

A PUC perspective

Preparing for FERC Order 2222



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These views do not represent the Vermont Commissioners

Jurisdiction

- NARUC filed a request for rehearing of 2222-A arguing that:

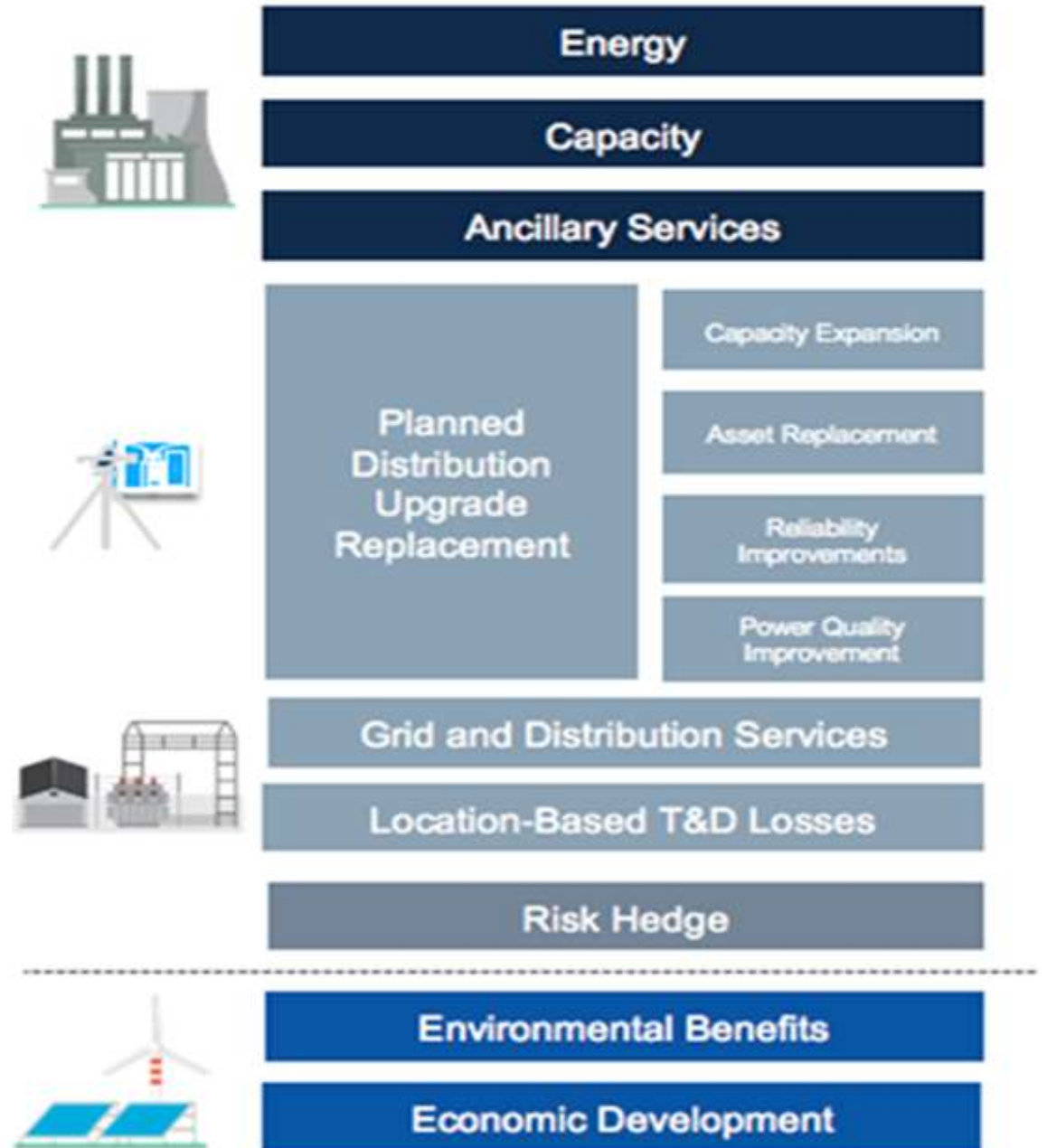
“FERC did not have the jurisdiction to prohibit states from determining which resources on the distribution system and behind the meter could participate in the wholesale markets, but in the event that it did, we have also advocated for FERC to use its discretion to provide the opt out because it would be bad policy to not provide one. In Order 2222, FERC used its discretion to accommodate the needs of small utilities, but did not afford the same courtesy to its **fellow sovereigns.**”

- Reasonable people can disagree with NARUC on this.
- FERC has not actively ruled on the request, but it is effectively denied because 30 days have passed.

Value stacking

- Values in the stack cannot all be maximized. (e.g. using a battery to reduce CO2 emissions versus maximize customer bill savings)
- Value to the participant aggregator conflict with value to the DUs and/or ratepayers? (e.g. shooting at FCM peaks versus RNS peaks)
- All these values are almost never realized in one project. (e.g. MA CEC projects)

Locational Value of DERs



Power supply costs

- Failure to coordinate behind-the-retail-meter resources with DU power supply cost drivers will result in higher power supply costs to customers. Also - flip this - coordination could result in savings.
- RNS/FCM peak costs + coordination.
- Carrot approach of giving incentives for coordination with the DU is working for now in some areas.

“double-dip”

- Resources cannot participate in retail programs and wholesale markets at the same time for the same service.
- Energy, capacity – Net-metering
- Which services are appropriate for a “double dip” and which are not? e.g. net-metered solar systems cannot bid into wholesale energy markets but batteries enrolled in a tariff could participate in frequency regulation
- How will we catch double dippers, and what will the consequences be?
 - Maybe use address data? Will take audits, effort, and an enforcement plan.

Interconnection

- PUCs and DUs retain authority and responsibility for interconnection:
- It would be too much work for the ISO: “an influx (of DER) could burden RTOs/ISOs with an overwhelming volume of interconnection requests.”
- But not too much work for the PUCs and DUs “state and local authorities ... have the requisite experience, interest, and capacity to oversee these distribution-level interconnections.”

Interconnection

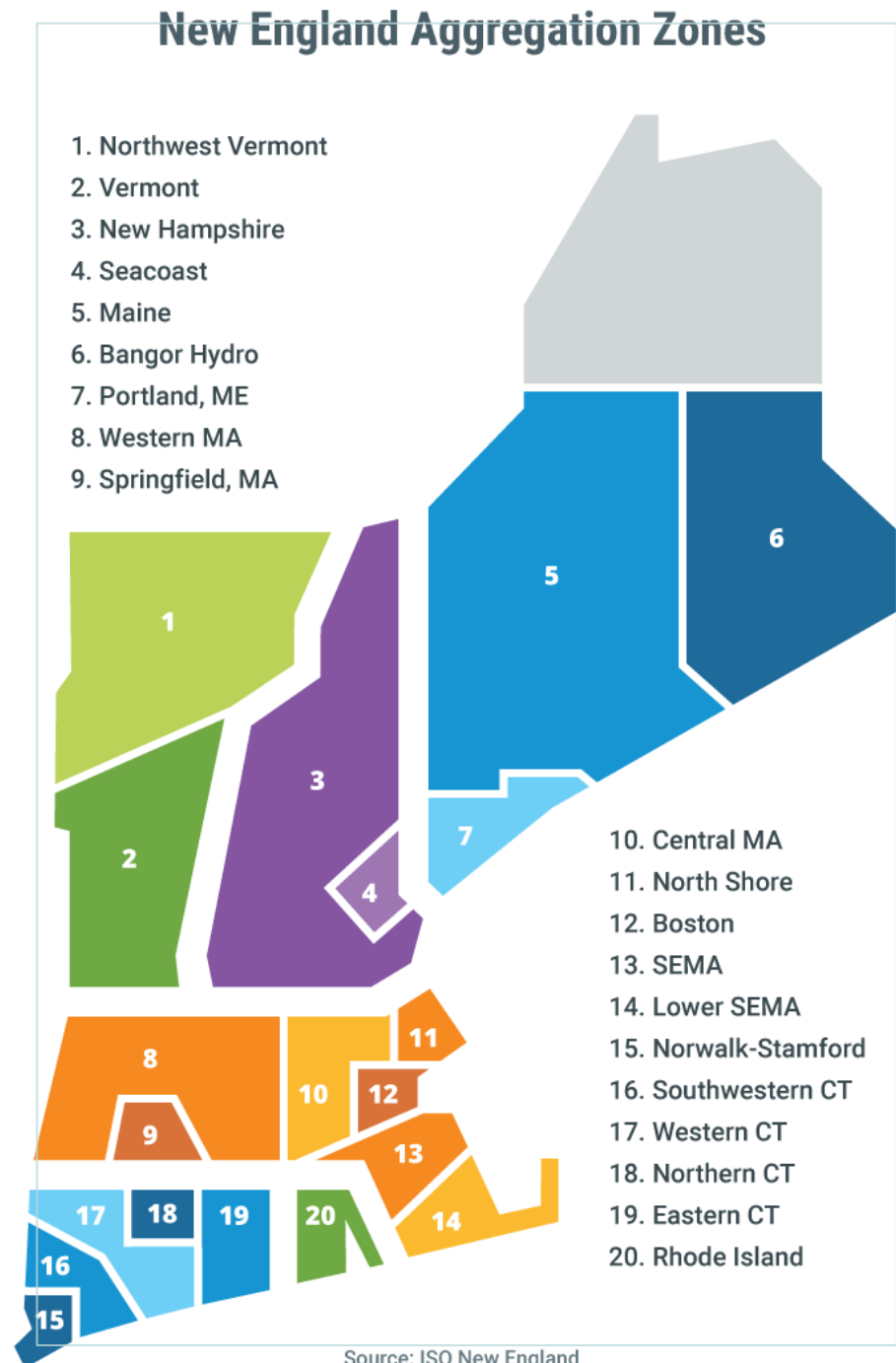
- Aggregations at the “grid edge” could affect power quality in unexpected ways because they aren’t following the historical patterns distribution grid operators are used to seeing.
- E.g. a business that adds a 1 MW battery to manage demand charges can create a 2 MW swing in demand on a circuit that was not there before.
- E.g. a housing sub-division with each home containing a 10 kW batteries bidding in. Could have 500kW of load responding to wholesale price signals. On a 2 MW circuit that is a big deal.
- Interconnection process needs to take this into account.
- How can we simplify and avoid long queues while protecting power quality?

Communications protocols

- Establishing standardized communications protocols is critical!
- This is one of the toughest areas for implementation.
- Requires hardware, software, and situational awareness on a real-time basis.
- ISO will address coordination between ISO, Aggregator, the Distribution Utility, and PUCs.
 - Are Distribution Utilities prepared to receive and meaningfully use data regarding real-time market participation?
 - Could DUs send dispatch signals or override wholesale signals?
- CA 2030 is a starting point.

ISO-NE aggregation zones

- Mapped to match bulk transmission system.
- Cut across territories of distribution utilities.
- ISO can consider whether and how to standardize communications protocols. PUCs/DUs can think through interconnection.



PUC “to-do” list

- Examine interconnection rules to ensure that aggregators work with local distribution utilities to preserve system stability/reliability and allow fastest interconnection possible for small resources.
- Investigate whether smaller DUs have the tools to receive, digest, and respond to aggregators in their territory on a real-time basis.
 - (spoiler: they probably don't).
 - Billing systems, interconnection, and communications will be **very expensive** for DUs.
- Clarify which values can be stacked
- Comb through programs to eliminate double dipping for non-stackable values
 - net-metering
 - active load response incentive programs
 - feed in tariffs
 - specific utility tariffs

Red-light, Green-light



- Ambitious decarbonization goals
- Policies and programs promoting DER



- Lengthy interconnection queues
- Anemic communications infrastructure
- Siting hurdles
- Rate impact concerns

New England PUC Coordination

Could we all adopt standardized and simplified rules for DER aggregations?

- Interconnection
- Communications protocols
- Inverter settings (ISO is on this, thanks ISO!)
- Fire and safety codes
- Reporting and auditing for double-dipping

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