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Capacity Testing for Hydroelectric Resources Education from a Generation Owner Perspective

November 4, 2026



Key Work Activities 1.a and 1.b - Education

a. PJM outage planning and scheduling requirements, to the extent to which generation resource owners can prioritize the scheduling of planned outages with PJM and minimize the potential for rescheduling of specific resources.
b. Rules limiting planned outages during the summer period.

PJM Planned Outage (PO) scheduling requirements
(Manual 10, Section 2.2)

- Scheduled in advance, have pre-determined durations, and are approved by PJM.
  - Requests submitted through eDART at least 30 days in advance.
  - PJM reviews and approves or denies the request. If denied, the PJM Member can submit a new request; the Member may ask PJM for assistance (can be an iterative process).
  - Once PJM approves a PO, the Forecasted PO will automatically turn into a PO 30 days prior to the start date.
- May not be scheduled during (or extended into) the **PJM Peak Period Maintenance Season**, which is defined as those weeks containing the 24th through 36th Wednesday of the calendar year.
- Member may request a PO extension at least 48 hours prior to the end of the outage if the original scope of work requires more time to complete.

GO considerations when scheduling POs

- Overhauls require disassembly
- Parts are moved offsite for specialized work
- Labor scheduling
- Accommodating capacity tests and Peak Period Maintenance Season

Considerations that are particular to Hydro

- *Highly* specialized labor is required for some equipment. Some equipment may only be maintained by specialized laborers from countries where equipment was originally manufactured in.
  - Work visa timing; limited human resources means there is less ability to make schedule changes

GO ability to prioritize outages

- Decide to hold off on requesting less important outages
- Spreading out multiple resource outages so there is a higher probability of PJM approval; limited insight into best time to schedule

Ways for Member to express importance and/or ability to move an outage

- eDART ticket cause code (cannot be changed)
- Direct communication with PJM staff
- No way of managing risk of PJM recall for emergencies

Key Work Activity 1.e - Education

Long duration outages required for long term maintenance and reliability of intermittent hydro and pumped storage hydro resources.

What kind of work requires long duration outages?

- Turbine or generator overhauls, tunnel inspection and repair, wicket gate cartridge replacement.
- Extension of life work
  - Though infrequent, extension of life work is critical to ensure the resources may continue to safely and reliably operate in long-term future.
- Pumped Storage Hydro Resources also require infrequent tunnel inspections.

Why are these outages important for long term maintenance and reliability?

- They are important to ensure the safety of workers and the surrounding community and environment.
- They are necessary for maintenance to mitigate the risk of resources becoming unavailable when the system needs them.
- They can be needed to extend the life of a resource. The system cannot afford to lose resources right now.

Key Work Activity 1.f - Education

Review other options for resources with longer duration outages including Must Offer Exception, Seasonal Capacity Resource, etc. and the challenges of each option. Interplay between long duration outages and seasonal testing.

Status quo option	Challenges with option
Capacity market **Must Offer Exception** for a generation resource that is reasonably expected to be physically unable to participate in the relevant Delivery Year (OATT Attachment DD.6.6(g))	• Requires multi-year ahead planning (must be nominated ahead of BRA and IAs) and PJM and IMM approval is not guaranteed • Avoids testing penalties, but also eliminates capacity revenues for entire year, which can have adverse financial impacts
Seasonal Capacity Resource	• Capacity revenue only for one season while resource may be operational for part of second season
Splitting outages	• Shortening or splitting outages could create reliability risk if the full maintenance scope required to maintain long-term unit reliability cannot be completed • Potential increasing future outage costs
Accelerating outages	• Cutting scope of work can create reliability risk for needed maintenance

Contact Information

Jim Davis
Regulatory and Market Policy Senior Strategic Advisor
james.g.davis@dominionenergy.com