

## OTT: PJM pushing DER, though batteries maxed out

California and New York get a lot of attention for integrating DER but PJM CEO Andrew Ott told the National Energy Marketers Assn's (NEM) meeting in Washington last week his region has been doing a lot of work in the area, too. It has already cut the minimum size requirement to take part in the RTO down to just 100 KW from the old 2 MW.

That change was made in response to batteries, which have become a useful asset for grid operators and profitable for their owners. DER are not new in PJM. At one point, 60-70% of the DR in its market was behind-the-meter generation.

But that fell to just 20% as the industry invested more in ways to actually cut customer demand rather than just turn up generators, Ott said.

"If the distributed resource is visible either to the distribution system or to a system operator like us – you actually multiply its value," Ott said. "Think about it this way. If we have a set of distributed resources out in the system and we have no idea what it's doing, then we can't count on it to provide services back to the grid.

"We can't forecast it. We can't incent it and we can't visualize it."

But if that same set of assets reports into PJM, then the RTO can pay for it and rely on it for services the resource is capable of providing. PJM wants to be able to forecast and leverage them as much as possible.

PJM has 1,500 MW of distributed solar paid in the capacity market. Owners of those resources are worried about whether the intermittent resources can continue to get paid capacity with the new capacity performance rules.

Ott believes such intermittent and seasonal resources will be able to survive in the capacity performance world by working together. PJM wants to help resources that are not necessarily 24/7 to aggregate together so they can keep taking part in that market.

PJM saw explosive growth in the DR world since it began

tracking that resource more closely nearly 10 years ago. When operators first thought about using DR to help balance the wholesale grid, they were skeptical just because they could not see it and were not sure where it came from.

But the RTO got visibility into DR and it grew from 2,000 MW in 2007 to 14,000 MW just five years later. A few years ago, PJM called 6,000 MW of DR and it got 5,850 MW of response – a rate of 96-97%.

That response is better than most generation because the latter fails sometimes and more so during major heat waves like when PJM made that major call for DR, Ott said.

PJM has plenty of solar now, especially in New Jersey and North Carolina. The latter state had a rule calling for statewide adoption but about 90% of the resource landed in Dominion's PJM-run territory – a much smaller territory than that of Duke/Progress – which Ott said shows the value of markets.

### Batteries moving away

Storage did so well in PJM's frequency-response market that now the RTO has too much and the price is falling to the point where batteries are being removed and sent elsewhere in the world where they can earn money. The RTO has 110 MW connected to the distribution system of its members, 40 MW at the sub-transmission level and another 115 MW at the transmission level.

The resource can earn its investment back in the frequency response market in 4.2 years and has a lifespan of eight or nine years.

"Everyone of these batteries provide resiliency to the system and they're paid for through competition," Ott said. "Batteries are very modular. You can disconnect them, ship them. They look like they come on a tractor trailer. You can just move them all around."

Regulated rates of return for a power line or a generator in some cases make sense, he added. But with how modular and cheap batteries are – they are made for the competitive markets.