



April 15, 2021

The Honorable Richard Glick  
Chairman  
Federal Energy Regulatory Commission  
888 First Street NE  
Washington, DC 20246

Chairman Glick,

The National Hydropower Association (“NHA”) appreciates your recent efforts to reexamine energy market design to ensure wholesale markets continue to provide competitive rates and reliable electricity as the grid transitions to low carbon resources. Recent events in Texas and California have underscored the need to take another look at how markets send signals to the resources needed to maintain reliability. A recent Brattle report entitled *Leveraging Flexible Hydro in Wholesale Markets*, commissioned by NHA, found that some markets may not be adequately valuing the flexibility of hydro and other resources. **NHA urges the Commission to include valuing resource flexibility in your efforts at reexamining energy market design.**

In its recent long-term assessment, the North American Electric Reliability Corporation (NERC) claimed that insufficient flexible resources was one of the contributing causes of the August 2020 California blackouts.<sup>1</sup> In that same report, NERC recommended that regulators and policy makers “prioritize reliability, such as promoting the development and use of additional flexible resources.”<sup>2</sup>

Beyond promoting additional flexible resources such as adding generation at non-powered dams and new pumped storage facilities, NHA believes that FERC and regional market operators should begin discussions on how energy, capacity and ancillary service markets need to evolve to retain the *existing non-emitting flexible generation on the system*, particularly existing hydropower facilities, while enabling multiple states to meet their aggressive climate goals. It is of vital importance to properly value and compensate the non-emitting reliability benefits that hydropower provides to ensure these resources are available when needed.

To achieve 90% carbon free electricity, the grid must add over 1,000 GWs of new renewable capacity. Clean, flexible resources like hydropower and pumped-storage hydropower (PSH) will be essential to ensuring this transition occurs at the least overall cost, while maintaining or enhancing grid stability. Hydropower is the largest source of clean, flexible and storable energy on the grid today. On average, Hydro and pumped storage provide 8% of the nation’s generation, 93% of its grid scale storage and 40% of renewable generation.

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<sup>1</sup> North American Reliability Corporation, [2020 Long-term Assessment](#), December 2020 at 7.

<sup>2</sup> *Ibid* at 7

Hydro resources provide a significant number of ancillary services in almost every region. Regulation and operating reserves are vital sources of flexibility to maintain grid reliability. In CAISO, hydropower makes up 15% of installed capacity yet provides 60% of spinning reserves and 25% of regulation reserves. In PJM, hydro represents a modest share of the generation mix (<5%) but in recent years has provided 15-20% of regulation reserves and up to 40% of non-synchronized primary reserves. In New England, the two pumped storage hydropower resources can cover the largest contingency on the system.

Already, hydropower owners are operating their assets with increased variability in output, and in some cases, even curtailing generation to accommodate increased penetrations of wind and solar, resulting in added wear and tear on hydro's mechanical equipment. If markets evolve to value flexible capacity, then additional investments in the existing hydropower and pumped storage fleet could provide even more flexibility through new advanced turbine and governor technologies. Our members believe the flexibility they currently provide is not adequately valued in regional markets. In addition, while providing these valuable reliability services such as ramping, reserves or flexible pumping loads, hydro provides them on a non-emitting basis, which in essence complements the intermittent aspect of solar and wind resources.

We were encouraged when you made the following remarks during the 2019 Water Power Week:

*“From a hydro perspective, of any generating resource out there, hydro provides the greatest amounts of flexibility...The problem is that the way the markets have been designed, we haven't been looking at adequately compensating for the value that hydro and other flexible resources provide on the grid.” (Chairman Glick remarks – 2019 Waterpower Week)*

Since these remarks, NHA has identified areas where wholesale markets do not fully capture the value of hydropower assets. The recent Brattle report found that “to fully utilize hydropower in the clean energy transition, RTOs must work with hydro asset owners to continue to develop market rules that allow hydro to compete fairly with other resources, and incent and reward hydro's unique characteristics” (*Leveraging Flexible Hydro in Wholesale Markets* at 24).

A recent survey of hydropower asset owners in wholesale markets found that some RTOs fail to represent the constraints of hydro systems in economic dispatches, an over-reliance of system operators on flexible hydro and pumped storage for out of market dispatches and suboptimal resource adequacy accreditation. The Brattle paper identified four principles to ensure that existing and new flexible hydro resources are incented to provide reliability services that will be in greater demand to integrate variable resources.

These principles are:

1. New energy and ancillary services (E&AS) market products are needed to address flexibility challenges.
2. RTOs should allow hydro a range of energy market participation offers including fair accounting of opportunity costs.

3. Hydro and other flexible resources should be properly compensated for any out of market dispatches.
4. All assets, including hydro, should be accredited fairly for the resource adequacy value they provide.

NHA supports technology-neutral market rules that provide all resources an ability to compete. Further attention should be paid to those grid services and attributes that will be needed in the future to ensure the energy transition is done reliably and that the resources we need are incentivized.

**As part of your grid of the future efforts, NHA urges you to hold a technical conference focused on valuing flexible resources through competitive markets products. If such a conference is held, we ask the Commission to ensure the hydro industry has a voice at the table.**

Sincerely,

Malcolm Woolf

CEO

National Hydropower Association