

ESIG Webinar: Grand Unification: Integrating the Distribution and Transmission Systems

Question	Answer
how do you ensure price stability for consumers as distribution systems become more tied to fluctuating wholesale prices to ensure customer support for the LSE?	I don't think most individual customers have the ability to manage wholesale price volatility, but LSEs should be able to manage volatility and maintain price stability. To some extent, many of them do this already, though they don't manage congestion-related volatility. Energy storage gives LSEs a physical (as opposed to financial) tool to manage price volatility, including congestion-related volatility.
In your third integration principle, how do you define "consistency" as applied to investment planning for distribution and transmission systems?	At a high level, I think consistency means that transmission planning accounts for net load forecasts at T-D interfaces and distribution planning accounts for transmission investments that will affect distribution-level resources and loads.
Will the impact of the ISO supply bid and LSE demand bid be equivalent if the system is congested?	If congestion is at the transmission level and we are settling supply/demand at LMPs, then they should be equivalent. If we are settling supply at LMP and demand at aggregated LMP, the two won't necessarily be equivalent. If congestion is on the distribution system, they should be equivalent, as the DSO would possibly need to curtail resources in either case.
With the potential for a dynamic load/resource pattern on the distribution as the ISO dispatches it, how can the LSE ensure the distribution system is reliable?	ISO dispatch of distribution-level resources, whether through supply or demand bids, will be subject to distribution-level security constraints.
What kind of new planning criteria for distribution planning do you have in mind.	If there is a significant amount of congestion-related curtailment on the distribution system, at some point there should be economic criteria for evaluating distribution investments, as on the bulk system. There may also be public policy criteria -- some states have already implemented something that looks like public policy criteria for distribution investments.
Most distribution systems are not designed to function moving energy in both directions (export to T system), who eats the cost to make necessary upgrades?	Currently, these costs are mostly being paid for interconnecting (DER) customers/developers through cost allocation mechanisms that vary by state.
What are regulatory options for stimulating demand side participation in regions (the southeast) not participating in an ISO or RTO?	I think this has to be through utilities, but could be through a tariff mechanism that is tied to historical or projected costs, which is essentially just PURPA. I do think this T-D integration is difficult to do without wholesale markets.

<p>The four principles do not mention words like equity, fairness that arise in considering capability for DER hosting?</p>	<p>Fairness issues around DER hosting capability is likely more of a distribution-level issue than a T-D integration issue, but fairness more generally is also important for T-D integration. This might be a condition for autonomy, but could also be a separate principle.</p>
<p>what does LMP stand for?</p>	<p>Locational marginal pricing</p>
<p>What does this look like in practice for the future solar and storage homeowner? What about the regular "non-prosumer" customer?</p>	<p>I don't think the homeowner or average notices any changes. Most of the "integration" is happening upstream.</p>
<p>Is it useful to have database of current TSO/DSO responsibility split or is it pretty uniform? Is it a roadmapping exercise or very custom to states?</p>	<p>My sense would be that TSO/DSO responsibilities will look quite different. DSO models will probably vary by state, but roadmapping would be a useful exercise to bring utilities and regulators more onto the same page.</p>