

POLICY BRIEF

A Missed Opportunity for Immediate Benefits

The U.S. electricity system faces mounting reliability challenges as traditional generation retires and electricity demand grows from widespread electrification. While significant policy attention and investment have accelerated the deployment of supply-side resources like wind, solar, and battery storage, demand-side resources have seen stagnant or declining participation in wholesale markets over the past decade. This represents a missed opportunity, as demand response can provide immediate reliability benefits without the long lead times and interconnection delays that challenge new generation resources. The Energy Systems Integration Group's report *Gaps, Barriers, and Solutions to Demand Response Participation in Wholesale Markets* seeks to understand why actual deployment of demand response in wholesale electricity markets is not achieving its potential, and outlines five key actions that regulators can take to capture demand response's value for grid reliability.

Demand response participation remains below 7% of peak load across U.S. wholesale markets, despite research suggesting it could meet up to 20% of peak demand by 2030. This gap between potential and actual deployment stems, in part, from regulatory frameworks and market rules that have not kept pace with technological advancement. While end-use technologies like smart thermostats, electric vehicle chargers, and behind-the-meter storage have dramatically expanded the technical capability for demand response, participation models for this resource remain largely designed around large industrial loads



© iStockphoto/halbergman

Demand response can provide immediate reliability benefits without the long lead times and interconnection delays that challenge new generation resources.

and outdated communication systems. These rules can limit participation from smaller loads or make their aggregation costlier and more challenging.

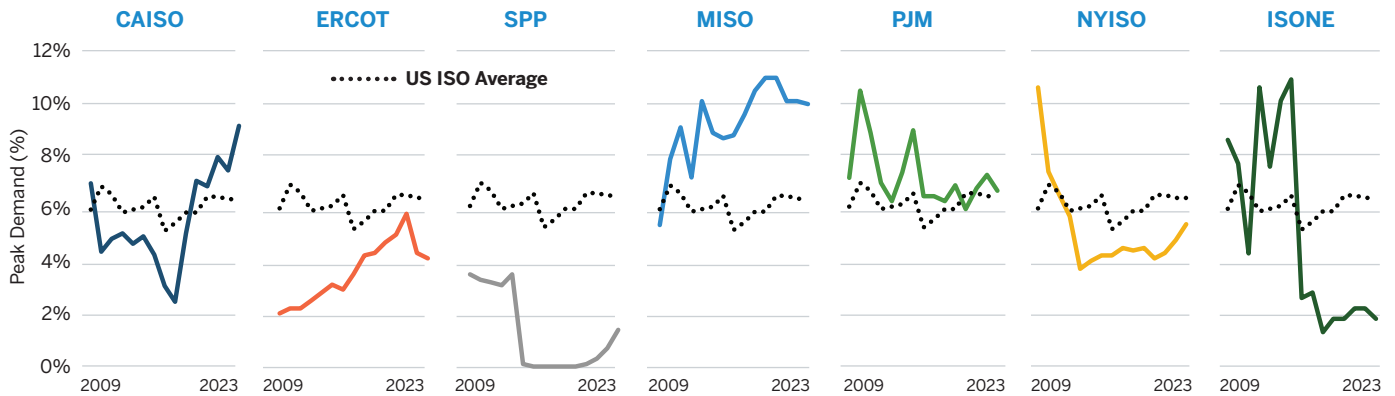
Opportunities for Regulators to Bridge the Gaps and Unlock the Reliability Benefits of Demand Response

State and federal regulators have unique authority and responsibility to address this challenge. At the federal level, the Federal Energy Regulatory Commission (FERC) has already laid important groundwork through

See the full report:
Gaps, Barriers, and Solutions to Demand Response Participation in Wholesale Markets

FIGURE 1

Wholesale Demand Response Capacity by ISO as a Percentage of Peak Demand, Showing Stagnant or Declining Participation in Most Markets



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

Orders 745 and 2222, establishing demand response compensation and enabling distributed resource aggregation. However, implementation has been slow and inconsistent across regions. State regulators play an equally crucial role in establishing retail rate structures, utility incentives, and measurement requirements that can either enable or inhibit demand response participation. Coordination between state and federal regulators is essential, as demand response spans both wholesale and retail jurisdictions.

This policy brief outlines specific, actionable recommendations for regulators to unlock demand response potential. Drawing from extensive stakeholder interviews and market analysis, it identifies regulatory barriers that currently limit participation and proposes concrete solutions that can be implemented through commission orders, tariff requirements, and market rule changes. It is organized across five key gaps identified and discussed in the [full report](#).

While there are recommendations across the stakeholder groups—including end-use technology providers, aggregators, utilities, and independent system operator (ISO) market designers—these solutions are specifically targeted toward the regulatory decisionmakers.

SOLUTION 1: Strengthen experience and knowledge in demand response technology and programs among system operators, state regulators, and consumers.

- Identify **specific** people at your organization to lead demand response programs and initiatives.
- Require additional **data reporting** with additional information on segmentation of demand response across residential, commercial, and industrial sectors as well as differentiation by end use.



© iStockphoto/Young777



© iStockphoto/SeventyFour

- Empower customers by requiring load-serving entities to **simplify enrollment processes** for demand response and to consider opt-out, rather than opt-in, enrollment to programs.

SOLUTION 2: Clarify demand response program boundaries across retail and wholesale programs and harmonize market rules across ISOs and load-serving entities.

- Make sure that load-serving entities and ISOs are **transparently differentiating between retail and wholesale programs** to ensure resources are not double counted and give stakeholders more visibility into customer adoption trends.
- Strive for **consistency**, not for perfection. Regulators should strive to make participation rules consistent across markets, and only allow unique requirements if there is a clear rationale to do so. This will allow technology providers and aggregators to develop common products and business models across markets.

SOLUTION 3: Refine communication and metering requirements to facilitate the integration of demand response into wholesale markets.

- Promote **statistical sampling** of load response during emergency events can be used to baseline load consumption, measure demand response effectiveness, and streamline data collection needs.
- Allow resources to **count both load reduction and load injection** as demand response, enabling the participation of new technologies like behind-the-meter storage and electric vehicles.
- Consider **aggregations of non-revenue-grade meters**, allowing the use of measurement technologies embedded in end-use loads—like inverters and internal software—without the need for external metering.
- Lower the **minimum size of aggregations**. While FERC Order 2222 set minimum size requirements for aggregated resources, it did not provide guidance on minimum size for end-use loads. Lowering the minimum size for these resources will increase participation of residential and commercial loads.

SOLUTION 4: Use detailed information on demand response performance during emergency events to improve accreditation and ensure reliability, while building confidence across stakeholders.

- Require load-serving entities and ISOs to conduct **forensic reporting** after Energy Emergency Alert events to analyze how demand response resources performed relative to their accredited capacity.
- Allow for **seasonal accreditation**. An annual capacity market would significantly discount this resource, while a seasonal construct would allow high accreditation in the summer season and not require bundling of other demand response resource types in other seasons.
- Provide **critical reviews to accreditation reforms** taking place at ISOs and utilities to ensure that demand response is getting fair treatment and accredited based on its demonstrated performance and value to the grid.

SOLUTION 5: Align financial incentives to stabilize revenues from long-term demand response contracts, incent load-serving entities to defer new capacity, and align customer rates.

- Develop new incentives for load-serving entities to enter into **long-term contracts** for demand response, similar to how power purchase agreements are structured for renewable energy.
- Enable **value stacking** and retail rate structures that allow load-serving entities' demand response programs to provide **multiple services across the grid**, from generation capacity to transmission and distribution deferral.

- Create incentives for load-serving entities to promote demand response programs, including rates and tariffs that allow for **capitalization of demand response–related costs, shared savings mechanisms, and performance-based rates**.
- Transition away from flat volumetric rates, and encourage load-serving entities to adopt **time-varying rates** to expose customers to the true costs of electricity during periods of high demand and create an incentive for new enabling technologies and behavior change.

Traditional generation is retiring rapidly at a time when new load is growing faster than it has in the past 30 years. Either these new loads can strain the power system, or their flexibility can be an integral part of its reliability. Regulators have a time-sensitive opportunity to enable demand response as a reliable, cost-effective resource for maintaining grid reliability during the clean energy transition.

Regulators have a time-sensitive opportunity to enable demand response as a reliable, cost-effective resource for maintaining grid reliability during the clean energy transition.

By implementing these actions, the integration of demand response into wholesale markets can overcome the key barriers we outlined in the report, driven by our interviews with third-party aggregators, ISOs, nongovernmental organizations, and market researchers. Taking these steps will help unlock the full potential of demand response as a flexible, scalable, reliable resource in wholesale electricity markets.

Gaps, Barriers, and Solutions to Demand Response Participation in Wholesale Markets by the Energy Systems Integration Group's Distributed Energy Resources Working Group is available at <https://www.esig.energy/demand-response-in-wholesale-markets>.

To learn more about the topics discussed here, please send an email to info@esig.energy.

The Energy Systems Integration Group is a nonprofit organization that marshals the expertise of the electricity industry's technical community to support grid transformation and energy systems integration and operation. <https://www.esig.energy>.

© 2025 Energy Systems Integration Group