DRAFT NHA comments in response to FERC's post technical conference questions (AD21-10)

(9) Should the Expanded MOPR be revised or eliminated? If so, what, if any, are any other changes to the PJM Tariff would be necessary or appropriate? Please explain fully.

NHA believes the primary goal of PJM's capacity market should be to ensure reliability at least cost through competitive mechanisms. A secondary goal is to respect state resource choices and to provide an avenue for least cost procurement of state sponsored resources. Since RPM's inception, some PJM states have increasingly used their authority to influence resource entry and retention. Rather than accommodating state public policy resources, the MOPR amendments in 2019 frustrated legitimate state efforts. NHA believes FERC and PJM must strike a balance where public policy resources can enter the market while ensuring the reliability of the grid is protected. Ideally, the markets will create the signal for the investment in the public policy resources that are needed.

If a sustainable solution is not achieved, PJM could risk the premature retirement of resources needed to maintain reliability or an increase in out of market solutions such as reliability must run contracts. Absent a balance between protecting competitive outcomes and allowing for states to exercise their legitimate authority over resource adequacy, PJM's capacity market will produce neither competitive nor reliable outcomes.

(10) If any changes are made to the MOPR rules, is it necessary or appropriate to combine those changes with reforms to ensure that capacity resources are properly accredited for their reliability value?

If PJM's MOPR is removed or reformed, PJM and FERC should prioritize efforts to ensure resource accreditation is calculated correctly. Determining a resource's contribution to resource adequacy or reliability is vital to ensuring competitive and reliable outcomes. Conventional hydropower and pumped storage generally have high resource adequacy value due to their dispatchability, storage capabilities and reliable mechanical equipment[1]. Even run of river hydropower has a stable and predictable generation schedule although it can be subject to annual or seasonal hydrological cycles. In addition, hydropower can contribute to a system's resiliency as it does not typically experience fuel supply disruptions faced by other thermal resources.

A recent Brattle report found that "to fairly accredit hydro and other reliable resources for the resource adequacy value they provide, RTOs and utilities must accurately accredit all resources, including variable wind, solar, and energy-limited batter storage[2]." If a resource is over credited for its capacity, the system will likely under procure the amount needed to maintain reliability. This can lead to lower compensation for existing resources and a weaker signal that more capacity is needed. Conversely, if a resource is under credited for its capacity, the system will experience an inefficient resource mix, more costs to consumers and less revenue for more dependable capacity resources.

[1] Most pumped storage facilities are able to dispatch at full capacity for at least 6-10 consecutive hours and sometimes longer, while recently installed large-scale electrochemical batteries had average durations of 3.5 hours in California, and 45 minutes in PJM, *Leveraging Flexible Hydro in Wholesale Markets*, the Brattle Group, April 15, 2021.

[2] *Leveraging Flexible Hydro in Wholesale Markets*, the Brattle Group, April 15, 2021 at 20.

Most RTOs derate variable and energy-limited resources by evaluating that resource's historical average output during peak load events. As the share of these resource types grow, the loss of load risk shifts to a broader set of hours. Therefore, a more complex analysis should be performed to assess a resource's true contribution to reliability. NHA believes that one way to better assess capacity in PJM is to accredit intermittent and energy-limited resources using the effective load-carrying capability (ELCC). ELCC is a complicated evaluation meant to determine "the additional load met by an incremental generator while maintaining the same level of reliability."[3] For hydropower, an ELCC calculation should be done on a resource-specific basis (rather than class average) that takes into account the unique features of each hydro asset including pondage capability, upstream storage and relevant license parameters. NHA urges PJM and FERC to prioritize ongoing efforts to determine the best way to accredit capacity to ensure the system is reliable and cost effective.

(20) What changes are needed to ensure PJM's energy and ancillary services markets send appropriate price signals and ensure sufficient incentives for investment?

NHA believes that as the clean energy transition gains momentum, utilities and grid operators are likely to face new operational challenges. To reliably and cost effectively integrate large amounts of variable generation, the grid will require other flexible, balancing resources like hydro and pumped storage. 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.[4] In that same report, NERC recommended that regulators and policy makers "prioritize reliability, such as promoting the development and use of additional flexible resources."[5]

For instance, some markets have created load following or ramping products to ensure that grid operators have access to resources that can quickly change output to address increased variability in generation profiles. Regulation and operating reserves are vital sources of flexibility to maintain grid reliability and hydro resources provide a significant number of non-emitting ancillary services in almost every region. 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. Efforts to introduce more efficient pricing for ancillary services including the Operating Reserve Demand Curve (ORDC) will ensure the system values resources that provide these services especially in shortage conditions.

As thermal resources retire and renewables grow, there are other essential services for which there has generally been abundant supply but the grid will demand more of in the future. These include volt-ampere reactive (VAR) support provided by pumped storage (which is not internalized by the market in PJM), inertia (largely uncompensated) and blackstart capability which is compensated out of market. As the resource mix changes and uncertainty in generation increases, RTOs and ISOs should proactively prepare for future flexibility and reliability challenges by designing competitive products to deal with uncertainty on a technology-neutral basis.

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[3] "Stochastic Modeling Status Report," Arne Olson, Andrew DeBenedictis, Ryan Jones, California ISO Workshop, February 10, 2012, https://www.caiso.com/Documents/Presentation_E3_LOLP_Model_Feb10_2012.pdf.
[4] North American Reliability Corporation, 2020 Long-term Assessment, December 2020 at 7.

[5] *Ibid* at 7