

**UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

PJM Interconnection, L.L.C)
) Docket No. ER21-278-000
)

Motion to Intervene and Comments of the National Hydropower Association

The National Hydropower Association (NHA) hereby respectfully submits the following comments in response to the PJM Interconnection L.L.C's ("PJM") filing in the above-captioned proceeding.

I. Motion to Intervene

NHA represents more than 240 companies, from Fortune 500 corporations to family-owned small businesses. Our diverse membership includes public and investor-owned utilities, independent power producers, developers, equipment manufacturers and other service providers. As a national association, we have members across the country, including PJM, where our members operate several thousands of MWs of both pumped storage hydropower and run of river hydropower.

Because the determination in this proceeding will affect our members, NHA has a direct and substantial interest in this proceeding which cannot adequately be represented by any other party. Given its direct interest, NHA's motion to intervene is in the public interest, and should be granted.

II. Communications

All correspondence, communications, pleadings and other documents related to this proceeding should be addressed to the following individuals:

Cameron Schilling
VP of Market Strategies and Regulatory Affairs
National Hydropower Association
601 New Jersey Ave NW
Washington, D.C. 20001
Email: cameron@hydro.org
Phone: 202-750-8409

III. Comments

Hydropower and pumped storage (PSH) resources provide a vast array of grid services in the PJM region including essential reliability services such as frequency regulation, contingency reserves and blackstart services¹. In addition, hydro and PSH can provide a suite of flexibility services including fast ramping, short minimum run times and multiple quick starts². The PJM region includes over 5GWs of long duration, pumped storage that was originally designed to integrate other resources such as nuclear power and more recently has enabled the grid to accommodate variable energy resources like wind and solar. As the PJM system evolves and more intermittent resources are added to the grid, hydropower and PSH's contribution to reliability and flexibility will be even more vital.

NHA supports a resource-specific ELCC calculation for hydropower with non-pumped storage

NHA believes it is important for PJM to carefully tailor its treatment of hydropower in its Effective Load Carrying Capability (ELCC) methodology given that every hydro facility is unique. Hydropower is a complex resource that includes several different classifications including pumped storage, run of river with pondage and run of river without pondage.

¹ [PJM's Evolving Resource Mix and System Reliability Report](#), March 2017, at page 16.

² Currently, there are over 5GWs of pumped storage and 3GWs of run of river hydropower facilities providing these services in PJM, [IMM 2019 State of the PJM Market Report](#), March 2020, Volume II, at page 562.

Hydropower technologies have attributes that are similar to storage resources (i.e. PSH and run of river with pondage) and other attributes that make it more comparable to intermittent resources (i.e. run of river without pondage). In addition, hydro facilities within each of these classifications can vary greatly in their operational capabilities. These factors alone make it difficult for a class-wide ELCC determination to be made.

Unlike solar, wind and batteries that share common technological and operational attributes, every run of river hydropower facility has distinct operating characteristics. Among these unique characteristics are (i) the size of the reservoir, (ii) variations of in-stream flows, (iii) monthly variations in the maximum storage capacity, (iv) the ability to draw on exigent storage capability and (v) impacts from other hydropower or non-powered dam operations in the same river system. All of these distinct characteristics would make a class-wide ELCC value for hydropower with non-pumped storage improper. NHA appreciates PJM's recognition of hydro's unique characteristics and we appreciate efforts by PJM staff to work with NHA members to determine the best approach for calculating a resource-specific ELCC.

Exigent storage and cascading systems

NHA supports PJM's inclusion of an exigent storage provision in its determination of a resource-specific ELCC for hydropower with non-pumped storage. Each hydro licensee's storage capability depends, in part, on its license parameters. Allowing for exigent or emergency storage will more accurately account for the capacity value of hydropower with non-pumped storage by accurately reflecting the actual operating capability. NHA believes this provision will neither over nor under count a hydro plant's contribution to resource adequacy³. In addition,

³ PJM defines "exigent storage" as ""water stored in the pondage or reservoir of a hydropower resource which is not typically available during normal operating conditions (as those conditions are described in the relevant FERC hydropower license), but which can be drawn upon during

PJM's filing appropriately recognizes that some hydropower plants operate within a cascading system and their operations and capabilities can be connected. NHA supports PJM's recognition that storage from an upstream facility can be considered relative to a downstream facility that benefits from that storage.

Request for clarification from PJM

NHA is concerned that PJM's filing, because of its unique treatment of hydropower, may not properly account for hydro plants that have added other resource types to their facility. For example, it is unclear from the filing how an ELCC value would be obtained for a hydro plant with non-pumped storage that has added a battery storage or solar component. Would a hydropower with non-pumped storage facility that added a storage component be assigned two separate ELCC values? Or would this configuration fall under the combination resources designation? Additionally, how would PJM treat a hydropower with non-pumped storage that has added a solar component? Would these be modeled as a combination resource or as two independent resources?

NHA is aware of at least one project in PJM that has added a battery storage component and there is general interest in the industry for supplementing run of river hydro with lithium-based storage or other technologies⁴⁵. NHA respectfully requests PJM to clarify how its ELCC methodology, with its unique treatment of hydropower, would be completed for these scenarios.

emergency conditions (as described in the FERC hydropower license), including in order to avoid a load shed.

⁴ <https://www.utilitydive.com/news/aep-greensmith-team-up-for-storagehydro-project-in-virginia/507726/>

⁵ <https://www.solarpowerworldonline.com/2020/05/floating-solar-hydropower-hybrid-projects-can-benefit-both-technologies/#:~:text=Hydropower%20and%20solar%20power%20plants,or%20on%20the%20dam%20surface.>

Conclusion

Given the unique nature of hydropower and PSH, it would be inappropriate to rely on a class-wide ELCC value to derive hydropower's accredited capacity. Such a methodology could not accurately represent the distinctive capacity value of every hydropower or pumped storage facility in PJM. NHA applauds PJM Staff's efforts in designing a more tailored approach to hydropower in its ELCC methodology and recommends that FERC approve the filing.