Resource Adequacy and Day-Ahead Markets

BPA Day Ahead Market Workshop

October 30, 2026

Portland, Oregon

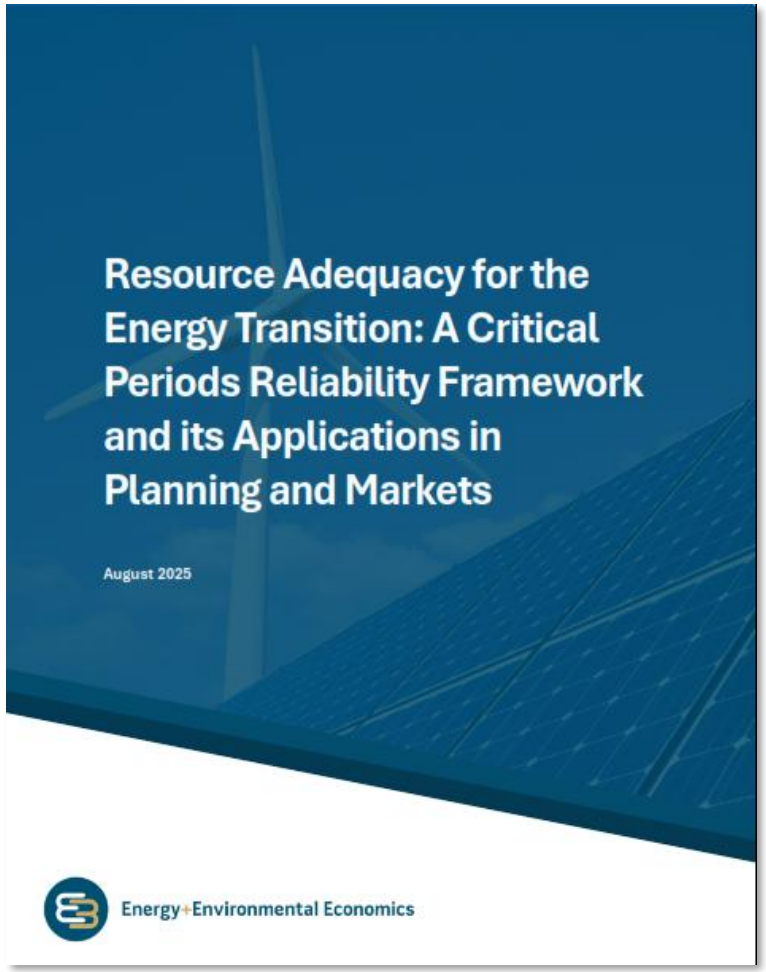


Energy+Environmental Economics

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E3 white paper describes the emerging consensus around measuring power system resource adequacy



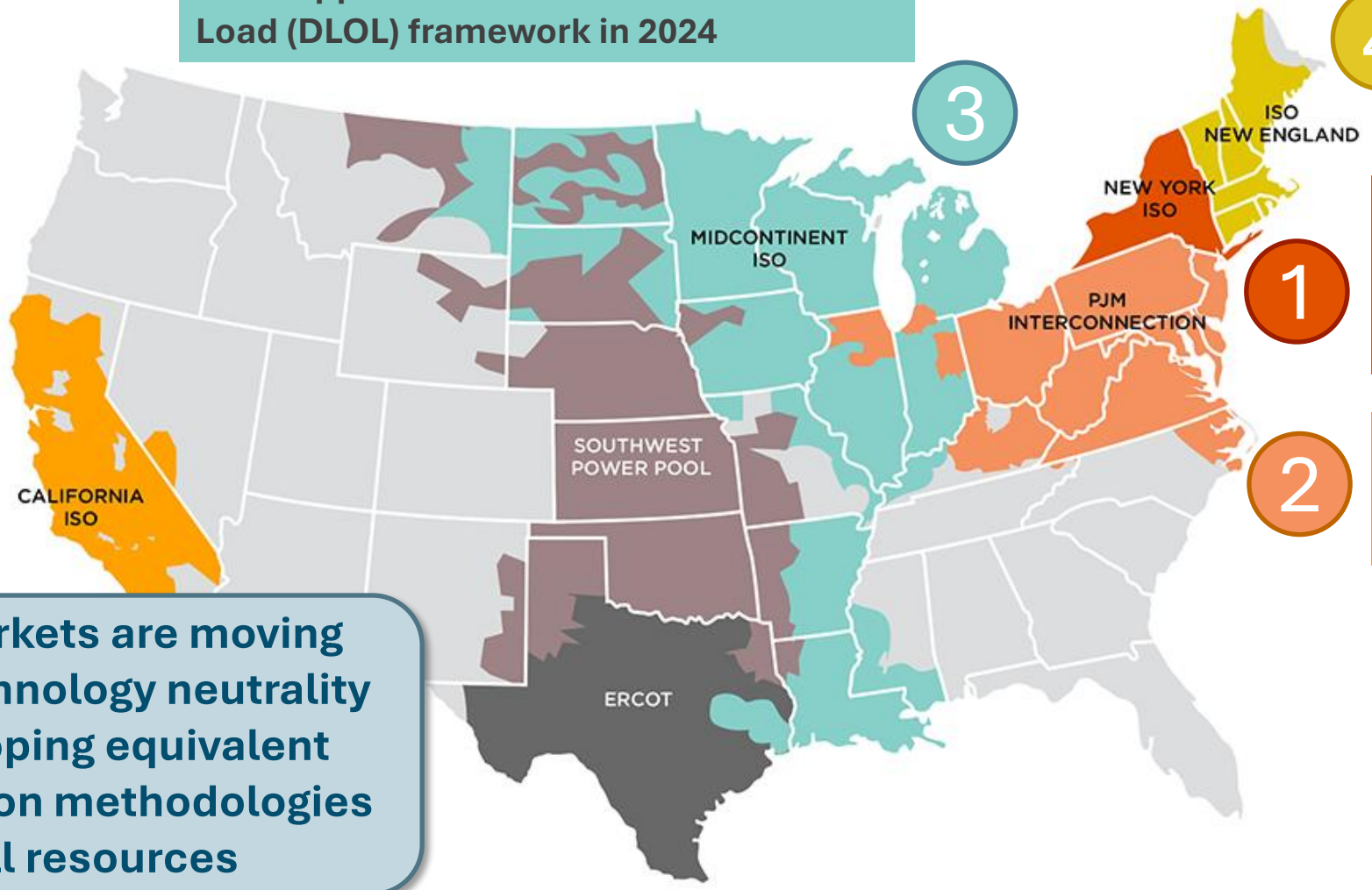
https://www.ethree.com/new-framework-resource-adequacy/

- **The paper addresses the two major problems in resource adequacy:**
  - **Physical problem** of ensuring reliability
  - **Economic problem** of ensuring efficient investment
- **Solving both problems requires robust loss-of-load probability modeling that accurately characterizes:**
  - The conditions under which power supply may be inadequate to serve load
  - The incremental impacts to reliability of changes to the resource portfolio
- **The paper provides a holistic mathematical framework with applications in both system planning and markets**

Most organized markets are moving toward the Critical Periods framework, albeit with different computational methods

FERC approved MISO's Direct Loss-of-Load (DLOL) framework in 2024

3



4 ISO-NE currently proposing MRI approach

1 FERC approved NYISO's Marginal Reliability Improvement (MRI) framework in late 2022

2 FERC approved PJM's Marginal ELCC framework in 2024

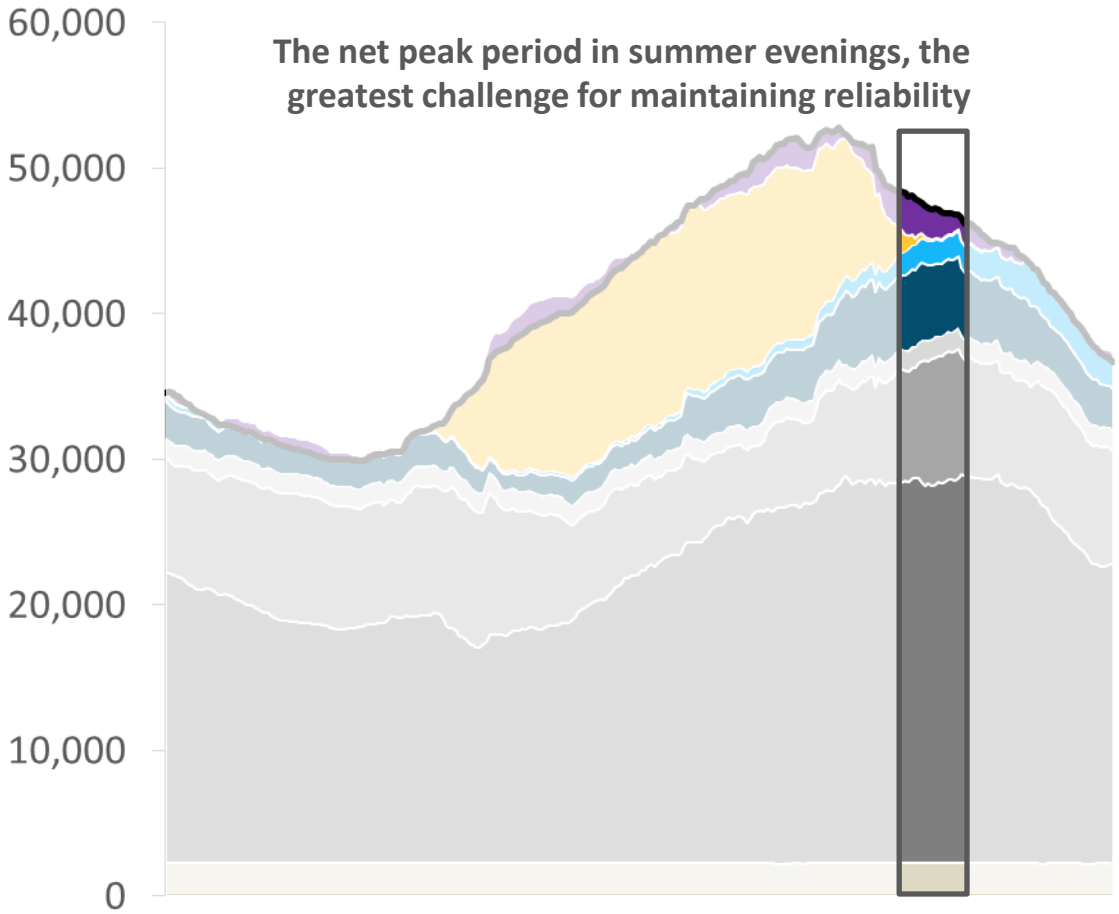
These markets are moving toward technology neutrality by developing equivalent accreditation methodologies for all resources

What is the ideal structure of a resource adequacy program in the West?

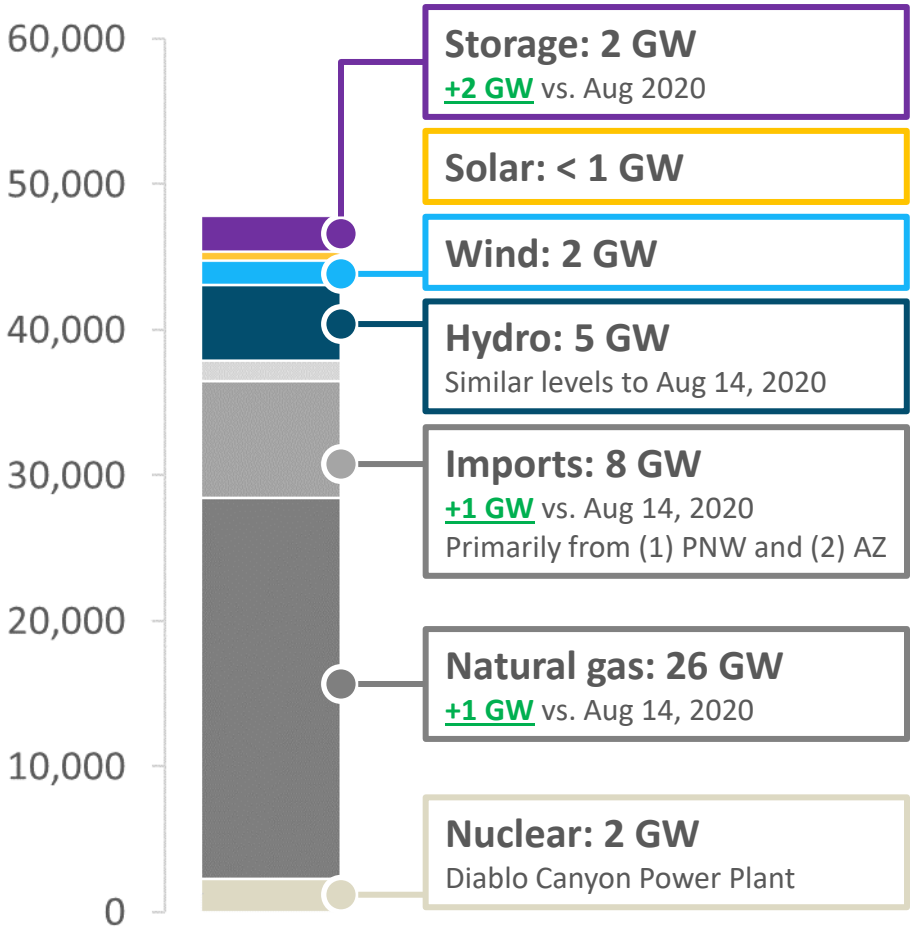
Transmission	Physical transmission constraints across West enforced during resource accreditation	Varied
Footprint	West-wide footprint to **maximize load and resource diversity**	Multiple RA programs across different footprints: CPUC, CAISO non-CPUC, WRAP, EDAM RA program, SPP RTO West, utilities outside of RA program
Accreditation	All resources accredited using a uniform methodology focused on resource performance during **critical reliability periods**	Multiple resource accreditation practices based on many factors other than performance during critical periods
Transmission	Physical transmission constraints across West enforced during resource accreditation	Varied – "deliverability" studies, RA zones,

Critical reliability periods in the Southwest increasingly occur during hot summer evenings

CAISO System Operations on September 6, 2022
(MW)

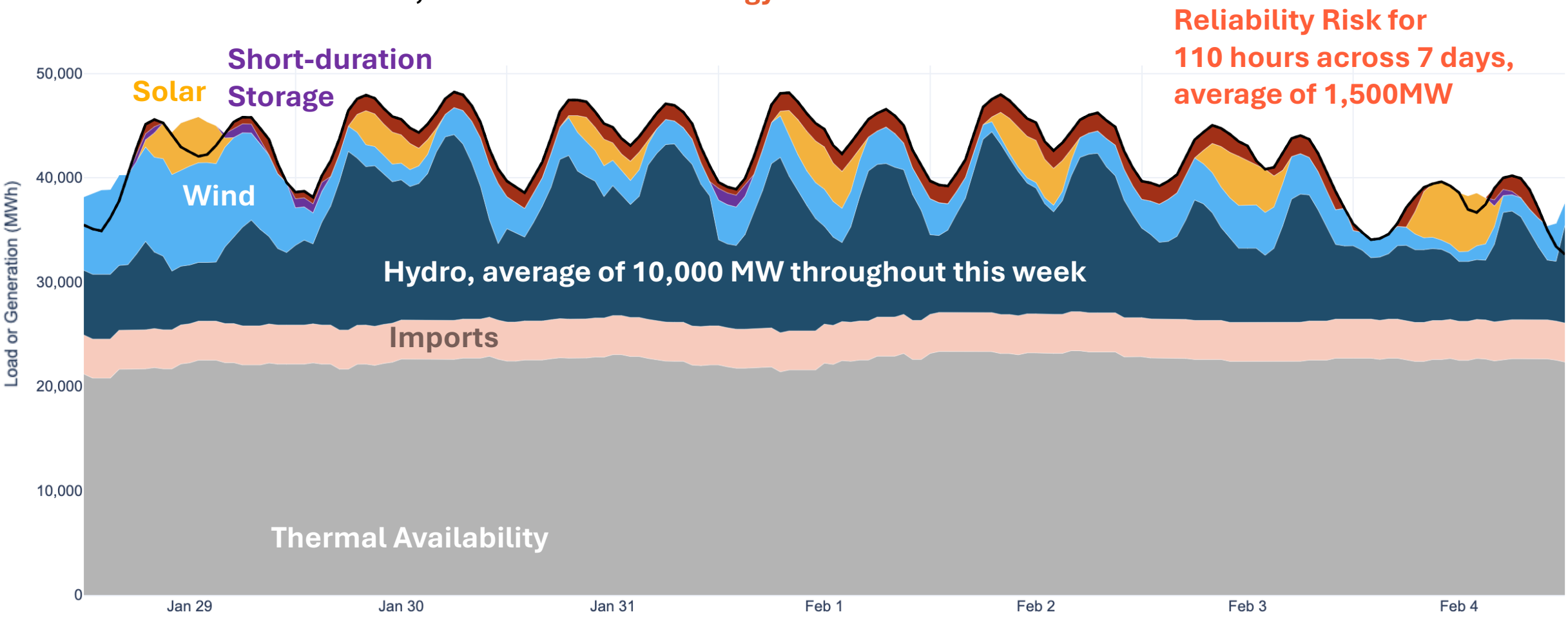


Generation During Hour of Highest Net Load
(MW)



Critical reliability periods in the Northwest can include multi-day cold snaps during low hydro years

Greater Northwest in 2025, RECAP simulated energy-limited event



What is a second-best solution?

+ Multiple RA programs, each in coherent transmission geographies

+ Each program uses the critical periods framework to focus on the reliability events in its own footprint

+ Programs work together to develop an informed view of import availability

Thank you!

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