i2X DER Interconnection Webinar 3
"Promoting Economic Efficiency in Interconnection–Part 1: Coordination Between Interconnection and Grid Planning"
August 21, 2025

Key Takeaways

The webinar discussed various strategies for promoting economic efficiency in distributed energy resource (DER) interconnection through coordination with grid planning. Panelists included Jeff Thomas, Manager of Operations for Public Staff, Energy Division, North Carolina Utilities Commission (NCUC); Juan Martinez, Director of Distribution System Planning at Eversource Energy (Eversource); and Schuyler Matteson, Office of Markets and Innovation, New York Department of Public Service (NYDPS).

Stakeholder questions spanned cost allocation approaches for grid upgrades and DER interconnection, scope of flexible interconnection offerings, DER valuation and market design, and advanced planning and forecasting.

Major themes of the exchange included the importance of coordinated planning and data sharing, regulatory frameworks for allocating distribution interconnection costs and meeting jurisdictional objectives for DER deployment, advancing flexible interconnection, and valuing DERs in a manner that sends appropriate market signals for efficient deployment.

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1. Coordinated Planning and Data Sharing

Panelists emphasized the critical role of integrating DER interconnection data and planning processes to enhance economic efficiency.

- The NCUC panelist explained that distribution planning in North Carolina considers preparing local grids for increasing deployment of DERs by observing where they already have been deployed and forecasting future deployment spatially and temporally. "If you have a circuit that has a high concentration of solar PV already, those past interconnections might lead the forecast model to predict a large number of additional PV" on that circuit. He also noted efforts to automate interconnection processes, including automating data collection from the interconnection queue and ensuring the data is reflected in grid planning. In addition, North Carolina provides locational information in hosting capacity maps to aid distribution planning.
- The Eversource representative highlighted the utility's "integrated bottom-up approach to planning," where the "entire planning organization is under one umbrella," encompassing transmission, distribution, DERs, resiliency, and reliability planning. The utility begins planning at the distribution level with DER and load forecasts to identify constraints. The distribution and the DER teams use that information to assess solutions and provide that information to the transmission planning team. Eversource stressed the importance of

high-fidelity analytical tools for forecasting, as well as a common platform for storing DER data and GIS data to enable holistic planning.

- The NYDPS panelist stated that New York utilities incorporate data on interconnection queues and operational characteristics for DERs into distribution planning, including load forecasting, to identify shared grid needs. Hosting capacity maps provide additional information to help developers identify the best locations to develop large projects.

2. Innovative Cost Allocation and Funding Frameworks

The panelists detailed new frameworks aimed at more fairly distributing interconnection costs and meeting state objectives related to deploying local grid resources.

- North Carolina's transition to a cluster study process in 2020 helped manage a backlog of small distribution-connected solar projects, provided more predictable outcomes for developers, and allowed network upgrade costs to be assigned to multiple projects based on their grid impact.
- Eversource described Massachusetts' "first-in-the-nation approach," called the Provisional System Planning Program, that allows utilities to file Capital Investment Project proposals that limit the interconnection costs allocated to each DER project. The framework enables the utility to study DER and load as a holistic solution for group study areas. This approach aims to provide cost certainty and fairness by establishing a fixed fee ($/kilowatt) for 20 years and eliminating free ridership. Ratepayers pay the initial cost of construction, and costs are reimbursed by projects that interconnect to a distribution or transmission project funded under this program.
- The NYDPS discussed an innovative cost-sharing mechanism where the first developer that triggers a distribution upgrade pays the total cost upfront, and future developers in that area pay back a share of the cost. The agency also is exploring a proactive planning proceeding to discover "DER hotspots" and receive utility filings recommending projects in these areas to proactively address distribution upgrade needs. According to the NYDPS panelist, this approach would "get us ahead of the DER development and might be much cheaper or faster or better than having each individual developer pay...through the nose to get interconnected." The proactive approach under consideration would ensure that beneficiaries pay the cost of the upgrades.

3. Flexible Interconnection

Flexible interconnection procedures can reduce DER interconnection costs in exchange for curtailment under specified grid constraints.

- Flexible interconnection options in North Carolina, like Energy Resource Interconnection Service and the new Provisional Service, allow developers to connect at a lower level of DER capacity until distribution upgrades are complete. Provisional Service is viewed as a potential way to help expedite interconnection to enable projects to meet construction deadlines required for federal tax credits. However, these options do not provide compensation for curtailment during system emergencies, which developers may see as a risk of using flexible interconnection. Utilities are investing in DER management systems

to enable utility control of grid-connected DERs, which can help facilitate flexible interconnection by ensuring curtailment of exported energy from DERs.

- Eversource offers flexible interconnection to allow developers to downsize energy export capability to avoid distribution system upgrades. The utility recently introduced time schedule curtailment, which varies export levels by season to allow more energy exports certain times of the year. Eversource also is exploring on-demand flexible interconnection, which requires dependable control and dispatch of DERs by the utility (or potentially a third-party service provider).
- New York launched a flexible interconnection process where owners of individual projects can propose specific operational profiles. For energy storage, that includes proposing specific limits to avoid discharging energy to the grid at certain times. Enabling flexible interconnection in the state has "dramatically reduced the [interconnection] cost of some of these assets," according to the NYDPS representative. A flexible interconnection working group is discussing how to systematically incorporate this approach in the state's Standardized Interconnection Requirements and Application Process for dispatch and curtailment agreements.

4. Evaluating Grid Benefits and Costs

Mechanisms to value DERs and send appropriate market signals are crucial for efficient deployment.

- NCUC is largely focused on avoided energy and capacity benefits for direct utility incentive programs. Utilities are also providing locational guidance to developers through hosting capacity maps.
- Eversource evaluates DER benefits and costs alongside load growth projections.
- New York enacted a Value of DER Value Stack tariff as "a market signal for distributed resources to be compensated through their local utility for their actual benefits to the grid." Projects can receive compensation for distribution system relief value, among other benefits. The tariff has both locational and time-varying components that use price signals to drive deployment to certain areas of the grid. Different value streams can be attained through different operational profiles. While the Value Stack tariff took years to set up, it has been “phenomenally beneficial” to have a market signal that compensates developers appropriately for the value of their projects to local grids.

5. Overarching Challenges and Lessons Learned

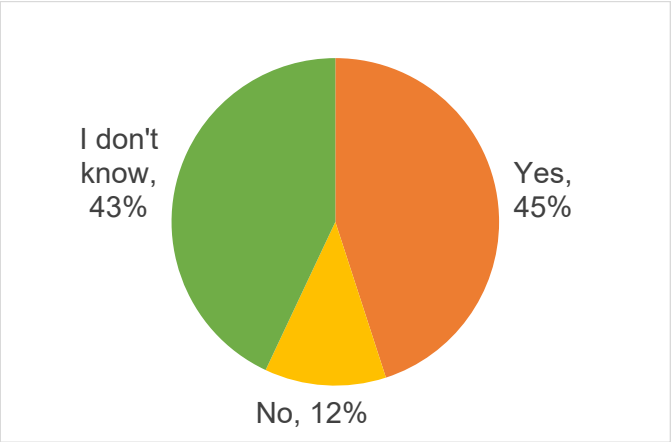
Panelists underscored the importance of collaboration, proactive planning, and adapting to new loads.

- Eversource emphasized that planners are "in charge of basically predicting the future, without the luxury of being wrong." Success in planning hinges on close collaboration with regulators, various industries, and multiple stakeholders.
- NYDPS highlighted that "even in areas where we are currently saturated with DERs, we're expecting significant new loads from electric vehicles, heat pumps, economic development, electrification” which can create new opportunities for DERs to

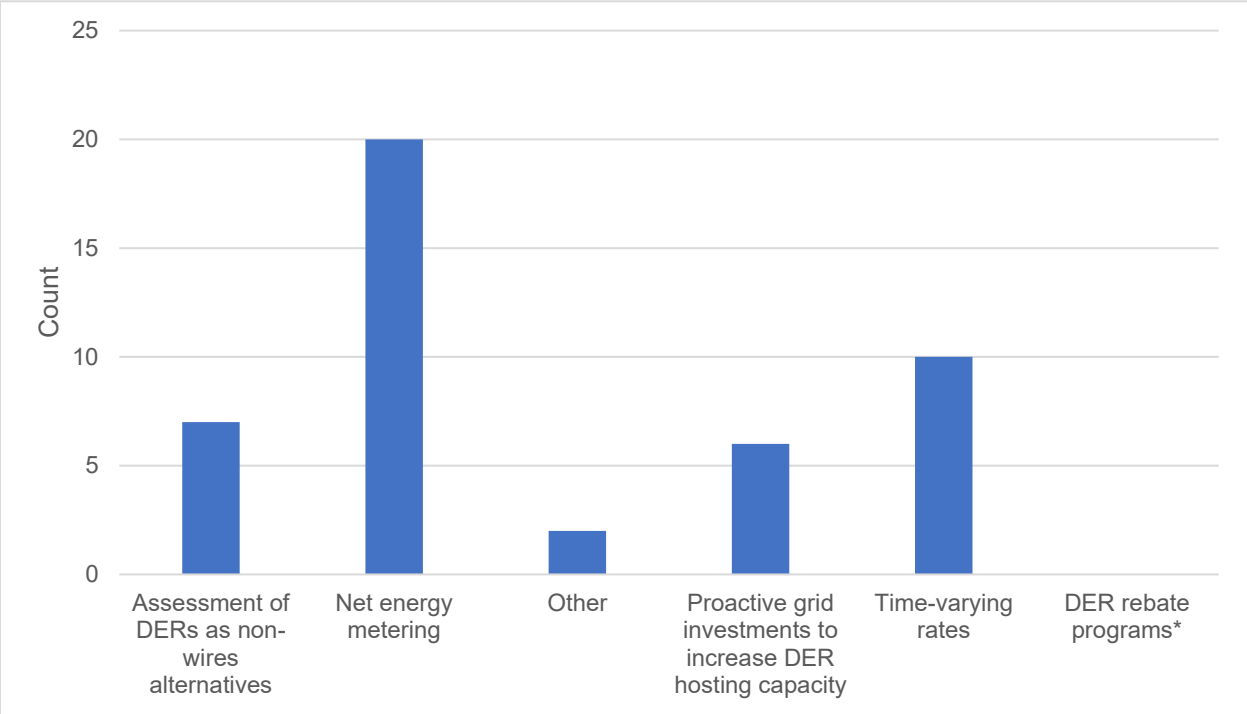
interconnect without system upgrades. The NYDPS underlined that coordinating interconnection with grid planning is essential to minimizing ratepayer impacts. Such coordination can enable proactively building out local grids where needed, while using flexible interconnection to maximize the speed and efficiency of deploying DERs and minimizing costs.

Audience Polls

Question 1. Does your state or utility incorporate data on DER interconnection in distribution system planning?



Question 2. What types of programs, rates, and planning processes in your state (or at your utility) consider the benefits and costs of DERs? Are any of the following programs available in your state to evaluate the varied benefits and costs of DERs?



*No respondents selected this option

Question 3: Does your state offer flexible interconnection options?