

New England Conference of Public Utility Commissioners  
Demand Response Working Group  
October 2<sup>nd</sup>, 2024

*Re: Feedback on Wholesale Market Issues*

Advanced Energy United (“United”) is pleased to share the following feedback to the New England Conference of Public Utility Commissioners’ (“NECPUC”) Demand Response Working Group (“DRWG”) on the scope of their upcoming track focusing on wholesale market issues. United represents a wide range of businesses focused on delivering advanced energy technologies and services, both grid-scale and distributed. Our membership includes a variety of technologies and companies capable of managing load and deploying Distributed Energy Resource Aggregations (“DERAs”) in different regions, at different scales, with different underlying business models. It is with these perspectives we share the following feedback on what wholesale market program design considerations will enable more widespread adoption of demand response (“DR”) and load flexibility programs and why it will be important for these technologies to have access to the wholesale power markets in New England. In light of current barriers to wholesale market participation by DR and DERAs in New England, we also emphasize the importance of state action to ensure optimal deployment and utilization of these technologies.

### **The Need for More DERAs**

Given the New England Independent System Operator’s (“ISO-NE”) well-documented concerns about New England’s potential reliability challenges (particularly in winter when competing uses for natural gas threaten the operation of conventional power plants), the region should seize and maximize all opportunities to improve valuable demand-side flexibility and responsiveness. To do so, the region must maximize demand response potential while also thinking more broadly about the full suite of technologies and participation models that will enable load flexibility, peak shaving, and overall deployment of various distributed energy resources (“DERs”).<sup>1</sup> ISO-NE has expressed that demand side resources like energy efficiency and DR have an important role to play in maintaining electric reliability.<sup>2</sup> Unfortunately, the ISO has made very little progress to advance behind-the-meter (“BTM”) DERs through enhanced participation in wholesale markets. DERAs are especially valuable in New England because

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<sup>1</sup> Key DER use cases include aggregations of residential and small commercial electric vehicle supply equipment, electrified transit fleets, smart thermostats, smart water heaters, battery storage (including vehicle-to-grid capabilities), and solar plus storage.

<sup>2</sup> Remarks of ISO-NE President and CEO Gordon van Welie, 2023 New England Winter Gas-Electric Forum Transcript, 219. Full recording available at <https://www.youtube.com/watch?v=-DGQ2LxKkXY>

they offer an additional tool to help meet reliability needs in the wintertime, when New England's grid is particularly vulnerable. Maximizing the potential of DERAs will only become more important with load growth coming from electrification of heating and transportation.

If allowed to fully participate in wholesale markets, DERAs offer value not just as energy in the day-ahead and real-time energy markets, but also by performing key load management services that can flex, shift, and shave load under various conditions. When the grid is under stress due to high demand for electricity, the dispatch of DERAs can shave peak loads, displacing the need for costly, emission-intensive peaker-plants to come online. Some of the load DERAs shave can be shifted to another time of the day during relatively less stress; in other instances, DERAs can deliver net reductions in load. Under multi-nodal aggregation, DERs can be aggregated within grid designated zones and in aggregation compose a single resource for the purposes of wholesale market participation.<sup>3</sup> This construct is necessary but not sufficient to scale DERs and allow them to access important revenue streams from the wholesale markets.

DERAs can manage load and improve system reliability cost effectively for a future winter peaking system, but cannot be deployed at scale without improved access to ISO-NE's wholesale power markets. Ensuring that the growing suite of DERs that are already being deployed by consumers in the region are available for dispatch and visible to ISO-NE operators will improve reliability, reduce costs, and lessen reliance on other resources. Many of the resources DERAs can displace emission intensive generation resources that states are seeking to eliminate, which face operational constraints in extreme weather, or become unavailable at times of need due to lack of delivered fuels. Failure to integrate DERs will leave significant customer value on the table while also failing to provide grid operators with much needed visibility and control over increasingly flexible demand.

### **Insufficient Opportunities for DR and DERA Participation in ISO-NE Markets Today**

New England's power grid is nowhere near realizing the full potential of DERAs and their ability to ensure cost-effective, zero-emission solutions for electric reliability. One of the DER types subject to the most focus of this Working Group, DR, has minimal participation in ISO-NE and will not grow without further reforms. The vast majority of DR in ISO-NE is Passive DR such as energy efficiency. Active DR resources, referred to as Active Demand Capacity Resources (ADCRs) in New England, are severely limited, amounting to roughly 500 MW delivered solely

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<sup>3</sup> FERC Order No. 2222, NEPOOL Meter Reading Working Group (September 2024), slide 14. Available at: <https://www.iso-ne.com/static-assets/documents/100015/20240913-mrwg-a07-order-2222-overview-and-update.pdf>



by commercial and industrial ("C&I") customers, with little to no participation by other end-users such as residential customers.<sup>4</sup> ISO-NE ranks second to last (ahead of only SPP) for wholesale market demand response participation.<sup>5</sup>

While FERC Order No. 2222 ("Order 2222") sought to unleash robust participation by DERAs (defined in Order 2222 to include DR) in wholesale power markets, ISO-NE's current implementation does not create a viable participation model for DR and DERAs (particularly those located behind a customer meter, or BTM) to scale in deployment and unlock the benefits they offer. The result is Order 2222 compliance essentially affords no new opportunities for participation by DR and BTM DERAs.<sup>6</sup>

The first major barrier to robust DERA participation in ISO-NE concerns the lack of viable sub-metering options. The submetering limitations imposed by ISO-NE's compliance approach only allows the measurement of DERs at the Retail Delivery Point ("RDP"). Participation at the RDP as anything other than DR is unworkable for BTM DERs because it obfuscates actual DER performance by measuring the entire customer net load, making the facility, not the DER, the "asset" for purposes of participating in the wholesale markets. The only option ISO-NE allows for direct BTM DER participation is to install a separate meter, which would necessitate the installation of duplicative revenue-quality metering with a separate service meter and panel. This is practically and financially prohibitive for most BTM DER use cases, particularly for small C&I customers and residential DR.

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<sup>4</sup> The vast majority of DR participating in ISO-NE is not participating as active DR; there was just over 500 MW of active DR with a Capacity Supply Obligation ("CSO") as of January 2022, representing 13% of total DR in the FCM. Anecdotally, the active DR participating in ISO-NE tends to be large commercial and industrial customers such as ski resorts and large manufacturers, with little or no participation by residential customers as dispatchable DR; ISO New England, *Demand Resources Working Group Monthly Statistics Report* (Jan. 2022), available at [https://www.iso-ne.com/static-assets/documents/2022/01/dr\\_stats\\_january\\_2022.pptx](https://www.iso-ne.com/static-assets/documents/2022/01/dr_stats_january_2022.pptx), at 4.

<sup>5</sup> *2023 Assessment of Demand Response and Advanced Metering*, Federal Energy Regulatory Commission (December 2023), at 16. Available at: <https://www.ferc.gov/sites/default/files/2023-12/2023%20Assessment%20of%20Demand%20Response%20and%20Advanced%20Metering.pdf>.

<sup>6</sup> See *Protest and Comments of Advanced Energy United* (formerly known as Advanced Energy Economy), *PowerOptions*, & *Solar Energy Industries Association* (April 2022), pgs 14-16. Available at: [https://elibrary.ferc.gov/eLibrary/filelist?accession\\_number=20220401-5533&optimized=false](https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20220401-5533&optimized=false)



Participation at the RDP even as DR is further hindered by lack of Advanced Metering Infrastructure (“AMI”) for most residential and small commercial facilities in ISO-NE. Despite progress in recent states' commission proceedings in Massachusetts, Rhode Island, and Maine ordering the deployment of AMI infrastructure, New England continues to experience low AMI penetration across all customer classes. In fact, New England has the lowest penetration of advanced meters of any census division by a wide margin, at just 23% across all customer classes (nationally, penetration is estimated at 70%).<sup>7</sup> Expansion of AMI is necessary but not sufficient to enable expanded participation by DR and BTM DERs in wholesale markets.

The second barrier is the inflexibility of participation options. The preexisting option for DERAs to participate as DR resources is underutilized, as noted above, because it is inflexible, outdated, and not fit for purpose. The baseline methodology it uses has barely been updated in 12 years and, unlike in other regions, has not adapted to changes in available technology. The existing “historical baseline” approach does not accurately reflect or correlate to the actual DER performance and dispatch. The second participation option, a newly designed DR DERA model developed under Order 2222 compliance, prevents DERs that could also perform DR from doing so. Under both options, frequently dispatched resources that would otherwise be eligible to participate as DR are therefore subjected to ‘baseline erosion’ (i.e., they become baked into the facility’s baseline load, and their contribution to reducing demand at peak times is no longer recognized). This has the effect of undervaluing their performance and fails to capitalize on their potential.

## **DR and DER Program Design Must Focus on Solving Future Challenges**

Market programs enabling DERAs must focus on the future of the region’s anticipated peak load, which will concentrate in winter, and the unique challenges this presents. The ISO-NE EPRI analysis demonstrated that challenges to resource adequacy in future winters may involve events as long as 21 days. This highlights that programs will be most effective if they can reduce overall loads and transmission congestion in addition to shifting and flexing load in more dynamic and strategic ways. If fuel inventories are a limiting factor in the long-duration winter reliability periods, then shifting load to better align with the actual dispatch of non-fuel limited advanced energy technologies’ generation will help conserve gas and oil unit fuel inventories as they are stretched across long multi-day cold snaps. In this way, DR and DERAs that are duration-limited can still play an important role in maintaining energy adequacy during long-duration events.

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<sup>7</sup> *2023 Assessment of Demand Response and Advanced Metering*, Federal Energy Regulatory Commission (December 2023), at 4, 6. Available at: <https://www.ferc.gov/sites/default/files/2023-12/2023%20Assessment%20of%20Demand%20Response%20and%20Advanced%20Metering.pdf>.



A load management program that can address long-duration winter reliability periods will need a few features. First, programs must consider location generally and specifically should account for the location of load reduction from DERAs to capture how much they alleviate transmission constraints. Relatedly is the need to appropriately incentivize the siting of DERAs near congested load centers (i.e., Boston, Hartford, and western CT) to deliver the greatest benefits. Second, it will also be crucial to specifically incentivize the role of ADCRs, which have the potential to *reduce* load in addition to shifting load. The flip-side to this feature is encouraging more energy efficiency to lower overall demand for electricity. Third and finally, it is crucial to ensure capacity accreditation and seasonal capacity market reforms fully capture the winter capacity value of DERAs. ISO-NE is currently undertaking reforms (discussed more below) to transition to a seasonal capacity market construct; states should closely follow this process to ensure the full value of DERAs in both winter and summer is captured. This may require updating load management programs to reflect the full value of DERAs' contributions to winter resource adequacy.<sup>8</sup> States should assess the extent to which wholesale markets do or do not capture these features, and whether changes to existing state programs can effectively incorporate these essential features, or whether there is a need for new programs.

## **Recommendations to Optimize DERAs' Contributions to Resource Adequacy**

ISO-NE and the states can undertake several interrelated strategies to optimize the deployment of DR and DERAs in both wholesale markets and retail programs to ensure they are contributing to regional resource adequacy needs to their full potential. Key opportunities and potential solutions are:

- (1) **Wholesale Market Participation:** Evaluating enhancements to DR participation in ISO-NE markets. Because this will require FERC approved tariff changes, ISO-NE will be the responsible party. However, states can request this evaluation.
- (2) **Metering Requirements:** Addressing sub-metering and telemetry barriers and dual participation. Because this overlaps with both market rules in the regional tariff as well as metering infrastructure throughout the distribution system, both states and ISO-NE will be responsible.
- (3) **AMI and Data Collection:** Implementing AMI for Electric Distribution Companies ("EDCs") to facilitate data collection, aggregation, and harmonization across EDC service territories. To enable effective resource aggregation, locational pricing, and understanding of impacts to load, states must ensure EDCs report information to

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<sup>8</sup> Examples of existing state programs include the Clean Peak and the ConnectedSolutions programs.



ISO-NE. Because AMI must be deployed by the EDCs at the distribution level, states will be responsible for ensuring AMI capable of comprehensive data collection is implemented and works congruently throughout the region.

- (4) **Rate Design:** Dynamically pricing electric rates through either real time or some form of time-of-use pricing. This will provide price signals and the incentive structure for DERs to respond to system needs. Because utility rate design is within the jurisdiction of utility commissions, the states will be responsible.
- (5) **Capacity Accreditation:** Ensuring accurate accounting of the value of DR and DERAs via capacity accreditation under ISO-NE's ongoing Capacity Auction Reforms ("CAR") process. As currently proposed, ADCRs are suffering a serious derating in their assigned capacity value.<sup>9</sup> For demand response, while it's difficult to make perfect comparisons to other jurisdictions, which use alternative frameworks and methodologies for capacity accreditation (with results that we also have concerns over), it is noteworthy that demand response resources similar to ADCRs in ISO-NE have significantly higher values in PJM and NYISO. The large haircut ADCRs are receiving is problematic for New England because demand response resources receive more revenue from wholesale capacity markets in New England than in any other wholesale power market, meaning such a derate will threaten DR participation altogether. Further, there is currently no resource class for DERAs, only for ADCR and Passive DR, which captures some but not all DERAs. Lastly, there are open question regarding how the resource profiles will be developed for DERAs under capacity accreditation, especially given the diversity of compositions for any single DERA and the lack of indicative historical performance data as a proxy for a resource class profile. ISO-NE will be the responsible party, but states can engage in the CAR discussions at NEPOOL.
- (6) **State Programs:** Updating state programs to capture winter value as the ISO implements seasonal capacity market. To the extent the ISO's wholesale markets continues to underutilize DR and DERAs, it will be evermore critical for retail program(s) to help capture that value. States will need to assess the efficacy of their state programs.

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<sup>9</sup> *Resource Capacity Accreditation in the Forward Capacity Market*, NEPOOL Markets Committee (March, 2024), slide 64. Available at: [https://www.iso-ne.com/static-assets/documents/100009/a03b\\_mc\\_2024\\_03\\_12\\_13\\_impact\\_analysis\\_sensitivity\\_results.pdf](https://www.iso-ne.com/static-assets/documents/100009/a03b_mc_2024_03_12_13_impact_analysis_sensitivity_results.pdf)



## The Key Role of State Commissions

As demonstrated in the recommendations above, both ISO-NE and state public utility commissions can play a key role in unlocking the widespread deployment and adoption of DERAs. Coordinated state commission proceedings throughout New England offer an opportunity to address EDC data collection harmonization. This will provide ISO-NE with more visibility into DER potential and performance on both a planning and operational timeframe. In addition, reforms will be needed at the ISO-NE level to resolve barriers to DR and DERA participation in wholesale markets, and states can help to press for and inform discussions about such reforms.

States can also help through leading proceedings on rate design to implement dynamic pricing and updating their state programs to capture winter value and, more broadly, fully defining the full value stack for compensation and benefit valuation of DERAs. Some specific considerations when developing the value stack include locational pricing, load reduction, reductions to the region's installed capacity requirement, contributions to energy delivery, and capacity contributions.

Respectfully submitted,

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