colorado River Basin from its headwaters in the Rocky Mountains to Mexico. Reclamation is actively working with our federal, state, and tribal partners in the Upper Basin on actions we can take to protect critical levels at Lake Powell, including adjustments to monthly releases from Lake Powell in an effort to retain water elevations above the target elevation of 3,525 feet. Reclamation included funding in its Fiscal Year 2022 Continuing Resolution Drought Spend Plan for Demand Management Activities, including engineering studies into the operational integrity of the system under low water conditions. Reclamation recognizes that we cannot do these actions alone and look to partner with those who want to partner with us to protect water supplies in the Colorado River Basin.

As with any energy resource, the development of hydropower across the West in the last century has created significant benefits, while also significantly impacting the environment and riverine communities, including tribal communities. The Reclamation of the 21st century continues to

³ <https://www.usbr.gov/climate/secure/docs/2021secure/basinreports/ColoradoBasin.pdf>

⁴ https://www.usbr.gov/uc/water/crsp/studies/24Month_12.pdf

recognize the value of hydropower but is cognizant of our history. We are actively working with our partners on ecosystem restoration projects across the West as part of the solution.

We have seen some success in species management and recovery through partnership-driven initiatives like the Upper Colorado River Endangered Fish Recovery Program, which contributed to the recent reclassification of the humpback chub from endangered to threatened. The recent success seen under the Upper Colorado River Endangered Fish Recovery Program suggests that through increased cooperative efforts like this, we can generate hydropower, address water-management challenges, and achieve meaningful conservation of our natural resources, but there is always more to do.

While challenges exist, so do opportunities through investments in Reclamation under the Bipartisan Infrastructure Law (Infrastructure Investment and Jobs Act), such as hundreds of millions of dollars in new appropriations for WaterSMART grants, a program that has made dozens of awards for projects with clean energy components. The legislation includes a \$100 million authorization for rehabilitation and enhancement of the John Keys III Pumping Plant, and additional authority for pumped storage hydropower development using multiple Reclamation reservoirs. The legislation also provides \$8.3 billion in appropriations for Western Water Infrastructure, \$2.5 billion for the completion of Indian water rights settlements, and much more.

In closing, I would like to affirm that Reclamation will continue to review and assess potential new hydropower projects that provide a high economic return for the nation, are energy efficient, and can be accomplished in accordance with protections for fish and wildlife, the environment, or recreation.

Thank you for the opportunity to discuss our work to protect and promote sustainable hydropower. I am pleased to answer questions at the appropriate time.