Joint Stakeholder Options
PJM CIFP – Large Load Additions

Amazon, Calpine, Constellation, Google, Microsoft, Talen

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Proposed Solution Options for Discussion

- Large Load Forecasting Improvements
- Demand Side Options
- Supply-side Options

Large Load Forecasting Improvements

- Only include large new load that has a meaningful/verifiable commitment. Examples of which include:
  - Energy Service Agreement
  - Credit/collateral support
  - Financially significant infrastructure investment
  - Long-term supply commitment with new or existing resources
- Improve large load modeling assumptions including, but not limited to, ramp rate assumptions, utilization rates, and reduction of double counting
- Implement a Large Load Forecast “Reality Check”: Consider other relevant factors that may predict whether all proposed large load is likely to come to fruition. Examples include, but are not limited to:
  - Historic large load success rate and development progress reviews along with comparison to supplemental projects
  - Supply chain and other limitations such as chip (un)availability
  - Other business expert reviews (McKinsey, S&P, BNEF, LEI Study, LBNL, etc.)
  - Conversations/information exchange among large load customers, PJM, and TOs

Considerations for Options

- The following demand side and supply-side options would only be utilized if triggered.
  - Trigger: Only used in years when RPM clears below [98%] of the reliability requirement.
- Avoid overreliance on potentially lower quality and/or out-of-market services which could have a long-term impact on the market and its ability to signal investment when needed. Every attempt made to minimize such impact although it can't be eliminated.
- Options would be implemented in a pre-defined order starting with demand side and then supply-side.

Demand Side Options

- 1st Cleared/Deployed: Voluntary large load demand response
  - Allow large load to clear as limited [24 to 100 hours/year] demand response. Discounted Effective Load Carrying Capability (ELCC) to reflect the reduced availability.
- 2nd Cleared/Deployed: Back-up generator operations
  - Provide relief during system emergencies using back-up generators. Agree to operate within criteria acceptable to the owners (i.e., consistent with their commitment to the environment, noise reduction, etc.). Establish new PJM emergency procedure step, 9A, for deployment immediately prior to manual load dump. Discounted ELCC to reflect the reduced availability.
- 3rd Cleared/Deployed: Voluntary load curtailment
  - If jurisdictionally permitted, a voluntary-only option, similar to PJM's voluntary NCBL, and, if appropriate limiters are put in place, this option could be considered as part of an interim solution.

Supply-side Option: Multi-Year Procurement

- Eligible resources can (at their option) offer a minimum term supply commitment at the top of the Variable Resource Requirement (VRR) curve.
- Bidders may offer up to **[7]** years but shorter-term offers will clear first.
- Eligible resources include: new/reactivated generation, existing generation with an offer cap above top of the VRR curve, traditional demand response.
- Eligible resources must be reasonably likely to be capable of performing in the delivery years cleared.
- In subsequent years, cleared resources with multi-year commitments will be entered into the RPM potentially based on the technology-specific default gross avoidable cost minus the unit-specific projected Energy and Ancillary Services (EAS) offset.
- If the market clearing price in subsequent years is different than their original offer price of cleared multi-year resources, the resource will receive the multi-year price agreed – no higher/lower.
- Mechanism will be in place for the four BRAs corresponding to the current Quadrennial Review (2028/29 through 2031/32) and will automatically sunset

Summary

Proposed Solution Options

- Improve load forecast.
- In the event the system remains short, utilize new demand side resource options.
- If still short, utilize multi-year procurement.

Other Future Potential Considerations

- Extension of cap and floor, with price adjustments
- Improvement of energy and ancillary service markets

Feedback

Appendix

PJM Emergency Procedure Steps

- EEA1 = PJM Maximum Generation Emergency Alert
- Step 1: Pre-Emergency Load Management Reduction Action (30, 60 or 120-minute)
- Step 2: Emergency Load Management Reduction Action (30, 60 or 120-minute)
- Step 3 (real-time): Primary Reserve Warning
- Step 4 A (Real-time): Maximum Generation Emergency Action (M18 – Max Emergency Generation Action)
- Step 4 B (Real-time): Emergency Voluntary Energy Only Demand Response Reduction Action
- Step 5 (Real-time): Voltage Reduction Warning & Reduction of Non-Critical Plant Load (EEA2)
- Step 6 (Real-time): Curtailment of Non-Essential Building Load
- Step 7 (Real-time): Deploy All Resources Action
- Step 8 (Real-time): Manual Load Dump Warning
- Step 9 (Real-time): Voltage Reduction Action (EEA2)
- Step 10 (Real-time): Manual Load Dump Action (EEA3)
- Load Shed Directive