

CONNECTICUT DISTRIBUTED GENERATION POLICY WORKING GROUP

MEETING MINUTES

Tuesday, November 30, 2021

9:00 AM – 10:30 AM

**9:00 AM – 9:05 AM Introduction and Adoption of Meeting Minutes**

**Transmission Impact Studies**

* Brad M. began the meeting with a brief history of transmission impact studies in ISO-NE territory
	+ Early in deployment of DERs (around 2014) they were considered load reduction and were not a point of concern
	+ By 2018 there were 2.6GW of DERs on the system and 300MW of projects looking to connect to a small load center
	+ From the transmission perspective there are not many differences between a traditional generator and large number of DERs; although DERs can have deleterious impact on system voltage.
* Other members raised questions about predicting where transmission studies will be needed, how ISO requirements impact the distribution system (addressed later in meeting); and best practices from other states.
	+ Massachusetts and Rhode Island were playing catch-up but Connecticut is in a better position because most substations in CT are not at threshold for a level 3 impact study.

Transmission impact study triggers

1. At the 5MW threshold, a transmission owner (TO) must provide a non-comprehensive analysis and a finding that the project will have no adverse impact on the transmission system
* ISO will be notified through the I39 process or directly from the utility and will request more info from the TO if necessary
* Once one non-comprehensive analysis is completed, it “resets” and another is not needed until the next 5MW threshold is triggered
* The non-comprehensive analysis usually takes weeks rather than months
1. Once 20MW of DERs is connected to a single substation, additional requirements are imposed on all subsequent projects
* Greater than 20MW of generation cannot trip offline at one time
* DERs with inverters using 2003 IEEE 1547 standard would trip offline very easily
* Every project after the 20MW threshold needs a comprehensive/Level 3 individual study or cluster study
* In Massachusetts cluster studies have some level of cost sharing, based on who is the cost-causer
* The 20MW threshold can involve two electrically close substations if a fault at one affects the other
* Developers also need to be aware of FERC jurisdictional distribution circuits – if a distribution circuit already contains a project selling into the wholesale market, the circuit is no longer under state jurisdiction and ISO must review
1. Any individual 5MW+ project requires transmission impact study

**Discussion on Electrically Close substations**

* A fault at one substation will also cause a fault at an electrically close substation
* The farther two substations are apart, the less likely they are to be electrically close due to impedance
* Conversely, electrically close substations are generally geographically close
* DER loads at electrically close substations must be aggregated
* ISO doesn’t create capacity maps; there is some info in the solar forecasting maps and local distribution hosting capacity maps show highly saturated feeders.
* There is no list of electrically close substations or radial substations; such lists would become obsolete quickly with the current rate of deployments

**Discussion on Impacts of More DERs on the system**

* DER additions can cause a loss of reactive support
* DERs are either reducing load or exporting power; if power is coming onto the transmission system, it can affect voltage; more power equals greater reactive losses
* Large transmission-connected generators have voltage and frequency control obligations; the fewer that are connected, the less reactive support available
* Storage doesn’t help much with voltage control but will help with frequency control

**Discussion on Various Topics**

* In response to a question on what CT should be doing from a policy standpoint, Brad recommended that CT adopt IEEE 1547-2018 and the MA TSRG bulk system settings
* Eversource stated that it is adopting IEEE settings
* Cluster studies can help by identifying which projects are contributing to a given issue and pro-rate upgrade costs according to voltage or other criteria
* Massachusetts is discussing whether to base rate some upgrade costs
* Tom Melone discussed the drawbacks of cluster studies at the distribution level; studies have to be repeated if developers drop out after the estimate is provided, leading to the study being repeated, sometimes multiple times
* MISO used to have a reimbursement program
* Smaller more dispersed projects are worse from an ISO perspective than larger projects because the larger projects are more likely able to provide support services
* A member asked whether they could use curtailment in lieu of paying for upgrades
	+ Per Brad the main problem is the lack of visibility and controllability of DERs by ISO
	+ FERC Order 2222 is attempting to address this but there are hurdles
	+ Even in MA they lack the infrastructure/software to have these capabilities
* One member commented that the future grid must be more focused on distribution and local control of DERs
	+ Transmission system will likely always be necessary. Even though MA has a lot of DERs, very few are in the Boston area (load center)
	+ HydroQuebec has the ability to dispatch and control solar resources but they own the distribution, transmission, and generation assets
	+ Could be done in New England, but with one of the oldest distributions systems in the country, the costs could be enormous
	+ It may be possible to dispatch/curtail via wireless internet rather than fiber, but the connection would have to meet OP-18 speed requirements and appropriate cybersecurity protocols would have to be developed

**Discussion on Residential Application Cost Sharing**

* Some customers want net metering but also want to participate in the 2022 battery incentive program
* In Eversource territory, so long as the battery is part of the interconnection application, they can apply once and energize the solar system regardless of whether the battery is installed. In UI territory, however, they have to file a second application if they do not have the battery installed but still want to energize the solar system
* UI does not issue approval for a partial system; Eversource does not share these concerns, but notes that some municipal inspectors may not approve an incomplete system
* Tom Melone stated that the Eversource position is consistent with FERC rules in that the system operating at a lower than approved size would not be a material modification
* Zak suggested that UI discuss its stance with Eversource to see if they could reach a common approach