Testimony of Jennifer Garson

Acting Director, Water Power Technologies Office

Office of Energy Efficiency and Renewable Energy

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Introduction

Chairman Manchin, Ranking Member Barrasso, and members of the committee, thank you for the opportunity to testify before you today. My name is Jennifer Garson, and I am the Acting Director for the Water Power Technologies Office (WPTO) in the Department of Energy's (DOE's) Office of Energy Efficiency and Renewable Energy (EERE). As the Acting Director, I direct applied research, development, demonstration, and deployment (RDD&D) activities for WPTO's hydropower subprogram.

The vision of the Hydropower Technologies subprogram in WPTO is a U.S. hydropower and pumped-storage industry that modernizes and safely maintains existing assets; responsibly develops new low-impact hydropower; supports grid reliability and integration of other energy resources; promotes environmental sustainability; and supports energy-water systems resilience. Through modernization of the existing U.S hydropower fleet, adapting to the changing needs of our Nation's power system, and meeting the challenges of climate change head-on, hydropower can be the keystone to a fully decarbonized power system by 2035.

While hydropower and pumped storage hydropower (PSH) are well-positioned to integrate variable renewable energy (VRE) resources and expand as a resource, there are urgent needs to better quantify the value hydropower provides, understand tradeoffs (both power and non-power) associated with hydropower operations, develop new technologies and operational strategies to enhance hydropower's flexible capabilities, support innovation and modernization of the existing fleet, and develop technologies to build additional hydropower and PSH facilities.

Hydropower and its Role in the Electricity Sector

Hydropower has provided clean, low-cost electricity for over a century as the Nation's first renewable source of electricity. Today's evolving power system has created new opportunities for hydropower to play an important role in a 100% clean energy future, using existing and new technologies and infrastructure. Hydropower, including PSH, provides flexibility, inertia, storage, and grid services to support the integration of VRE resources.

In 2020, hydropower provided 7.2% of the electricity on the grid – accounting for 37% of U.S. renewable electricity generation[1] – and provides outsized grid services, including approximately 40% of black start resources.[2] The latest DOE-funded Hydropower Market Report also shows that in many parts of the country, hydropower provides more flexibility, ramping, and frequency regulation than its share of installed generating capacity, even compared to extremely flexible

[1]U.S. Energy Information Administration, "Electric Power Monthly," n.d., https://www.eia.gov/electricity/monthly/epm_table_grapher.php?t=table_1_01

[2]Published by Oak Ridge National Laboratory (ORNL) and supported by DOE, "2021 U.S. Hydropower Market Report," 2021, Page 19. https://www.energy.gov/sites/prod/files/2021/01/f82/us-hydropower-market-report-full-2021.pdf

natural gas capacity. In addition, PSH is the largest contributor to U.S. energy storage with an installed capacity of 21.9 gigawatts (GW), or roughly 93% of all commercial storage capacity in the U.S. PSH also provides over 550 GW hours of U.S. energy storage[3], making it by far the largest source of commercially available long-duration energy storage. However, the U.S. hydropower fleet contains some of the oldest electricity generating facilities in the world, and it will continue to require innovations and investments to meet the evolving needs of the grid as it continues to decarbonize. Seventy-five percent of U.S. hydropower capacity is located at plants that are over 50 years old.[4] Most U.S. hydropower is also integrated into projects that are multipurpose in nature; the vast majority of capacity is located at dams also serving important flood control, irrigation, water supply, and navigation missions.

DOE has also conducted assessments of potential new development, both at existing facilities and through new hydropower deployment. DOE has focused intently on the benefits of upgrading existing hydropower plants, powering currently non-powered dams (NPDs), expanding PSH, and growing new stream-reach and conduit developments. DOE's 2016 Hydropower Vision report identified hydropower resource potential of 6.3 GW for hydropower upgrades, 11 GW for powering NPDs, 15 GW for new stream reach development, and most notably, 35 GW for pumped storage hydropower.[5] This estimate was based on the needs of the grid for storage, rather than being limited by the resource availability of PSH, and it may underestimate the resource potential for PSH. More recent analysis shows that a highly decarbonized power grid may have far greater demand for storage than was assumed in the development of Hydropower Vision report.

There are more than 90,000 existing dams across the Nation, of which about 2,500 have hydropower facilities for electricity generation.[6] Retrofitting existing dams and adding generation at NPDs can increase renewable energy production. These new facilities—including low-impact, small hydropower, or with technologies for existing conduits and canals—can integrate multiple social, environmental, and energy benefits while realizing value and revenue from a variety of sources. And while most PSH plants were built decades ago, multiple new large-scale PSH projects have progressed in the development pipeline in recent years. The decision whether to retrofit existing dams would need to be made on a case-by-case basis and ensure that any modifications would bring those dams up to current environmental standards

[3] Published by Oak Ridge National Laboratory (ORNL) and supported by DOE, "2021 U.S. Hydropower Market Report," 2021. Page 32. https://www.energy.gov/sites/prod/files/2021/01/f82/us-hydropower-market-report-full-2021.pdf

[4] Published by Oak Ridge National Laboratory (ORNL) and supported by DOE, "2014 U.S. Hydropower Market Report," 2014, Page 9. https://www.energy.gov/sites/default/files/2015/05/f22/2014%20Hydropower%20Market%20Report_20150512_rev6.pdf

[5] DOE, "Hydropower Vision," 2016, pages 232, 238. https://www.energy.gov/eere/water/downloads/hydropower-vision-report-full-report

[6] DOE, "FY 2022 Budget Request; Volume 3 Part 1," 2021, https://www.energy.gov/sites/default/files/2021-06/doe-fy2022-budget-volume-3.1-v5.pdf

based on a robust review of potential environmental impacts pursuant to appropriate authorities, including the National Environmental Policy Act and the Federal Power Act.

Important policy discussions are happening as an increasing number of stakeholders align common objectives regarding hydropower, river conservation, climate change mitigation, and public safety. As an observer since 2019, DOE provides data to a growing group of non-federal stakeholders participating in the "Uncommon Dialogue" for hydropower.[7] This group, includes the National Hydropower Association, American Rivers, the Nature Conservancy, the World Wildlife Fund, the Union of Concerned Scientists, the American Society of Civil Engineers, and the Association of State Dam Safety Officials, among others, has put forward several interesting sets of ideas and priorities over the last two years. These discussions highlight potential needs and opportunities related not just to the Nation's hydropower fleet, but the broader population of dams across America, to advance both hydropower and healthy rivers.

Hydropower plays, a critical role in the Nation's energy and water systems. From the integration of new renewable resources into the grid, to new opportunities for growth and the modernization of aging facilities for the 21st century, there are many opportunities for U.S. hydropower, and paths along which the industry could evolve. But there are also many challenges facing the fleet, and the industry still requires RDD&D to support innovation and ensure that it continues to provide additional clean, firm, flexible power to the nation's grid.

DOE and the Hydropower RDD&D Portfolio

DOE recognizes the need for robust hydropower research, investment, and innovation in both existing and potential hydropower resources across the nation. WPTO administers a broad portfolio of research activities to strengthen the body of scientific and engineering knowledge and support industry efforts to develop and deploy new hydropower at all scales. These efforts are directly aligned with the Administration's goal of a carbon pollution-free electricity sector by 2035.

These efforts to optimize the existing hydropower fleet include the following: funding the HydroWIRES initiative to increase the flexibility of hydropower through operational improvements; supporting development and testing of innovative PSH technologies; demonstrating hybrid systems of hydropower and storage, and investing in the environmental systems to reduce impacts and keep the fleet online; dramatically expanding analysis to quantify hydrologic and climate change impacts to hydropower now and through 2050. WPTO is also expanding work in new, low-impact hydropower by investing in demonstration technologies to power nonpowered dams or infrastructure and demonstrating and deploying irrigation modernization to serve agricultural end-users.

[7] Stanford Woods Institute for the Environment, "U.S. Environmental Community and Hydropower Industry Issue Joint Statement of Collaboration," n.d., https://woods.stanford.edu/research/hydropower

The President's FY22 Budget Request makes a strong commitment to increasing funding for water power research, development, demonstration, and deployment by providing $196,560,000 for the WPTO with a request of $84,560,000 for hydropower, which is more than a 100% increase in funding for the hydropower program over the FY21 Enacted Budget of $41,000,000.

With the passage of the Bipartisan Infrastructure Law (Infrastructure Investment and Jobs Act), WPTO will administer almost $800 million to support adding capacity to non-powered dams through the Energy Policy Act of 2005 Section 242; invest in efficiency gains at existing facilities through Section 243; and address grid capabilities, environmental improvements, and dam safety in our nation's non-federal hydropower fleet through Section 247. [8] This historic level of funding for these programs authorized through the Energy Policy Act of 2005 will have an immediate impact on the U.S. hydropower sector and help address some of the capital gaps that the industry faces in making key improvements for hydropower to continue to serve the grid.

DOE Support for Licensing and Relicensing Hydropower

Approximately 40% of non-federal hydropower generation, representing more than 16 GW of capacity, comes from plants whose licenses will expire within the next decade and thus will require relicensing to continue operations. But there are a disproportionate number of smaller and medium-sized facilities in this population, resulting in almost 85% of non-federal facilities, or more than 1,800 plants, that will need to be relicensed.[9] This represents a significant challenge for the industry, federal and state regulators, and stakeholders. While DOE is not involved in the regulatory process, we conduct neutral, third-party analyses on the challenges and opportunities for relicensing hydropower.

In collaboration with the National Renewable Energy Laboratory (NREL) and Oak Ridge National Laboratory (ORNL), WPTO recently prepared a report, "An Examination of the Hydropower Licensing and Federal Authorization Process,"[10] examining the hydropower licensing and federal authorization process, including quantitative and qualitative analyses of the Federal Energy Regulatory Commission (FERC) licensing and federal and state approval timelines, the project attributes that may influence those timelines, and their combined effect on costs and risk to license applicants. The study considered input from relevant federal agencies (e.g., FERC, National Oceanic and Atmospheric Administration, U.S. Fish and Wildlife Service) as well as non-federal stakeholders. This DOE sponsored report provides an objective evaluation of the current federal regulatory process to allow policymakers to identify any needed areas for reform.

[8] See 42 U.S.C. 15881, 15882, and 15883.
[9] Data compiled from ORNL HydroSource Database. Accessed 11/17/2021. https://hydrosource.ornl.gov/
[10] NREL, "An Examination of the Hydropower Licensing and Federal Authorization Process." https://www.nrel.gov/docs/fy22osti/79242.pdf

Additionally, to support licensing, DOE and NREL developed the RAPID toolkit, a user-friendly online resource[11] that helps all hydropower licensing stakeholders (including license applicants and non-governmental organizations) navigate the FERC licensing process.

WPTO also develops new technologies, tools, and data to enhance understanding and improve the environmental performance of hydropower facilities. These advancements help inform and streamline the environmental evaluations and studies associated with the licensing process, and to make it easier and more cost-effective to mitigate any long-term impacts of operations. WPTO's work focuses particularly on issues related to fish passage and migration, water quality, and water release management.

For example, the HydroPASSAGE project, a multiyear R&D collaboration between Pacific Northwest National Laboratory (PNNL) and ORNL, successfully tested, licensed, and commercialized several tools to reduce injury and mortality of fish, which should lower the regulatory costs of both relicensing and operations. WPTO has also worked with ORNL to develop HydroSource[12], a digital platform consisting of hydropower-related datasets, data models, visualizations, and analytical tools that supports and enables hydropower research and development (R&D) on topics of national interest. This includes U.S. hydropower siting, relicensing, deployment, resource assessment and characterization, environmental impact reduction, technology-to-market activities, and climate change impact assessment. By increasing transparency and making river and hydropower-relevant data easier to access, HydroSource provides users with information and resources needed for strategic environmental permitting and regulatory processes.

WPTO will continue its efforts to develop technologies to ensure safe and effective fish passage for migratory species by partnering with the National Laboratories and the private sector to develop higher Technology Readiness Level systems with an eye toward field demonstration and deployment.

Hydropower Research and Grid Flexibility

With the advent of greater levels of variable renewable generation on the U.S. grid, hydropower's role as a flexible and renewable generation source takes on even greater importance. DOE will continue to support innovative technologies such as new turbines and control systems that can enhance hydropower's flexibility to help maintain grid reliability and resilience, while improving the environmental impacts of all water power technologies.

[11] RAPID toolkit: https://www.energy.gov/eere/water/hydropower-rapid-toolkit
[12] HydroSource: https://hydrosource.ornl.gov/

A recent study - Hydropower's Contributions to Grid Resilience[13] - supported by the HydroWIRES initiative, highlighted and analyzed hydropower's capabilities to support grid resiliency. The report demonstrated that hydropower facilities can provide important contributions to grid resilience, including the ability to respond to and recover from high-impact, increasingly frequent disruptions like hurricanes or cyberattacks. Insights from this report exemplify hydropower's essential role in stabilizing the grid after sudden, large losses of energy generation and extreme weather impacts to load. The report also highlights hydropower's storage capabilities and flexibility as critical assets for ensuring grid reliability during extreme weather events. The report focused primarily – due to data availability – on the Western Interconnection, but its results pertain to hydropower nationwide.

Another example of current work to advance the technologies necessary to unlock the flexibility potential of hydropower is the $8.5 million Funding Opportunity Announcement (FOA) titled "Technology Innovation to Increase Hydropower Flexibility. [14]" This FOA seeks next-generation technologies from manufacturers, equipment vendors, and research organizations to improve the flexible capabilities of the U.S. hydropower fleet. The development of technical solutions to improve hydropower flexibility – either by improving performance across various dimensions of unit-level flexibility, or by reducing potential negative impacts of flexible operations – can improve hydropower's ability to facilitate integration of higher levels of variable renewable resources and support power system decarbonization. Full applications to this opportunity are due January 21st, and we anticipate funding up to six awards to advance hydropower technologies to enhance grid reliability.

Through HydroWIRES, WPTO will continue to build on this work to enhance hydropower and PSH's role on the grid to include soliciting new models, tools, and operational strategies for use by the hydropower fleet, as well as for technology R&D of the most promising novel PSH concepts that can reduce costs or overcome other deployment barriers. Technical assistance via the National Laboratories applies PSH valuation guidance to inform valuation of additional proposed PSH sites, and to evaluate use cases for hydropower hybrid configurations such as hydropower plus batteries or floating solar photovoltaics. Other efforts, including reducing barriers to pumped storage development, supporting innovative technology R&D, and providing technical assistance to developers, are a significant focus of ongoing and proposed DOE efforts through the HydroWIRES initiative.[15]

Expanding Hydropower through Non-Powered Dams

WPTO supports efforts to develop technologies designed to lower costs while increasing efficiency of low head hydropower. This includes engaging both the National Laboratories and

[13] Pacific Northwest National Laboratory (PNNL) and supported by DOE, "Hydropower's Contributions to Grid Resilience," 2021, https://www.pnnl.gov/main/publications/external/technical_reports/PNNL-30554.pdf
[14] DOE EERE, "DOE Announces $8.5 Million to Increase Hydropower Flexibility," 2021, https://www.energy.gov/eere/articles/doe-announces-85-million-increase-hydropower-flexibility
[15] DOE HydroWIRES Initiative website: https://www.energy.gov/eere/water/hydrowires-initiative

the private sector to develop technologies designed to power NPDs, particularly marginal dams where development costs currently outweigh the power benefits.

Over the last four years, the Hydropower Technologies subprogram has developed design criteria for more standardized, modular hydropower development that capitalizes on advanced manufacturing and materials, while preserving and enhancing stream functionality for greenfield development and powering NPDs[16]. DOE is developing new ways to design hydropower projects in a modular manner that preserves the natural functions of a stream as well as new technologies for powering existing dams to minimize hydropower's environmental footprint.

Adding storage to facilities like NPDs can provide greater localized opportunities, including black start capabilities, local storage, or even local hydrogen production. In 2021, WPTO provided technical support through the Idaho National Laboratory (INL) to the Army Corps of Engineers (USACE) in support of a Report to Congress on Storage Options for NPDs, which is currently under review. This report included a matrix of storage options and corresponding grid, community, and industry benefits for NPDs. It identified each USACE dam in the Appalachia region located in a distressed or at-risk county that could be improved for purposes of economic development, recreation, or other uses. It included a set of storage options for consideration at USACE facilities and a set of use cases where storage could provide benefits to the grid, community, local industry, and the environment.

Building on this preliminary report, WPTO selected INL to conduct additional work to expand on the report. The goals and objectives of the project are (1) to evaluate options that add electricity generation to NPDs while maximizing the benefits to the grid, community, industry, and the environment, including characterizing opportunities for investment in NPDs to support local economies in distressed and at-risk areas; (2) to help improve economic and environmental conditions in distressed and at-risk counties, to help justify and incentivize development and conversion projects of NPDs that otherwise would not be economically feasible; and (3) to reduce energy-sector carbon emissions to meet 2035 clean energy targets.

The NPDs will be evaluated for their potential in testing, piloting, and deploying hydropower, storage, or new in-river energy technologies. The developed framework will consider technical, social, and economic criteria based on site, power-system architecture, adjacent communities, critical loads, and potential industrial users of these electricity and energy storage products.

The results of this new study will be especially critical in economically distressed areas—many of which have been severely impacted by the downturn in the fossil fuel (particularly coal) economy—that could benefit from new and unique opportunities for pumped storage hydropower and run-of-river, economic development, and outdoor recreation. The

[16] Standard Modular Hydropower website: https://smh.ornl.gov/#:~:text=The%20Standard%20Modular%20Hydropower%20%28SMH%29%20hypothesis%20is%20that,technologies%20and%20solutions%20that%20scale%20across%20many%20sites

socioeconomic metrics developed in this project will be extended beyond economically distressed communities to consider diversity, equity, and inclusion more broadly.

Expanding Pumped Storage in the United States

There are a significant number of pumped storage projects in the development pipeline, and several have received their licensing approvals, but no new construction has commenced. This is largely due to market and policy frameworks, which in many jurisdictions are cited as not enabling the appropriate risk sharing and revenue certainty to incentivize pumped storage projects that are extremely capital intensive with long construction periods. Since 2010, additional PSH capacity through upgrades to existing plants has been brought online to serve the grid. Almost as much PSH capacity was added from 2010 to 2019 (1,333 MW), as the combined installed capacity of all other forms of energy storage in the United States (1,675 MW).[17] Fifty-two gigawatts of new PSH are in the project development pipeline across 21 U.S. states (though none have begun construction yet).[18]

Elsewhere around the world, over 50 GW of new PSH capacity are under construction, with an additional 226 GW of capacity in earlier stages of planning and development.[19]

To support PSH projects, WPTO efforts have focused on reducing barriers to pumped storage development, supporting innovative technology R&D, and providing relevant technical assistance to developers are a significant focus of ongoing and proposed future DOE efforts through the HydroWIRES initiative.

As part of the HydroWIRES Initiative, WPTO launched the Pumped Storage Hydropower (PSH) Valuation Tool[20]. The free tool is a web-based platform that takes users through the valuation process in the PSH Valuation Guidebook. To help stakeholders accurately calculate the full value potential of a PSH project, a team from Pacific Northwest National Laboratory and Argonne National Laboratory created the tool to guide users through the 15-step valuation process. The platform features a back-end benefit-cost analysis tool, a price-taker valuation tool for small-scale PSH, and a multi-criteria decision analysis tool. The tool and guidebook help stakeholders make decisions about funding, approving, and/or pursuing new or existing PSH projects. This valuation framework has already been applied to two potential new facilities – Banner Mountain in Montana and Goldendale Energy Storage Project in California. It is also being applied to the Bureau of Reclamation's existing Mt. Elbert PSH project in Colorado as part of the Federal

[17] Published by Oak Ridge National Laboratory (ORNL) and supported by DOE, "2021 U.S. Hydropower Market Report," 2021, page 4, https://www.energy.gov/sites/prod/files/2021/01/f82/us-hydropower-market-report-full-2021.pdf

[18] Published by Oak Ridge National Laboratory (ORNL) and supported by DOE, "2021 U.S. Hydropower Market Report," 2021, page 8, https://www.energy.gov/sites/prod/files/2021/01/f82/us-hydropower-market-report-full-2021.pdf

[19] Published by Oak Ridge National Laboratory (ORNL) and supported by DOE, "2021 U.S. Hydropower Market Report," 2021, page 12, https://www.energy.gov/sites/prod/files/2021/01/f82/us-hydropower-market-report-full-2021.pdf

[20] Pumped Storage Hydropower Valuation Tool: PSH Valuation Tool (anl.gov)

Hydropower Memorandum of Understanding, which is a collaborative effort between DOE WPTO and the PMAs, the Bureau of Reclamation, and the U.S. Army Corps of Engineers to address common issues and leverage resources and efforts to the benefit of the Agencies and ultimately to the public[21].

WPTO, through the HydroWIRES Initiative, invests in new PSH configurations that reduce geographic siting limitations, construction costs and timelines, and environmental impacts. These activities drive needed innovation in the design of PSH, as traditional designs are capital intensive, limited in where they can be sited, and difficult to finance. New transformative designs could reduce capital investment requirements, expand siting possibilities, and shorten development timeframes for new facilities, thus incentivizing private investment.

DOE and EERE also work to raise the profile and opportunities presented by pumped storage technology by taking international leadership roles, most recently through engagement in the International Forum on Pumped Storage Hydropower[22] as a co-chair.

Hydropower and Remote Communities

Community-centric development is an increasing emphasis of the WPTO's work, particularly in the instances of remote, underserved, tribal, and/or isolated communities. These communities are deeply reliant on and connected to their water systems as part of their economy and culture. Recognizing and being respectful of these factors, WPTO endeavors to build connections to communities and the industries who use the technologies developed through the program's RD&D. Leveraging technical assistance from the National Laboratories, supporting research and development, and working closely with communities and other end users can provide catalytic change for the communities and organizations who most benefit from harnessing water power. WPTO supports increased cross-EERE and cross-DOE efforts to provide data, tools, and analysis to support the widespread integration of renewables in a resilient, reliable power system.

DOE also has research efforts underway to continue to advance small, low-impact, run-of-river hydropower technologies[23], which use diversions or small dams that don't impound large amounts of water. These types of facilities are important sources of clean energy and have particular value in smaller, more remote communities and microgrids. It is important that hydropower systems are designed with minimal environmental impacts, and DOE supports significant research to improve the environmental performance of all water power technologies. DOE also continues to work directly with coastal and rural communities to facilitate deployment of all forms of water power technologies.

[21] "Memorandum of Understanding for Federal Hydropower," 2020, https://www.energy.gov/sites/prod/files/2020/08/f77/MOU-hydropower-2020.pdf
[22] International Forum on Pumped Storage Hydropower: https://pumped-storage-forum.hydropower.org/
[23] Standard Modular Hydropower (SMH) initiative overview and associated materials. Oak Ridge National Laboratory (ORNL). December, 2021. https://smh.ornl.gov/

As an example, WPTO is analyzing the interactions of small hydropower and microgrids in a project in Cordova, Alaska that aims to enhance grid resilience under harsh weather, cyber-threats, and dynamic grid conditions, while reducing the need for diesel fuel[24].

Another important program focused on energy resilience in predominantly rural communities is the Energy Transitions Initiative Partnership Program (ETIPP), which is supported across EERE. ETIPP supports energy system transformation to reduce economic risk in remote and islanded communities. Through ETIPP, EERE leverages the expertise of regional Community Based Organizations that work directly with communities to provide technical assistance, enhance lessons learned between communities and the national labs, and establish a technical understanding of gaps, needs, and pathways to serve communities in increasing their energy resilience. Working through these organizations also allows DOE's efforts to reach a scale that would not be possible with direct engagement alone.

Additionally, with the passage of the Energy Act of 2020, the Energy Policy Act of 2005 Section 242 program, mentioned previously, was revised to include an additional provision to consider facilities constructed in "an area in which there is inadequate electric service". To support this updated authorization, WPTO released a Request for Information regarding a proposed definition for areas in which there is inadequate electric service during the summer of 2021[25]. On December 27, 2021, WPTO released revised guidance for calendar year 2020 incentive payments that also incorporated the amendments to Section 242 from the Infrastructure Investment and Jobs Act[26]. WPTO intends to pursue a rulemaking in the coming months to address this incentive program. DOE will continue to work with remote and rural communities to ensure that Section 242 and other incentive programs address the needs of communities that can benefit from these provisions to provide the capital needed to ensure reliable, clean power through hydropower.

Conclusion

Thank you for the opportunity to appear before the committee today. I look forward to working with you to address both the challenges and opportunities for hydropower and pumped storage, while ensuring equitable access to low-cost and reliable and resilient clean energy. I look forward to your questions.

[24] "North to the Future: WPTO Helps Alaskan Partners Pursue a Clean Energy Future with Water Power," 2021, https://www.energy.gov/eere/water/articles/north-future-wpto-helps-alaskan-partners-pursue-clean-energy-future-water-power

[25] "EERE Seeks Public Feedback to Define Inadequate Electric service Areas," 2021, https://www.energy.gov/eere/articles/eere-seeks-public-feedback-define-inadequate-electric-service-areas

[26] "WPTO Announces New Round of Funding and Expanded Eligibility for Hydroelectric production Incentive Program," 2021, https://www.energy.gov/eere/water/articles/wpto-announces-new-round-funding-and-expanded-eligibility-hydroelectric