

Resource Adequacy: Patchwork Quilt of Uncertainty

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Pattern Energy

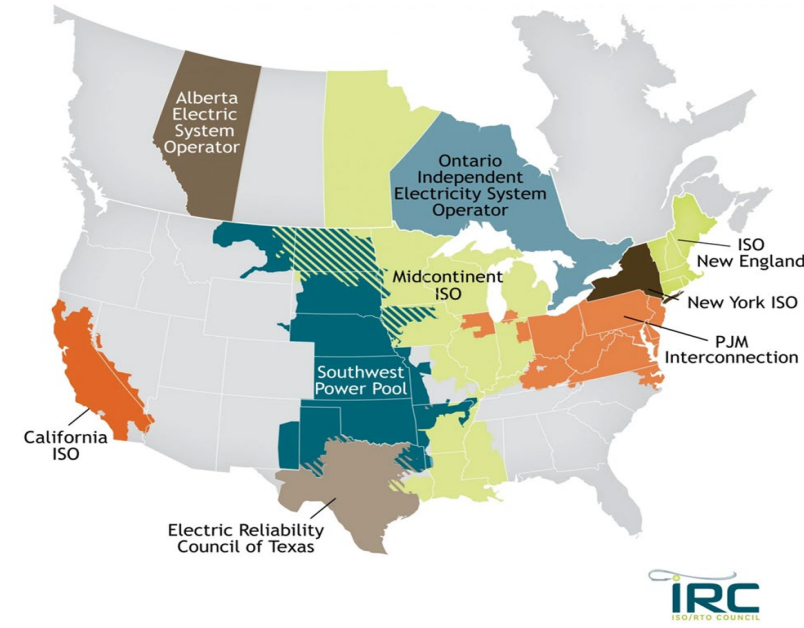


Capacity Payments Ensure Resource Adequacy



- **Capacity markets are missing money for new & existing generators to be available when needed.**
- **What makes it hard?**
 - Intermittent resources
 - Climate interdependency of load & generation
 - Retirements
 - Single price, multiple objectives
 - Varying decarbonization goals within & across market footprints
 - Competing stakeholders, difficult to implement changes

Complex Landscape of Capacity Revenue



Bilateral

- Defined LSE obligation, no clearing auction
- CAISO
- MISO (90%)

Clearing

- Structured auctions
- PJM
- ISO-NE
- ISO-NY
- MISO (10%)

Emerging

- Bilateral, quantity only
- WRAP
- SEEM

Energy Price Modifiers

- ERCOT ORDC
- Alberta Economic Withholding

Resource Counting Accreditation

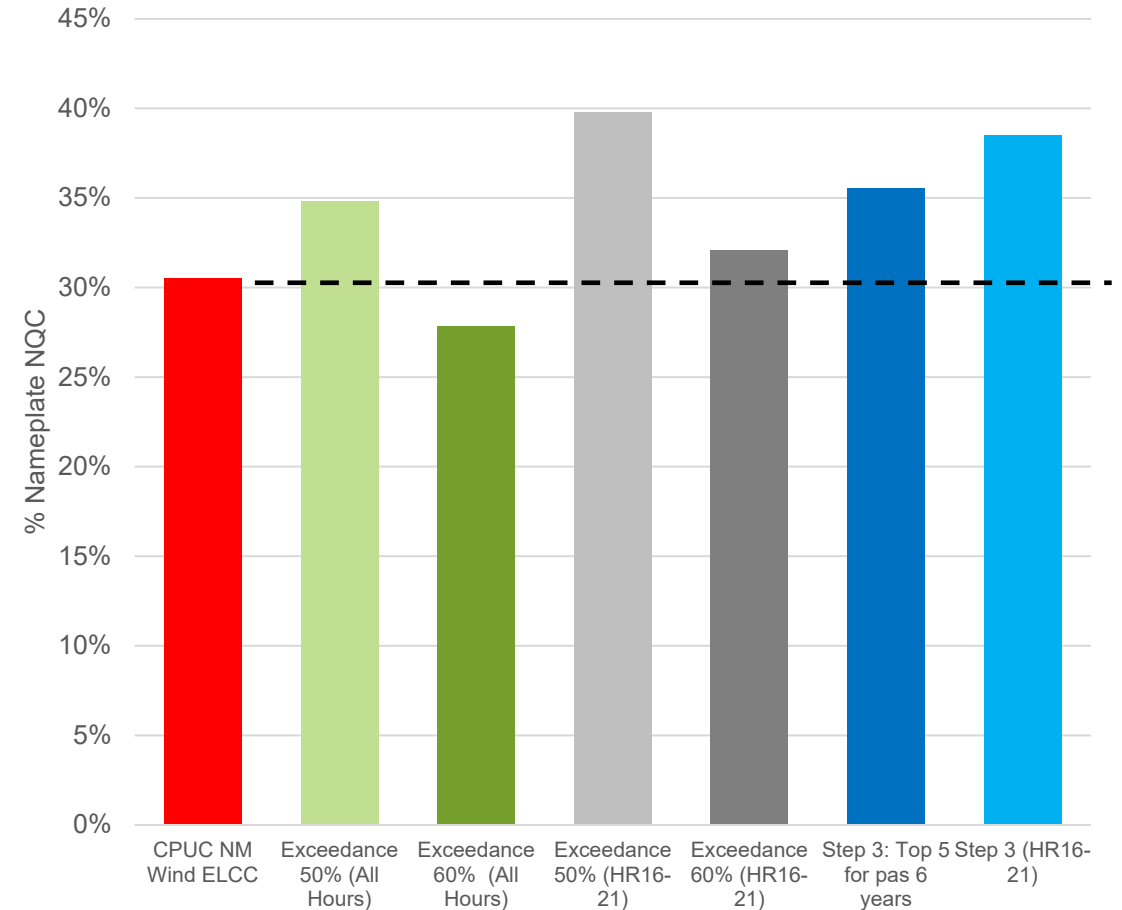
Desire for accreditation method that is technology agnostic but also incentivizes optimal generation mix

Seasonal & diurnal diversity are necessary to maximize renewable penetration

Peak day and net peak day are too coarse to drive to drive diverse procurement

Modification to existing markets trying to correct issues: Slice of Day, Seasonal, Marginal ELCC

CPUC Slice of Day Proposals:
PSCo New Mexico Wind Annual Avg



Uncertain Revenue = No Bankability

What will capacity revenue be ten or twenty years from now?

- High uncertainty in next two years

Bilateral pricing not transparent

- Benefits
 - Allows LSE's to be targeted in procurement
 - Contracted revenue certainty

More Missing Money

- IRA passage has limited availability of tax equity.
- Capital & construction costs are up



Utility Dive

<https://www.utilitydive.com/news/pjm-capacity-ma...>

[PJM launches fast-track capacity market reform process in ...](#)

Feb 27, 2023 – PJM and FERC have been undermining the capacity market, such as by the



RTO Insider

<https://www.rtoinsider.com/articles/28358-spp-to-o...>

[SPP to Operate NWPP's Resource Adequacy Program](#)

5 days ago – SPP is already providing reliability coordination services for entities in the West and is scheduled to go live with its Western Energy Imbalance Service market

California regulators find Diablo Canyon nuclear plant needed through 2030 to support grid reliability

State legislation requires the state energy commission to determine the need to extend Diablo Canyon's license beyond 2025.

Published March 1, 2023

<https://www.rtoinsider.com/articles/31748-miso-sta...>

[MISO Stakeholders Debate Capacity Accreditation, RA](#)

Mar 5, 2023 – **MISO's** attempt to justify a new resource accreditation process gave way to heated debate over how to best alleviate the footprint's reliability challenges.