

Environmental Organizations' Perspective on Seasonal Capacity

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The Annual Capacity Market is no longer a good fit for PJM



RPM was originally designed around procuring summer capacity for a summer peaking system. Since then, many things have changed:

- ❧ Thermals and renewables have strong seasonal characteristics
- ❧ We have learned that winter reliability is not simply a matter of having excess summer capacity
- ❧ Winter peaks are growing faster than summer

Seasonal offers a more efficient market



- Directly address winter resource adequacy
- More accurately account for seasonal characteristics of supply
- Better use of transmission system
- Finer-grained price signals as to what types of resources are needed
- Better accommodates planned outages

Periodicity



- The year should be divided based on distinct supply, load, or risk characteristics
- PJM has three distinct seasons: summer, winter, and shoulder
- Shoulder months are important due to planned maintenance
- Unclear of benefits of shorter than seasonal division—e.g., is December different enough from January to justify monthly divisions?

Optimizing Across Seasons



Seasonal markets enable PJM to find the least-cost combination of resources that satisfies annual LOLE requirements. A seasonal market should shift risk between seasons based on price signals, e.g., the least cost mix of summer and winter risk might depend on the price of solar vs. firm gas supply.

- Auctions should be run simultaneously, and co-optimized across all periods.
- Having a VRR curve complicates this, but should be solvable.
- Ideally, the market clears so that the marginal price of decreasing LOLE is the same across all periods.

Requirements and Accreditation



Capacity requirements should be set and resources accredited to make the most accurate model possible of real-world conditions.

- Seasonal capacity requirements should reflect that season's load profile.
- Resource accreditation should measure risk-adjusted contribution to resource adequacy, along the lines of ELCC or eFORd adjustments, and reflect seasonal performance differences for all technologies.
- Systematic risks such as fuel interruptions should be considered in accreditation, *not* in capacity requirements
 - One benefit of a seasonal market is that it can set a price signal to mitigate those risks.
 - Rolling technology-specific risks into capacity requirements is just a hidden subsidy.

Ideas for Discussion



- Divisions reflect PJM seasonal characteristics. Possible approaches:
 - Summer, Winter, Spring, Fall
 - Summer, Winter, Shoulder
 - Summer, Winter, Annual
- Capacity requirements set seasonally
- Resources receive separate accreditations for each period
- Ideally, support linked offers, as was done when RPM had multiple products
- Absent linked offers, make whole payments may be required to cover annual going forward costs for resources that only clear for part of the year.
- Products co-optimized to find the least-cost solution consistent with the VRR curve.

Next?



- Environmental Organizations support a holistic discussion of reforms to RPM.
- Many RASTF KWAs affected by seasonal vs. annual markets.
- Does it make sense to prioritize a decision on seasonal to get clarity for other tasks?