

Three approaches for integrating markets and policies

NEPOOL Forum: Integrating Markets and Public Policies

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Synapse NEPOOL Team

Synapse Energy Economics

- Founded in 1996 by CEO Bruce Biewald.
- Leader for public interest and government clients in providing rigorous analysis of the electric power sector.
- Staff of 30 includes experts in energy and environmental economics and environmental compliance.
- Representing NEPOOL stakeholders since 2001.

Issues to address

- Every New England state has some form of climate policy, target, or goal, often in addition to renewable energy or energy efficiency targets or goals.
- These policies, targets, and goals do not interfere with the reliable operation of the system. However, they are inconsistent with New England wholesale markets that are designed to be resource neutral.
- Synapse suggests this group consider the following three potential approaches for enabling states to meet their goals.
- These three topics are not fully developed and do not represent a specific proposal by any of our clients. At present they are ideas that warrant further investigation.

Options to discuss

Carbon fee

Develop a carbon fee (\$/ton) based upon each unit's CO₂ emission rate per megawatt-hour that is added to each resource's bid. Resources are paid the new clearing price but carbon-emitting resources receive the clearing price minus the relevant fee and a pool of money is created from the payment of the fee by those resources.

Generation PPAs

Develop a FERC-approved mechanism that will allow and encourage states and distribution companies to enter into short or long-term power-purchase agreements with renewable generation and other generation as appropriate. A state power authority is one option.

Storage at substations

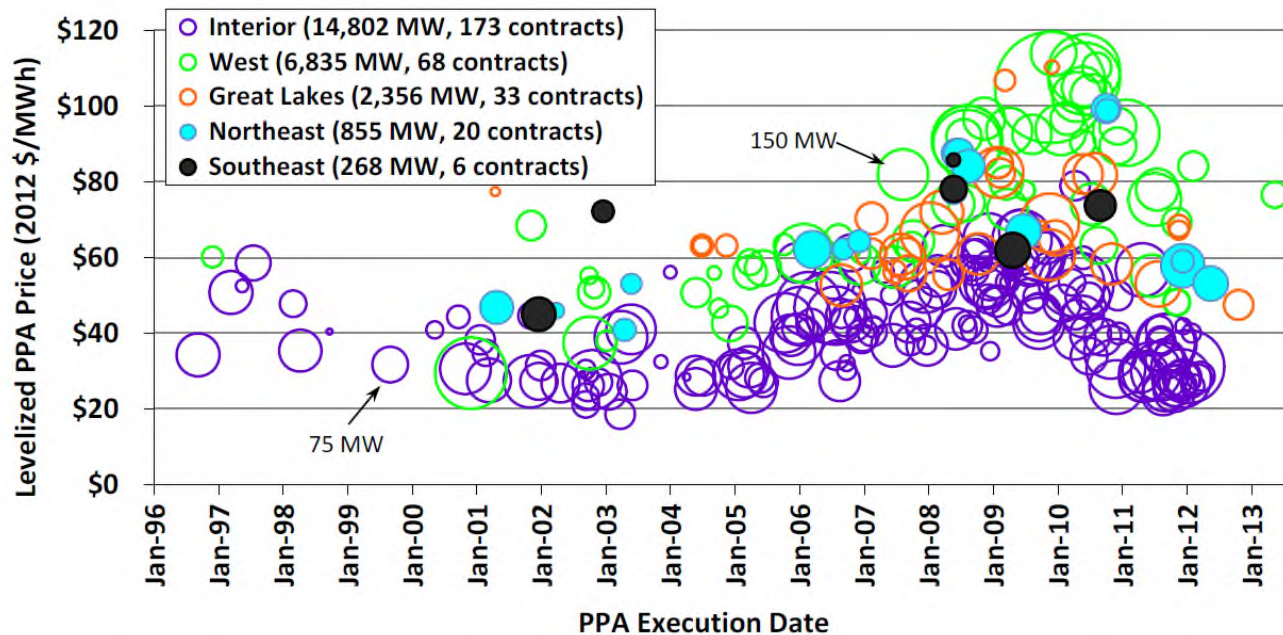
Site battery storage units at substations throughout the ISO-NE footprint. This will enable integration of more renewables and provide system operators a mechanism to quickly and reliably respond to abrupt changes in supply and demand.

Carbon fee for emissions

- A carbon fee is a relatively straightforward way to value carbon reductions in order to support the resources needed to achieve states' long-term carbon reduction goals.
- The fee would be included in every energy bid based upon unit-specific CO₂ emission rates.
- Inclusion of the fee would cause the clearing price to increase due to New England's current reliance on fossil generation. This higher clearing price would be paid to all resources. Carbon-emitting resources would be paid the clearing price but be charged the fee.
- The fee collected from carbon-emitting generators would create a pool of money that could be used in a number of ways to further advance state goals.
- Setting the appropriate carbon fee and the details for settling the market, including the use of the pool of money, will be critical elements.

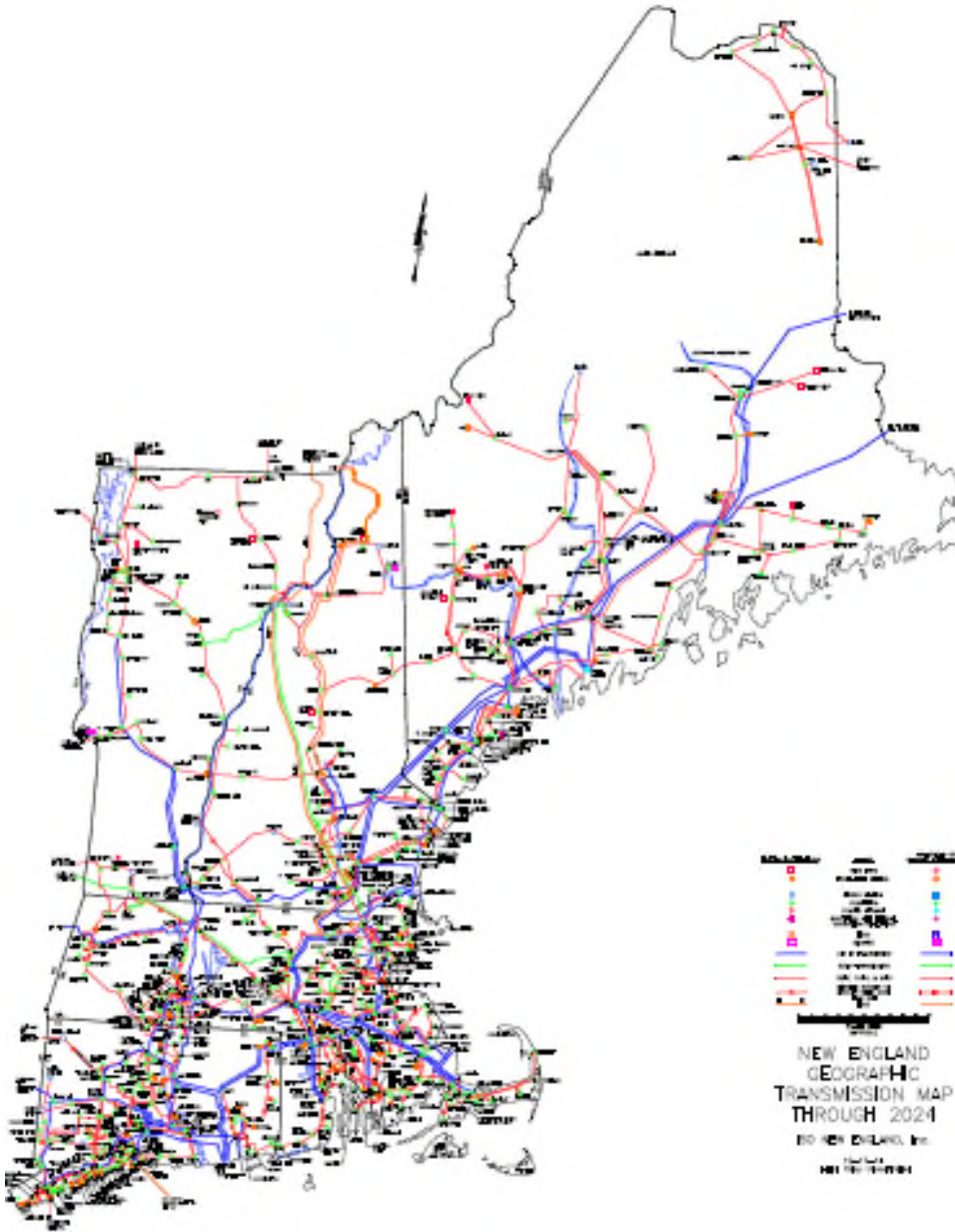
Generation PPAs

- Renewable power-purchase agreements are utilized throughout the US as shown in the figure below. <http://www.awea.org/Resources/Content.aspx?ItemNumber=5547>
- Provide a mechanism for recognizing power-purchase agreements in New England markets that will allow states to realize the full-value of PPAs that advance state policies.



Storage at substations

- To enable integration of zero-carbon generation with the existing fleet, install battery storage facilities at substations throughout the grid.
- Storage units would be appropriately sized depending on the size of the substation and upstream and downstream constraints.
- Dispatched to maximize delivery of zero-carbon generation.
- Fund the investments through the RNS rate. ISO can operate these facilities similar to other reliability infrastructure to address sudden changes in supply or demand





Questions?