

Demand Response Participation in Wholesale Markets

Current Gaps and New Opportunities



ESIG

ENERGY SYSTEMS
INTEGRATION GROUP

ESIG Webinar

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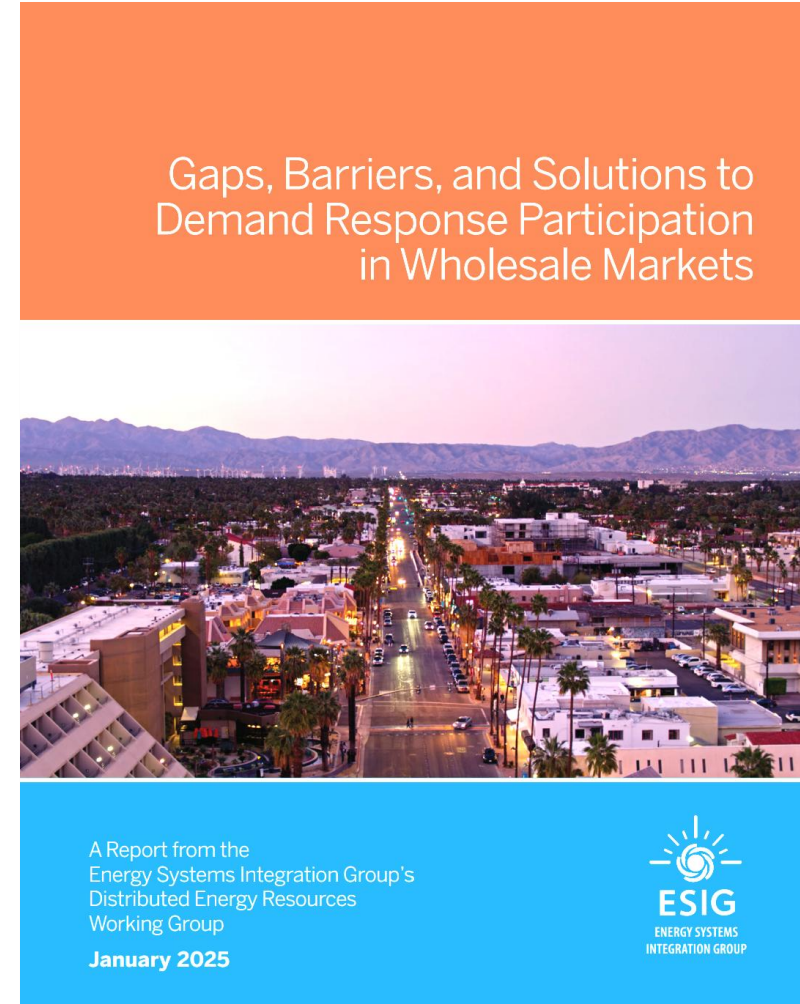
Gaps, Barriers, and Solutions to Demand Response Participation in Wholesale Markets



NEW REPORT!

- Current Market Performance and Trends
- Gaps in Demand Response Participation in Wholesale Markets
- Potential Solutions and a Path Forward

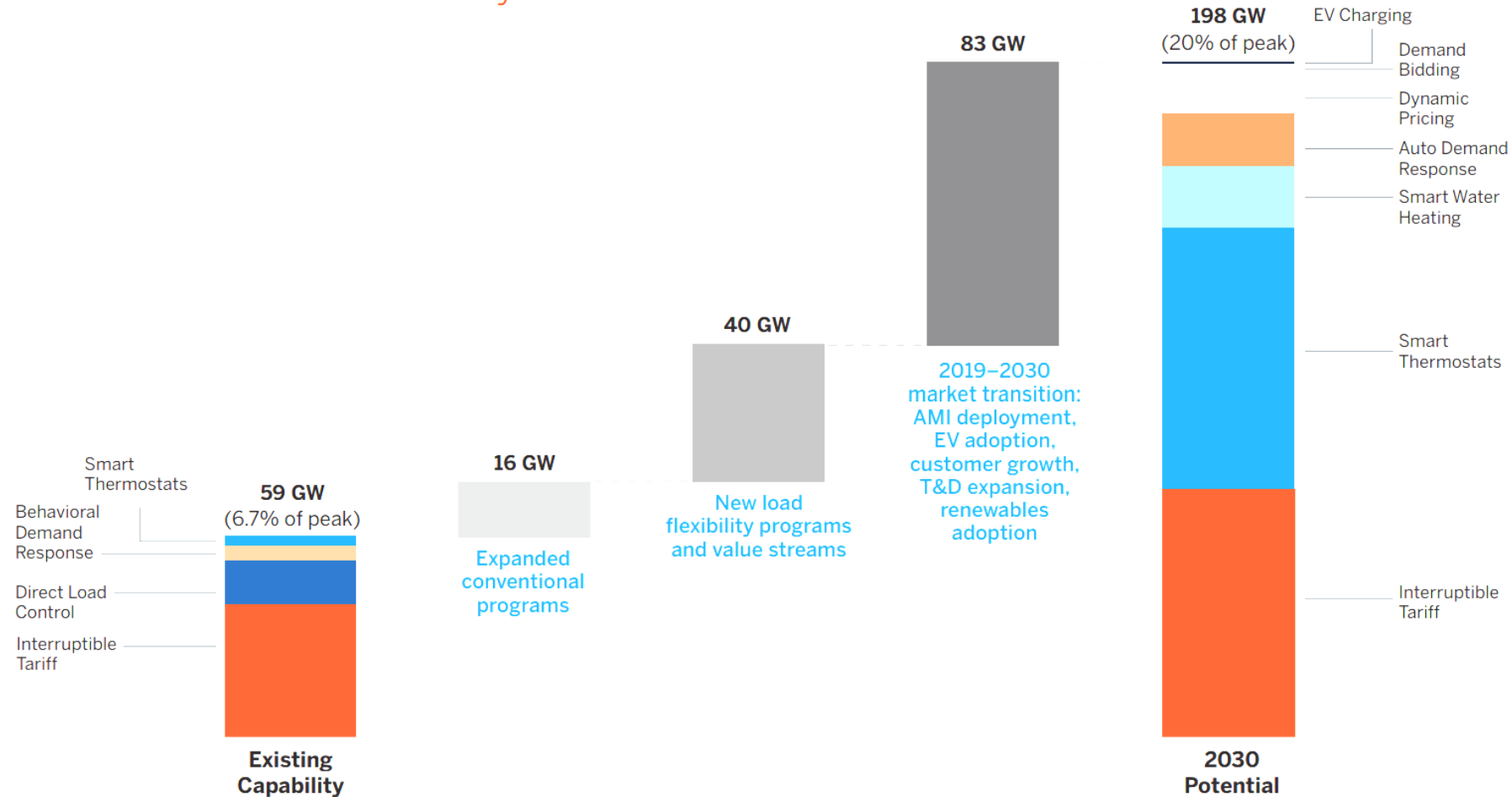
<https://www.esig.energy/wp-content/uploads/2025/02/ESIG-Demand-Response-Wholesale-Markets-report-2025.pdf>



Many studies have identified load flexibility as a cost effective and reliable resource...



U.S. Cost-Effective Load Flexibility Potential

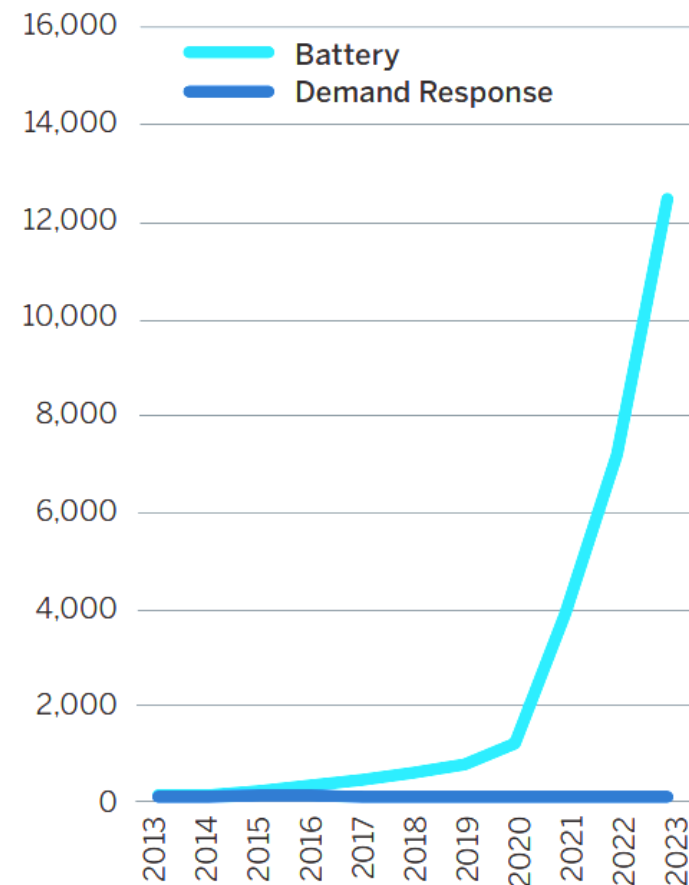
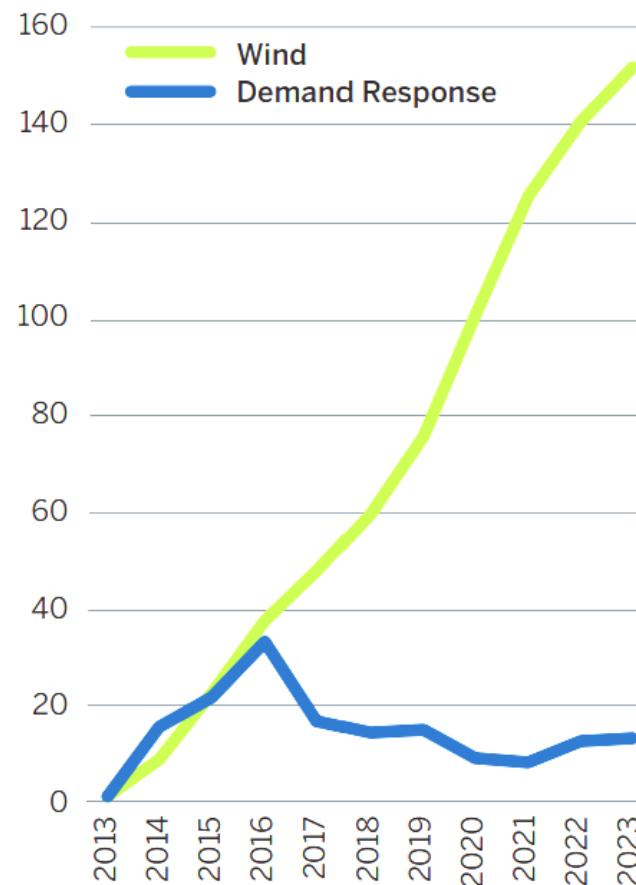
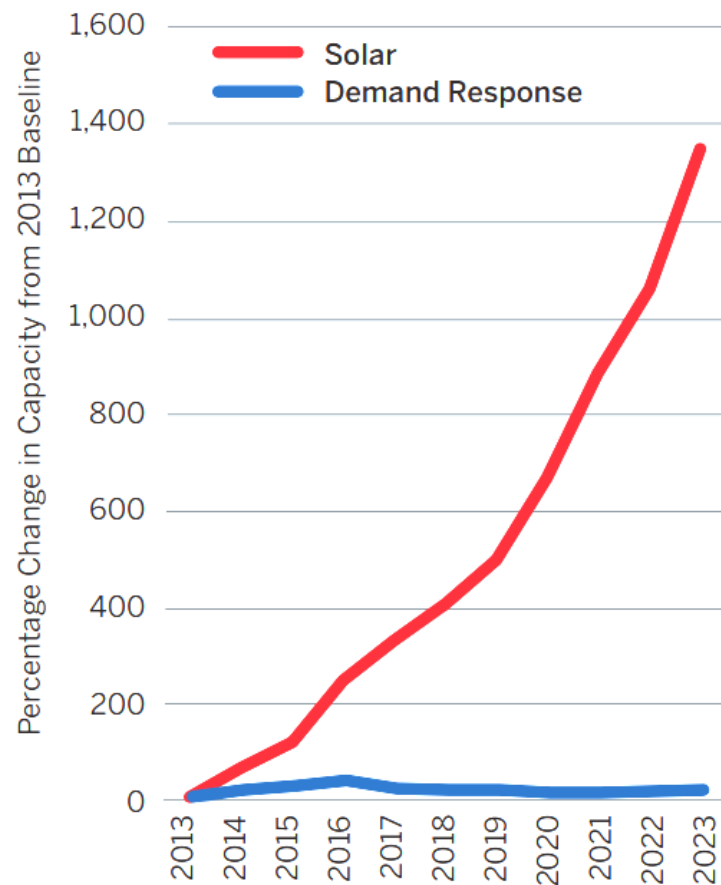


Source: Brattle, [National Potential for Load Flexibility](#)

... but the energy transition hasn't yet arrived for demand response and load flexibility



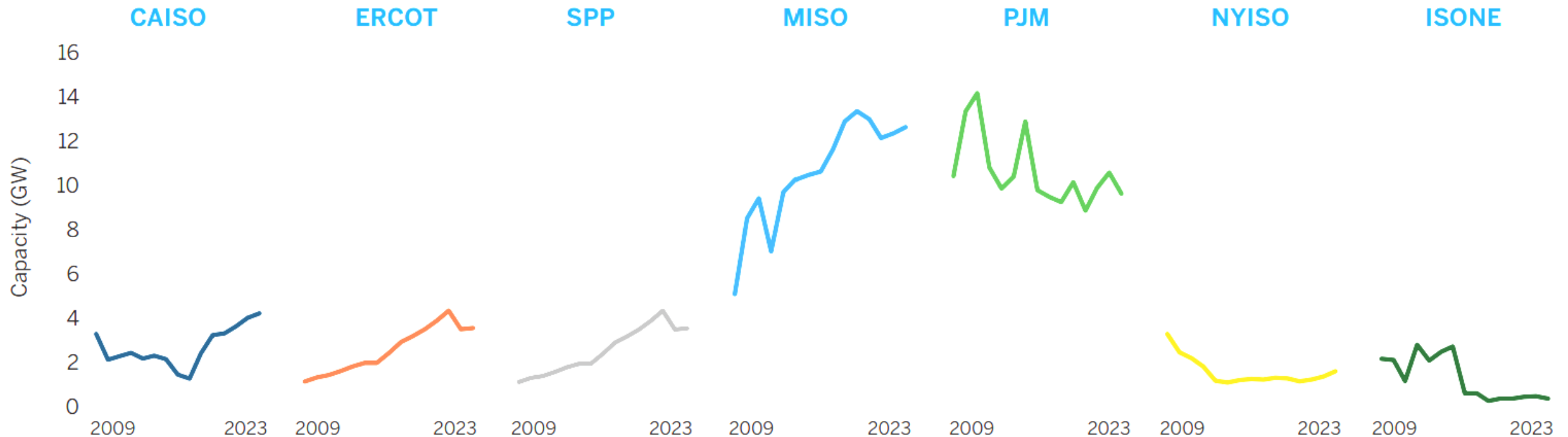
U.S. Growth in Wind, Solar, and Battery Installed Capacity Relative to Demand Response



Demand response participation is flat or declining in most markets



Wholesale Demand Response Capacity by ISO in GW

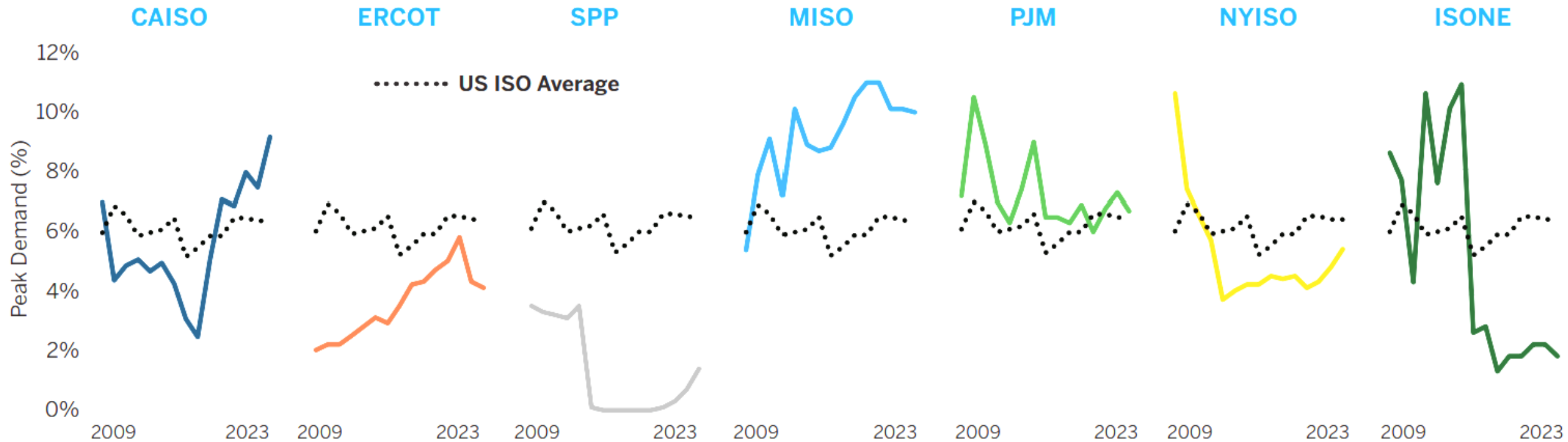


Source: Energy Systems Integration Group; data from the Federal Energy Regulatory Commission's 2023 Assessment of Demand Response and Advanced Metering (FERC, 2023).

Demand response participation is flat or declining in most markets



Wholesale Demand Response Capacity by ISO as a Percentage of Peak Demand

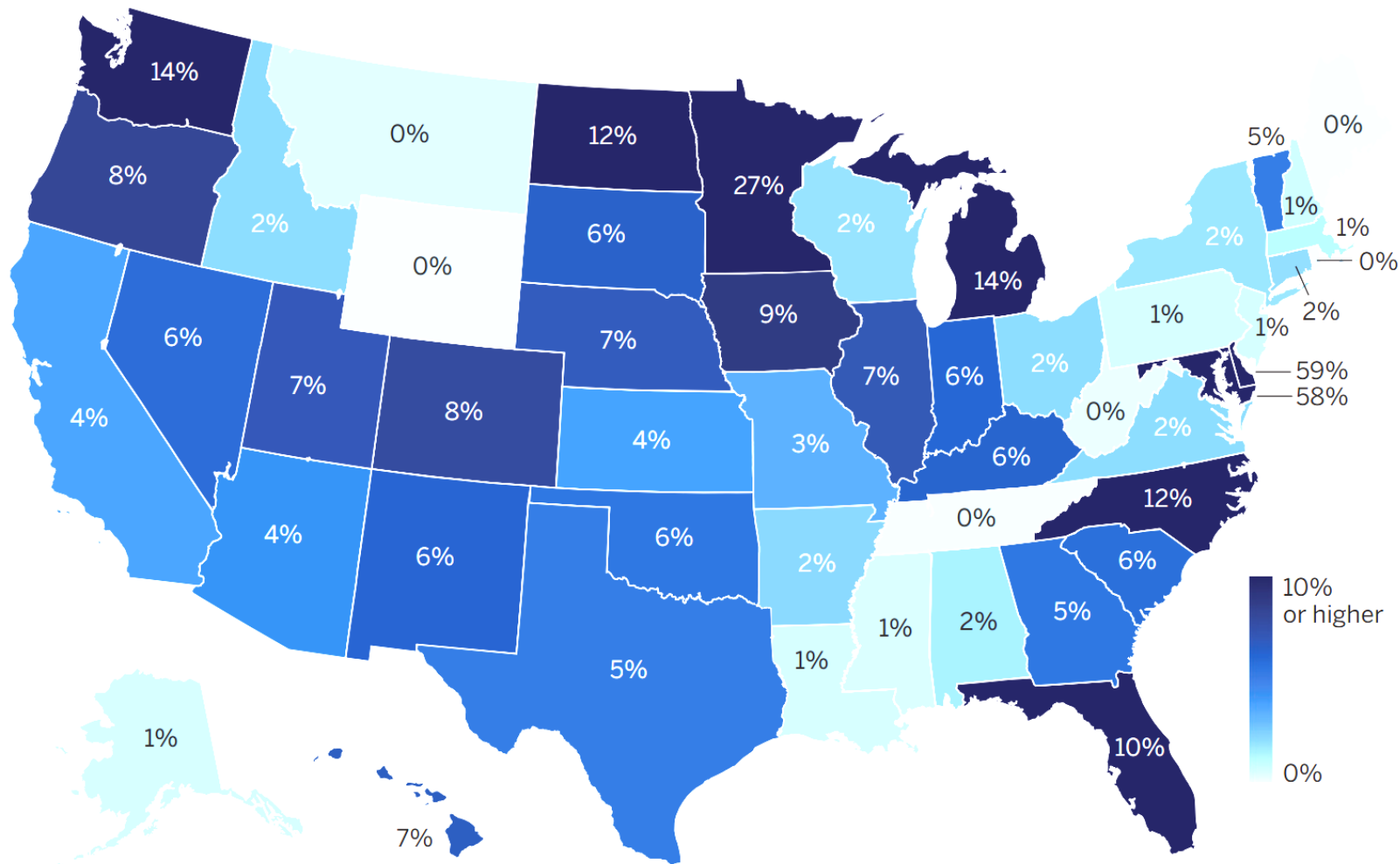


Source: Energy Systems Integration Group; data from the Federal Energy Regulatory Commission's 2023 Assessment of Demand Response and Advanced Metering (FERC, 2023).

But participation occurs at both the wholesale and retail levels



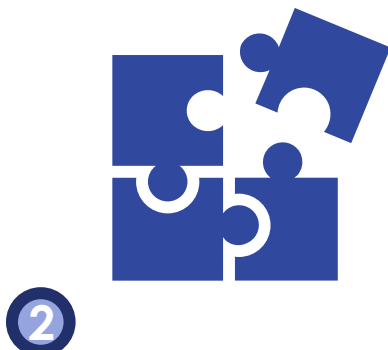
Percentage of Customers Enrolled in Retail Demand Response Programs by State, 2023



Top Five Gaps for Demand Response Participation in Wholesale Markets



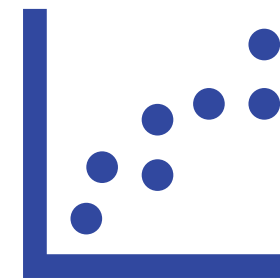
① **Lack of Experience & Knowledge**



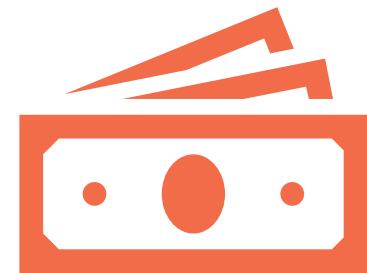
② **Market Fragmentation & Inconsistent Rules**



③ **Difficult Interconnection & Metering Rules**



④ **Lack of detailed performance data during grid events**



⑤ **Weak financial incentives**

Solutions and recommendations can help participation and efficient compensation



Five Potential Solutions and a Path Forward in Demand Response Participation

Experience and Knowledge	Program Boundaries and Rules	Communication and Metering	Performance and Accreditation	Financial Incentives and Retail Rates
Strengthen experience and knowledge in demand response technology and programs among system operators, state regulators, and consumers	Clarify demand response program boundaries across retail and wholesale programs and harmonize market rules across independent system operators	Refine communication and metering requirements to facilitate the integration of demand response into wholesale markets	Use detailed information on demand response performance during emergency events to improve accreditation and ensure reliability, while building confidence across stakeholders	Align financial incentives to stabilize revenues from long-term demand response contracts, incent load-serving entities to defer new capacity, and align customer rates

Source: Energy Systems Integration Group.

Where is demand response headed?



Tailwinds

- Tightening supply and rapid load growth across the country → demand response can integrate faster than conventional generation resources
- Uncertainty in demand projections → demand response can be a least-regrets, scalable product as demand materializes (no stranded assets)
- Data center options for flexibility and BTM generation offers a new option for load flexibility
- EVs and BTM Storage offer new, less intrusive, demand response options

Headwinds

- Direct competition from 2 to 4-hour storage → Saturation of capacity and ancillary benefits
- Shifting risk by time of day (evenings and overnight) and season (winter) mean demand response programs will need to change significantly