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Trump Fighting Congress, History in Bid to Sell Federal Tx Assets

By Jason Fordney and Robert Mullin

Donald Trump is the fourth president since Ronald Reagan to propose selling off assets of the federal power marketing administrations (PMAs). Based on congressional response, he is unlikely to be the first to make it happen.

About three dozen members of Congress have joined publicly owned power utilities in opposing Trump's plan, part of his proposed fiscal 2018 budget released May 23. It would sell the transmission assets of the Bonneville Power Administration, Southeastern Power Administration, Southwest-

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NECPUC 70th Annual Symposium

More than 300 regulators, market participants, consultants and RTO officials traveled to New Hampshire's rainy Mount Washington last week for the 70th Annual Symposium of the New England Conference of Public Utilities Commissioners (NECPUC). Those who stuck around long enough for the clouds to break Tuesday, June 6, were treated to a stunning sunset and rainbow. | *© RTO Insider*

PJM: Artificial Island Costs Would Shift to NJ, Pa. Under New Allocations

By Rory D. Sweeney

Most of the $280 million bill for PJM's Artificial Island project would shift from Delaware to New Jersey and Pennsylvania under two alternative analyses the grid operator developed in response to complaints about how costs for the project would be allocated.

PJM's Board of Managers directed staff to develop the alternative analyses after ordering resumption of the project — the RTO's first under the FERC Order 1000 competitive bidding process — in April. (See *Board Restarts Artificial Island Tx Project; Seeks Cost Allocation Fix*.)

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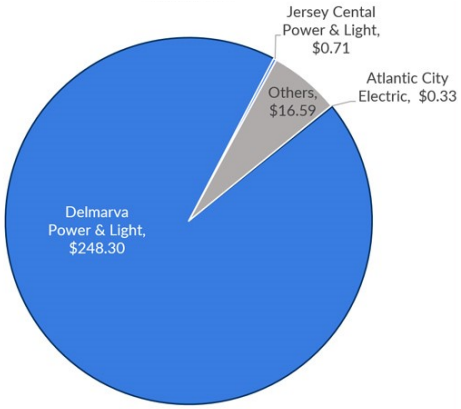

Original cost allocation under DFAX methodology ($ millions). Assumes 5% of total costs socialized across PJM. | *RTO Insider based on PJM data*

Experts ID New Cyber Threat to SCADA Systems

By Rich Heidorn Jr.

Two cybersecurity firms on Monday disclosed what may be the most dangerous cyber threat yet to U.S. power systems: malware that can take control of circuit breakers without any manual involvement.

Maryland-based Dragos and ESET, a Slovakian anti-virus software provider, said the malware — which the former is calling

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Experts ID New Cyber Threat to SCADA Systems

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CrashOverride and the latter Industroyer — was likely the cause of a disruption last December that cut about one-fifth of Kiev's power consumption for about an hour.

Unlike the December 2015 hack of the Ukraine system — caused by the BlackEnergy program that took advantage of vulnerabilities in Microsoft Office and required manual intervention to control circuit breakers — the new threat takes advantage of the simplicity of supervisory control and data acquisition (SCADA).

Dragos said CrashOverride is the first malware framework designed specifically to attack electric grids and the fourth ever piece of malware tailored for industrial control systems. It follows BlackEnergy 2, Havex and Stuxnet, the last of which was believed deployed by the U.S. to hack centrifuges used in Iran's nuclear weapons program.

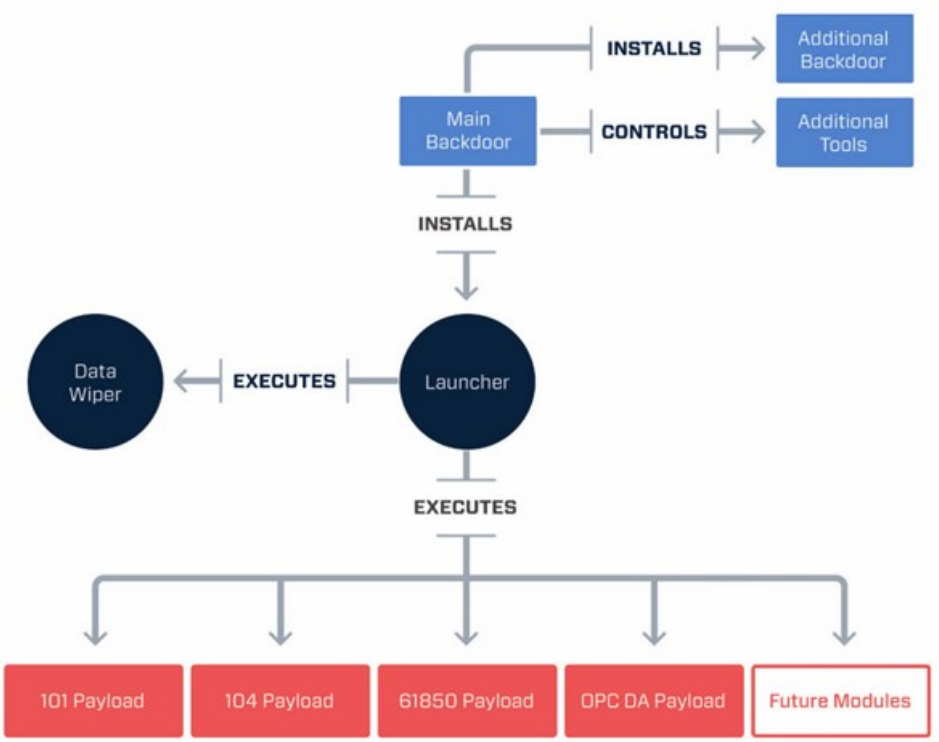
Dragos founder Robert M. Lee told Reuters that the malware could be used to attack power systems across Europe as is — and in the U.S. "with small modifications." It could cause outages of up to a few days in portions of a nation's grid, he said.

The program can be detected if utilities monitor their networks for abnormal traffic, such as indications that it is searching for the location of substations or sending messages to breakers, according to Dragos.

The program's "dangerousness lies in the fact that it uses protocols in the way they were designed to be used," wrote Anton Cherepanov, senior malware researcher for ESET. "The problem is that these protocols were designed decades ago, and back then industrial systems were meant to be isolated from the outside world. Thus, their communication protocols were not designed with security in mind. That means that the attackers didn't need to be looking for protocol vulnerabilities; all they needed was to teach the malware 'to speak' those protocols."

Cherepanov said the program can remain undetected and eliminate traces of itself after its work is complete.

"For example, the communication with the [command and control] servers hidden in Tor can be limited to non-working hours. Also, it employs an additional backdoor — masquerading as the Notepad application — designed to regain access to the targeted network in case the main backdoor is detected and/or disabled," Cherepanov wrote.



CrashOverride module | *Dragos, ESET*

Part of the "dark web," the Tor network allows users to access the Internet through "virtual tunnels" rather than making a direct connection, allowing them protect the privacy of their communications. It has been used to circumvent government censorship and by journalists to communicate with whistleblowers and dissidents. The U.S. Department of Homeland Security said TOR IP addresses were used by the Russian hackers who stole data from the Democratic National Committee before last year's presidential election.

"What makes this thing a holy-crap moment is the understanding of grid operations encoded within it," Lee told the *Daily Beast*. The program can run continuously, requiring manual overrides to interrupt it. "It's like a popup on a website, where you close it and it just keeps opening again. That's what they're doing to circuit breakers."

In a statement Monday from Marcus Sachs, chief security officer for the Electricity Information Sharing and Analysis Center (E-ISAC), NERC said it is aware of the threat but that "there are no reported instances of the malware in North America."

NERC said it will update its Ukraine Defense Use Case report, issued in March, to reflect the new information.

"There is no question that cyber threats like the one in Ukraine are real and that constant vigilance is needed to protect the reliability of the North American grid," Sachs said.

It is not certain who authored the malware.

Dragos tied it to a group called Electrum, the same group behind the 2015 Ukraine attack that left 225,000 customers in the dark. The group is believed to be tied to the Russian government. (See *How a 'Phantom Mouse' and Weaponized Excel Files Brought Down Ukraine's Grid*.)

But a spokesman for Ukraine's state cyber police told Reuters it had not been able to confirm Dragos' claim because the security firms hadn't provided authorities with samples of the code they analyzed.

Lee told *The Washington Post* the outages caused by CrashOverride would probably not last more than a few days in the U.S. because the electric industry is prepared to respond to disruptions from violent weather. "They're used to having to restore power with manual operations," he said. While it is "a significant leap forward in tradecraft, it's also not a doomsday scenario."

NECPUC 70th Annual Symposium

New England Seeks Way to Harmonize Markets and Renewables

By Michael Kuser

CARROLL, N.H. — New England regulators and market participants expressed optimism last week that they will find a way for wholesale markets to coexist with state energy policies, warning of dire consequences if they fail.

In a discussion Monday at the 70th Annual Symposium of the New England Conference of Public Utilities Commissioners (NECPUC), panelists discussed the proposals that have arisen from the New England Power Pool's Integrating Markets and Public Policy Process (IMAPP).

Angela O'Connor, chair of the Massachusetts Department of Public Utilities, said IMAPP has been successful, although it has not yet resulted in a solution. At the FERC technical conference in May, she said, "New England appeared well ahead of other parts of the country in looking at solutions and trying to understand each other's priorities."

New England states are set to procure more than 3,600 MW of nameplate renewable generation, including Massachusetts' requirement that its electric distribution companies solicit long-term contracts for approximately 1,200 MW of clean energy generation and 1,600 MW of offshore wind.

"The bottom line is, if New England does not find a way to harmonize markets and the requirements of state laws, it creates the risk that consumers will have to pay twice for resources — once through the regional markets, and again as the result of the requirements of the state laws," O'Connor said. "For those who go to work every day thinking about consumers, that outcome is absolutely unacceptable and would most likely lead to the end of the competitive markets as we know them today."

"We are all in this together. We either make this market work together or we don't succeed. ... I will not accept failure, at least during my tenure as chair."

Tom Kaslow, NEPOOL Participants Committee

Tom Kaslow, chair of NEPOOL's Participants Committee, said "collaboration is the cornerstone" of the power pool, adding that he hoped New England would develop a solution rather than leaving it "to be solved by the courts."

"We are all in this together," he said during lunch remarks Tuesday. "We either make this market work together or we don't succeed."

Although it is the Participants Committee that will ultimately determine whether to support proposals brought before it, Kaslow stressed his personal commitment to the regional efforts. "I will not accept failure, at least during my tenure as chair."

In the 'Urgent' Camp

ISO-NE CEO **Gordon van Welie** said the RTO is working overtime on the issue in order to reach agreement on a proposal that could be submitted to FERC in time for the February 2019 capacity auction.

"We definitely put ourselves in the 'urgent' camp," he said. "These contracts that the states are intending to sign are probably going to happen during the next 12 months or so. In 2018, we expect resources that are winning these [requests for proposals] are going to want to enter the capacity market in the following cycle. And the qualification process for that 2019 auction will commence in 2018. And so we ideally would like to have a rule set that can deal with that prior to the start of qualification in 2018."

"We definitely put ourselves in the 'urgent' camp. These contracts that the states are intending to sign are probably going to happen during the next 12 months or so."

Gordon van Welie, ISO-NE CEO

Because of the RTO's minimum offer price rule (MOPR), resources receiving a power purchase agreement may have their prices reset to a higher level in the capacity auction, with the result that they likely would not clear. "And so that has an unfortunate consequence if the states are going to go ahead and contract for these resources anyway, which is you ultimately end up overbuilding the system," van Welie said.

But allowing subsidized resources to participate in the auction without mitigation would drive capacity prices down, he said.

"I often get a lot of eye-rolling back at the ISO when I go back to the market design people and say we need a design that will make six states happy [along with] 460 market participants and it needs to be approved by the FERC," van Welie said. "If we did nothing and we just rely on the status quo to exist, I think we'd end up creating investor uncertainty in the market because of the litigation that will result," he continued. "It's a very fragile premise, an investment incentive, and it can unwind extremely quickly. So we believe it is important for us to have a solution in place that will give the marketplace confidence that we can deal with this."

Two Leading Proposals

The NECPUC panel focused on the same two proposals that were highlighted at the FERC technical conference. (See *ISO-NE Two-Tier Auction Proposal Gets FERC Airing*.)

The Competitive Auctions with Subsidized Policy Resources (CASPR) proposal, developed by the RTO and Market Monitor David Patton, would provide financial incentives for existing, high-cost capacity resources to transfer their capacity obligations to subsidized new resources and permanently exit the capacity market. It would involve a two-stage, two-settlement process with a substitution auction occurring immediately after the primary auction.

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The plan would "accommodate the subsidized resources into the capacity market over time and also preserve competitive capacity pricing for unsubsidized resources," van Welie said. "The key idea here is to coordinate the entry of subsidized capacity resources with the exit of unsubsidized resources … over time."

A second proposal, a "Dynamic Clean Energy Market" backed by the Conservation Law Foundation, NextEra Energy Resources and Brookfield Renewable, would use forward capacity auctions to procure clean energy attributes unbundled from energy. Charles River Associates consultant **Robert Stoddard** briefed NECPUC on the proposal, which he helped design.

ISO-NE says CASPR falls into the "accommodation" category as a project that can be implemented relatively quickly. The Clean Energy Market is an "achieve" proposal that attempts to incorporate state policy into wholesale markets; it will take more time to evaluate to determine how it would work with the Forward Capacity Market and the MOPR, the RTO says.

'Intriguing' Proposals

"Both proposals are intriguing," O'Connor said. "You'll not be surprised that I have more questions than answers at this point."

From left to right: Robert Stoddard, consultant; Gordon van Welie, ISO-NE CEO; Mark Vannoy, chair, Maine PUC; Angela O'Connor, chair, Massachusetts Department of Public Utilities; and William Fowler of Sigma Consultants, chair of NEPOOL's IMAPP. | *© RTO Insider*

O'Connor said she was concerned that the RTO's proposal would eliminate the annual 200-MW MOPR exemption for renewable resources. She noted the exemption has been supported by the six New England states and the RTO and approved by FERC despite opposition by some conventional generators. "I do question the notion of eliminating the one mechanism that gives me the certainty I need," she said. "That said … CASPR has some tremendous advantages. We all know there are tradeoffs in these sorts of discussions."

She suggested combining CASPR and the exemption might "increase the likelihood that CASPR will actually meet its objectives and really give the states the certainty … that we're going to need."

O'Connor also said she liked that the Clean Energy Market proposal "seeks to be mindful of the fact that states are responsible for executing their state laws."

"The CLF, NextEra and Brookfield proposal, like many of the longer-term 'achieve-style' proposals are complex and raise questions for states about authority and other matters. They also require a significant investment of time and money to develop and implement."

She said the New England States Committee on Electricity (NESCOE) is conducting analyses of the proposals, which will be released this fall.

IMAPP Chair William Fowler, president of Sigma Consultants, told NECPUC that 100 to 150 people attended each of the nine IMAPP meetings thus far. He said the next meeting of the group will be in September.

Stoddard and Mark Vannoy, chair of the Maine Public Utilities Commission, said integrated resource planning has moved from public utility commissions to legislatures.

"When legislators say now we want some biomass, or now we want some Massachusetts solar, they're really getting back into integrated resource planning, so there's tension about economic efficiency and other priorities," Stoddard said.

Maine PUC Chair Mark Vannoy and Massachusetts DPU Chair Angela O'Connor | *© RTO Insider*

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Maine's Concerns

"That's the reality of the political economy in which we live," agreed Vannoy. "There's this insatiable appetite and I don't expect that to change at the legislatures. The technology will change, but the desire to direct outcomes is not going to change. When we come to a multistate RTO, that's where it becomes difficult because we have multiple states looking at a whole new set of complexities."

The use of tailored mitigation strategies has been only partially successful in preventing the socialization of other states' public policy decisions, Vannoy said. "It's not an effective long-term approach ... because it doesn't provide regulatory certainty for market participants."

Vannoy also expressed concern about the CLF proposal, saying incorporating incentives for clean energy into the RTO Tariff "might be a jurisdictional bridge too far."

Environmental legislation in New England is often the result of compromises between policy goals of reducing greenhouse gasses and economic goals of creating and retaining jobs, he noted.

For example, Maine legislators last year approved spending $13.4 million in taxpayer funds to supplement the price that in-state biomass generators get from selling their power in the wholesale market, a subsidy projected to save almost 300 jobs. The legislation was coupled with the idea of "keeping people cutting wood, and is being judged on the basis of an economic result, while Vermont Tier II [distributed renewable generation] talks about connecting generation facilities of 5 MW or less to sub-transmission or distribution systems."

Noting that Maine is the only New England state whose manufacturing load is greater than its residential demand, Vannoy said a carbon adder would make the state less competitive than other regions. Owners of large manufacturing operations including Bath Iron Works and Texas Instruments have complained about the state's high rates. Any rate increase would raise the risk of manufacturers moving their operations to a Southern or Western state with cheaper power and higher carbon intensity, he said. "You're not going to solve the carbon issue by shifting [manufacturing] to other parts of the country."

Fuel Security

Van Welie also addressed concerns over fuel security, acknowledging that the CASPR proposal could accelerate the retirement of 6,000 MW of older, at-risk steam generators. The RTO needs about 22,000 MW to meet its winter peak, but its dependence on gas-fired generation is limited by pipeline constraints.

"When you look at what's actually running those winter days, it's a lot of oil, and historically we've had a lot of coal we used to use for winter reliability," he said. "And so that begs the question: Where's the energy going to come from in the future to maintain reliability in the winter?"

Van Welie said the RTO is seeking to quantify the risk through analyses that model what the system will look like in 2025 under sensitivities that consider higher and lower levels of retirements, LNG imports and renewables. (See *Study: New Resources Could 'Crowd Out' Old in ISO-NE*.)

Van Welie noted that the RTO's out-of-market winter reliability program will end in winter 2017/18, with the region relying on its Pay-for-Performance initiative in the future.

"The question is, will the Pay-for-Performance mechanism, together with the stop-loss provisions inherent in that mechanism, be sufficient to drive the level of forward fuel arrangements that we require to get through winter with the pipeline constraints?"

NECPUC 70th Annual Symposium

Regulators, Utilities See New Roles in Shifting Industry

By Michael Kuser

CARROLL, N.H. — Residential customers installing behind-the-meter generation are just the latest factor stretching electric power utilities far beyond their original role as vertically integrated monopolies, speakers said June 6 at the 70th Annual Symposium of the New England Conference of Public Utilities Commissioners (NECPUC).

"The most intermittent resource could be the customer," said Barbara Tyran of the Electric Power Research Institute, part of a panel that explored the future of regulation and utilities by looking at parallels between the telecom and electric sectors.

Tyran said the electric industry's data analytics are not sufficient for the changes coming. "It's almost like we're on a freeway driving 55 mph, but we're only allowed to open our eyes once every 15 seconds," she said. "That's how much situational awareness is occurring. We need sensors throughout that system; we need to understand what that data is generating and what the value of it is and how to use it to improve the system performance, enhance the customer experience and also create new efficiencies."

"Over the past 30 years, we as a region have shifted away from vertically integrated, economically regulated utilities, the ones that were envisioned by the foundational regulatory standards of just and reasonable rates for monopolistic utilities," said New Hampshire Public Utilities Commissioner Kathryn Bailey, who moderated the panel. "However, I think in New England, we haven't gone as far with the transformation of the electric industry as we have with the telecom industry."

Janet Gail Besser, executive vice president of the Northeast Clean Energy Council and

Tyran (left) and McCarren | *© RTO Insider*

former chair of the Massachusetts Department of Public Utilities, said customer adoption of solar and other distributed technologies is the latest step in a process that began with competition in the generation sector following the 1978 Public Utility Regulatory Policies Act and grew with restructuring in the 1990s and the adoption of energy efficiency. She also pointed out that further changes are coming with the electrification of transportation and buildings.

Restructuring and Social Policy

One cause of the restructuring of the electric industry was the disparity between retail and the wholesale prices, according to consultant Louise McCarren, former chair of the Vermont Public Service Board and former commissioner of the state Department of Public Service.

"State regulators thought they could load anything onto" retail prices, McCarren said. "Social programs, conservation programs, you name it. And that price went up, way above the wholesale price."

Nonetheless, McCarren said that her experience in Vermont has shown that regulatory frameworks can provide valuable public benefits, such as increased rural access to broadband service.

Hawaii Public Utilities Commissioner Lorraine Akiba said that "in the distributed energy resources paradigm shift of the future, we'll actually be able to [support rural populations] more cost effectively because microgrids, and putting generation closer to the load saves all that transmission expense. In our jurisdiction, we require you to at least look at non-transmission alternatives."

Regulators need not only to look at what markets can do, but also at what they can't do, such as addressing social policy needs, said ISO-NE Director **Kathleen Abernathy**, a former Federal Communications Commissioner. "But don't decide not to do something because it's too expensive for low-income customers ... you can fix that later or provide the necessary supports," she said.

Competition forces companies to do things that might not be in their own economic interest but that benefit the public, said Abernathy, who cited unlimited cellphone minutes as an example. "Way back when in the wireless world, we used to pay per call," she said. "It was only when the FCC allocated additional wireless licenses that all of a sudden you got unlimited minutes. That never would have been mandated by regulators; that happened in the market place. So embrace this kind of disruption and go with the flow on it."

As with the telecom industry, technology preceded regulation, Besser said, giving customers an alternative to using incumbents' landline phones. One question is whether some entity other than electric distribution companies will find ways to provide customer and system data to customers, third parties and the EDCs themselves, she said.

Electric Utilities Need to Add Value

"If you shift the risk away from the customer and to the utility, in theory you should shift the reward structure," McCarren said. "And that is really hard to do, because when the wheels come off you still have to provide adequate and reliable services to all your citizens."

In 1970s Vermont, hot water heaters were

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From left to right: Barbara Tyran, Electric Power Research Institute; Louise McCarren, consultant; Lorraine Akiba, commissioner, Hawaii Public Utilities Commission; Kathleen Abernathy, board member, ISO-NE; Janet Besser, Northeast Clean Energy Council; and moderator Kathryn Bailey, commissioner, New Hampshire Public Utilities Commission. | *© RTO Insider*

NECPUC 70th Annual Symposium

Storage Technology Still Outracing RTO Metrics, Rules

By Michael Kuser

CARROLL, N.H. — Energy storage technology is still moving faster than state regulators and the markets can accommodate, speakers told the 70th Annual Symposium of the New England Conference of Public Utilities Commissioners (NECPUC) on June 6.

"Markets are moving at the pace of entrepreneurs, while states are moving at the pace of bureaucracy," said **Richard Fioravanti** of energy consultancy Exponent.

From left to right: Tom Kaslow, Director, Market Design & Policy, FirstLight Power Resources; Christopher Parent, ISO-NE director of market development; Jason Allen, VP of operations and power for AltaGas Services U.S.; Richard Fioravanti of energy consultancy Exponent; Jesse Jenkins, Ph.D. candidate, Massachusetts Institute of Technology; and moderator Ned Bartlett, undersecretary of energy and environmental Affairs, Massachusetts Executive Office of Energy and Environmental Affairs. | *© RTO Insider*

The technology is changing so fast that CAISO recently had trouble qualifying a new lithium-ion battery storage project for California's ancillary services market.

"You may think of some complicated reason why, but it was actually very simple," said **Jason Allen**, vice president of operations and power for AltaGas Services U.S. The company's 20-MW, 80-MWh facility in Pomona, Calif., holds 12,240 lithium-ion batteries. "We were ramping so fast they couldn't" get an accurate data reading.

CAISO needs three data points to qualify a project during an ancillary services test: a starting point, one point on the ramp portion of the curve and an end-point.

"I can go from 20-MW charge and 20-MW discharge every 100 milliseconds, or 10 times a second," said Allen. "It took [almost] two months working with them to get that simple issue worked out. And instead of the 10,000-MW/minute ramp rate, we actually detuned the system to 100 MW/minute and qualified for 36 MW [per minute], which is physically where we're sitting right now in the market."

Allen emphasized that his dealings with CAISO were not adversarial. "They have worked very closely with us to resolve the issues," he said.

Speed isn't Everything

"If you can ramp to your full load in much quicker than five minutes, it's interesting but not necessarily valued," said the director of market design and policy at FirstLight Power Resources, **Tom Kaslow**, who also serves as chair of the New England

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Regulators, Utilities See New Roles in Shifting Industry

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radio controlled in an effort to smooth the load curve. "The only problem was when you had an outage and you had to go reset them. But that was load control," McCarren said. "Now the customer can do that, so if the utility wants to stay relevant, they have to add value.

"It's Darwinian. If [companies] can't change, they're going to be roadkill," she continued. "Is it your job as a regulator to create incentives or disincentives that encourage them to participate, or is [it] their job to figure it out?"

Akiba and others highlighted the importance of utilities' ability to use big data analytics to operate the energy networks of the future.

"I feel sometimes we're like the Oracle, that very sage character" in the 1999 movie "The Matrix," Akiba said. "She has to make correct decisions, and she gives cryptic advice to Neo as he navigates the Matrix. ... But we do have to keep our eye on the future trends and actions transforming the energy industry."

Abernathy said that "sometimes a corporation's addiction to a framework that guarantees certain revenue flows actually prohibits the kind of risk-taking that is essential for survival. ... There's no question that traditional regulatory frameworks actually prevent creativity and innovation, and people who are creative and innovative, they leave those companies for other ones who are doing more interesting work."

McCarren said the regulatory solution "isn't just one-size-fits-all, but going back to consumerization, localized solutions and keeping very flexible. ... A very simple but effective rate design, that may or not require smart meters, can get you really far. The issue now is will we have to increase the charge to cover this fixed cost. ... As long as it's adequate, efficient and fair, it'll work."

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Storage Technology Still Outracing RTO Metrics, Rules

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Power Pool's Participants Committee. "As a practical matter, participation in the energy market, it really matters what you can do in five minutes — and if you can do it consistently, when the system operator needs it."

There is a disconnect between the performance capability of new technologies and the market need for that level of performance, Kaslow said. "As a practical matter, while some of these new technologies bring a really interesting résumé to the table, their capabilities may actually exceed their ability to be valued, at least in the wholesale ISO market."

Kaslow said battery storage can also present a challenge to RTOs' operation of regulation markets. "I was on a panel last week where [PJM officials] were indicating that they [were] having problems, because achieving the neutral state of charge while on regulation is actually yielding periods where the charging is working in the opposite direction of their actual regulation needs in that particular interval. So there are things that need to be dealt with in respect to that much smaller market."

He explained afterward that PJM had implemented a solution in January: PJM is placing a limit on the charging function when the regulating capability is needed to manage the area control error in a direction opposite to charging. Kaslow said it is unclear whether New England will face a similar problem.

Moderator **Ned Bartlett**, Massachusetts undersecretary of energy and environmental affairs, said storage is a small portion of the Massachusetts electric supply electric supply compared to other commodity supply chains. Storage of "food, water, gasoline, even oil [and] natural gas distillates [is] often close to 10%" of the daily consumption of each of these commodities, he said. "In Massachusetts right now … approximately 1% of our electricity used on a daily basis [is] in a storage capacity."

Cheap and Cheaper

Jesse Jenkins, a Ph.D. candidate at the Massachusetts Institute of Technology, said his research indicates energy storage costs must fall 60 to 85% to be competitive with gas peaking plants and that the value of storage drops with its volume.

"The first gigawatt of storage that you might stick in the New England system has a very high value. It displaces our most costly resources that are used most infrequently," Jenkins said. "And as we deploy more and more storage, the challenge of displacing additional capacity increases and the marginal value steadily falls."

But assessing the total value of storage means looking at the long-term value of the assets, according to Allen, who explained the economics of the Pomona storage facility.

"Yes, the up-front cost is more, but you look at the operating costs," Allen said. "Right now it's about $5/kWh on an ongoing [operations and maintenance] basis. There's no fuel, very little maintenance. Our technicians who used to [work] 24/7, for now they're on day shift to do minor maintenance. ... You also need to consider what it's doing to your other assets. I've got a couple [cogeneration] units that I use right now that are dispatched for about 300 starts a year. We are just destroying those units; maintenance has gone through the roof. Getting the storage in place can really help dampen those curves and control our costs."

More Interest Pushes Grid and Regulators

Christopher Parent, ISO-NE director of market development, said the RTO is seeing increasing interest by storage developers. "The market is maybe starting to support [storage], and people are starting to look out at what the future is and the revenue opportunities and that in certain cases, now it is economic," he said.

The message for policymakers? "For most storage stakeholders, what they really want to see is just the markets opening up, access opening up," Fioravanti said. "Don't try to predict where the business cases are going, where the technologies are going. Let the markets drive that."

Why is storage complicated? he asked. Why all the questions when there is increasing deployment, with about 2.6 GW predicted to come online by 2022?

"The reason is because ... it can go everywhere and do many things," Fioravanti said. "This becomes problematic when people look to make policy off it because ... we have it on the transmission side, it works on the distribution side, we're putting it on the customer side. All of these create issues."

Electric Utilities and More

The Pomona storage site, formerly a paper mill, illustrates the fast changes taking place in the storage business, according to Allen. Gas-fired boilers served the paper mill, he said. "In the early '80s they put in a cogen unit; they innovated' lower cost electric. Paper mill went away, that got torn down; the cogen unit went into the deregulated California market. We now built this battery storage facility inside the warehouse that was there. The cogen unit is still there, still in the market [but] hasn't run for a year."

The storage facility won a contract in the request for proposals issued in mid-2016 to counter the potential loss of the Aliso Canyon storage facility.

"The big concern there was the potential loss of gas, loss of [natural gas supply for] peaking units," Allen said. "The mandate of that arm of the [power purchase agreement] was that we could provide four hours of [reliability assurance] service with the battery, hence the 80-MWh structure. We were awarded this in June, actually started construction in early August and it went online on Dec. 31, 2016. [Southern California Edison] said it was the fastest generating asset they've ever had go from groundbreaking to in-service."

Fioravanti reminded the audience of the ubiquity of batteries, saying the industry now manufactures about 5 billion a year of the type that most people have in their laptops.

"That's going to go up, probably double, when the [Tesla] Gigafactory fully comes online," Fioravanti said. "Of all the batteries out there — how [storage] has penetrated into our vehicle, transportation world, our aircraft world, our shipping world and all of our everyday devices — to think that we're going to draw the line at the utility world and say it's going to stop here, I think can be almost a little silly."

NECPUC 70th Annual Symposium

Overheard

CARROLL, N.H. — More than 300 regulators, market participants, consultants and RTO officials traveled to rainy Mount Washington last week for the 70th Annual Symposium of the New England Conference of Public Utilities Commissioners (NECPUC). Here's some of what we heard.

NH Gov. Seeks Lower Power Prices

New Hampshire's electric rates, among the highest in the country, are a big concern for Gov. **Chris Sununu**, he told a lunchtime audience on June 5.

The high cost of electricity "affects business, it affects families, it affects those on fixed income," said Sununu, a former environmental engineer who took office in January. "New Hampshire has an aging population, with the median age older [than] Florida, believe it or not. … It tells me more folks are going to be on fixed incomes."

At an average of more than 16 cents/kWh, New Hampshire ranked sixth in retail electric rates in 2015, according to the Energy Information Administration's most recent available data. Only remote Hawaii and Alaska — and New England neighbors Connecticut, Rhode Island and Massachusetts — were more expensive.

Sununu blasted the state's energy plan, calling it "terrible" and "very poorly written." He also defended his decision not to join California, New York and other states in pledging to abide by the Paris Agreement on climate change.

"I found it humorous that the governors of California and New York — two of the worst environmental polluters in the country — thought that everyone should sign a piece of paper to reaffirm their environmental commitments," he said, recalling his time living in smoggy California and cleaning up hazardous waste sites in New York. "We are one of the best in the country in terms of our environmental stewardship."

Officials Hope for Progress on Nuclear Waste

Spent fuel rods and other radioactive waste from four decommissioned nuclear plants in New England sit on-site today, in some cases more than two decades after the plants were shuttered.

That provided the context for a panel on the status of commercial nuclear waste disposal titled "The Slow and the Furious," the former referring to the federal government, the latter to unhappy utilities and state officials.

American electricity users paid more than $20 billion into the Nuclear Waste Fund between 1982 and 2014, a figure that has more than doubled as interest has accrued. About $11 billion of the $46 billion in the fund has been spent on the program so far, said Katrina McMurrian, executive director of the Nuclear Waste Strategy Coalition, an organization of state and utility officials formed in 1993 to push for a final resting place for radioactive waste.

McMurrian and other speakers saw reasons for optimism.

Plans for a permanent waste repository at Yucca Mountain in Nevada were squelched in 2009 when President Barack Obama ordered the Nuclear Regulatory Commission to stop work on a licensing permit, a move taken at the behest of then-Sen. Harry Reid (D-Nev.). The license application for the site, 140 miles northwest of Las Vegas, was the product of 30 years of work and billions in spending. Obama's decision outraged nuclear operators and state regulators.

With Reid retired and a new president in office, two major political obstacles to Yucca are gone. President Trump's proposed 2018 budget seeks funds for both the permanent repository at Yucca and "consolidated interim storage," McMurrian said.

She outlined several bills that have been introduced or under discussion in Congress.

A comprehensive Senate bill, which was introduced in two prior Congresses, hasn't been introduced again yet this session, but a comprehensive House "discussion draft" is expected to be filed soon, she said.

Neither specifically identify permanent disposal facilities. The House draft, the Nuclear Waste Policy Amendments Act of 2017, builds on existing NWPA direction to move ahead with Yucca. The Senate bill proposed seeking locations to volunteer for both permanent disposal and interim storage.

Rep. Darrell Issa (R-Calif.) has introduced a narrower bill on private interim storage, the Interim Consolidated Storage Act (H.R. 474).

Luncheon audience gives a standing ovation to outgoing Vermont Public Service Board Chairman Jim Volz, whose term expires this year. He joined the board in 2005. | *© RTO Insider*

NRC Chairwoman Kristine Svinicki has asked Congress for $30 million to review a revived license application for Yucca Mountain. At a congressional hearing Wednesday, she said it could take three to five years to resolve more than 300 legal challenges to Yucca Mountain, many of which were filed by the state over alleged risks to groundwater.

Svinicki also said it would take three years to complete licensing on sites in Texas and New Mexico, where private contractors are seeking to temporarily store waste.

One of those companies is Holtec International, whose program director, Ed Mayer, briefed NECPUC on the company's New Mexico project, a 1,000-acre site he said was capable of storing all the waste from all the commercial reactors in the U.S.

Spent fuel rods must be cooled in 40-foot-deep water tanks for at least five years before being put into dry casks, where they need to be air-cooled by natural ventilation for at least another five years before being buried deep underground.

Robert Capstick, director of regulatory affairs for Yankee Atomic Electric Co., Maine Yankee and Connecticut Yankee, presented slides showing the challenge of moving nuclear waste. Dry transportation casks weigh about 100 tons, but Capstick noted that the decommissioning of the Yankee plants has already resulted in the transportation of radioactive reactor pressure vessels weighing between 300 and 1,000 tons.

"While the removal of the reactor pressure vessels from the Yankee sites was certainly a challenge, the slides showed that the transportation of large radioactive components during plant decommissioning was safely completed – and those packages far exceeded the size and weight of the future spent fuel transportation casks," Capstick explained afterward.

— Michael Kuser

CAISO News

California Lawmakers Take Up CAISO Expansion

By Jason Fordney

SACRAMENTO, Calif. — California lawmakers on Wednesday expressed concerns that expanding CAISO into a regional grid operator would result in higher electric bills, job losses and the export of energy development to other states.

Members of the Assembly Committee on Utilities and Energy did not appear to reach conclusions during a June 7 hearing, but they did ask detailed questions of representatives of CAISO, public interest groups and power companies.

Holden

Chairman Chris Holden, a Democrat, called the hearing to gather information about whether the expansion is necessary and provides the least-cost alternative to meeting the state's aggressive renewable mandates.

The 2015 Clean Energy and Pollution Reduction Act, which established the state's 50% by 2030 renewable portfolio standard, also directed the state's energy agencies to explore transforming CAISO into a regional entity to help meet the RPS target. More recently, the State Senate passed a bill setting a 100% renewable goal by 2045. (See *California Senate Passes Bill Mandating 100% RPS*.)

There is consensus between the legislature, CAISO and other stakeholders that expansion would have benefits, including enabling California to export its periodic oversupply of renewable generation and reducing the costs of curtailing output. CAISO cites its finding that regionalization would save electricity customers up to $1.5 billion annually by 2030. (See *Study Touts Benefit of CAISO Expansion*.)

But public interest groups have urged the state to go slow on the initiative, and skeptics challenged some of the study's findings. (See *CAISO Expansion in Question as EIM Grows*.) Lawmakers wanted to know what the tradeoff is for California consumers.

At the hearing, Republican Assemblyman Brian Dahle said he did not think the legislature had adequately studied the consequences of the "arbitrary" goal in the state's RPS. He mentioned the costs associated with renewable curtailment and high electricity bills.

"I want to figure that out, and I don't want to continue to have more solar if I don't need it in the middle of the day" in some parts of the state, Dahle said. He also expressed concern about the loss of California jobs from regionalization.

This year, CAISO has curtailed about 2.6% of potential solar generation and 1.3% of renewables. But that amount could grow 10-fold and become a very costly problem, CAISO Vice President of Market and Infrastructure Development Keith Casey said. The state is well on its way to meeting a 33% RPS by 2020.

"The solution is to take a holistic approach to meeting the RPS mandate," Casey told Dahle. That means factoring in the cost of curtailment and the differing costs of renewable resources that are used to meet the RPS.

There are abundant wind and geothermal resources in neighboring states that can be developed cheaply and support out-of-state jobs, but importing low-cost power also has an indirect stimulus on jobs in California, Casey said.

"The bottom line is there is no silver bullet here," Casey said, asserting that California is leading the world in integrating renewables. Officials in Asia, Africa and South America visit the ISO almost weekly to study the state's effort.

"Some of this isn't new at all," said Jan Smutny-Jones, CEO of the Independent Energy Producers Association, which represents owners and operators of renewable, natural gas, energy storage and demand response resources. California has been involved in a Western energy market in some form for 60 years, but it could be made to work better, he said. Regionalization could reduce costs and create market opportunities.

"Our interest, quite candidly is that we want to grow that market, and we don't think we can grow that market here in California, assuming you can get stuff sited," Smutny-Jones said.

CAISO said its goals are to preserve state authority, transparently track greenhouse gas emissions and retain the ability of state representatives to direct policy. But Gov. Jerry Brown has heeded the concerns expressed by some, directing state agencies to take more time to develop a proposal. (See *Governor Delays CAISO Regionalization Effort*.)

After a pause last summer, the momentum toward regionalization of CAISO may be resuming, but the June 7 hearing indicates there will be careful scrutiny as to whether the negatives outweigh the positives for the state's consumers and businesses.

CAISO News

Proposal Would Apply Aliso Canyon Measures Across CAISO, EIM

By Robert Mullin

Stakeholders on Wednesday pressed CAISO for details on a proposal to broaden and make permanent certain operational measures developed in response to Aliso Canyon gas restrictions.

CAISO is proposing to make the gas-electric coordination measures applicable to the ISO's entire footprint — including the Western Energy Imbalance Market — and not just the Southern California area affected by the closure of the Aliso Canyon gas storage facility. (See *CAISO Mulls Making Aliso Canyon Measures Permanent*.)

Key among those measures is a provision allowing the ISO to limit output from gas-fired generators within a specific "gas operating zone." The limit would allow the ISO to enforce a maximum gas burn during shortages.

Carrie Bentley, a consultant representing the Western Power Trading Forum, asked about the rationale for broadening application of that provision to areas outside those normally dependent on gas from Aliso Canyon.

"To me that seems like it would still be a Southern California issue, but given [that] you're proposing this for the entire footprint, I wondered what operational risks you saw for the ISO, including the EIM," Bentley said.

Mark Rothleder, CAISO vice president of market quality and renewable integration, acknowledged that the risks stemming from Aliso Canyon were still specific to Southern California.

"I think the extension — and the things that are being proposed as permanent — is really in light of potentially other types of gas-related constraints arising in other parts of the footprint that we want to be prepared for in case they do arise, not just strictly [constraints] associated with Aliso," Rothleder said.

Bentley pressed Rothleder for more information about the risks elsewhere in the ISO system.

"I don't want to give too much detail, but there's broader rule changes that affect other storage facilities and how much can

Site of Aliso Canyon leak in December 2016 | *SoCalGas*

be withdrawn and injected to other facilities over time, and those will affect not just Aliso or Southern Cal Gas storage facilities," Rothleder said.

The California Air Resources Board earlier this year passed tougher standards for monitoring and testing for methane leaks from all the state's underground storage fields, as well as requiring equipment changes that could slow the flow to and from the facilities.

Rothleder also pointed out the that ISO has "become aware of" gas constraints outside California.

"They are probably more localized, but they could affect multiple generators in localized areas of the EIM footprint," he said. "And we're at least aware of some of those that could arise [for which] we would need to enforce gas-burn constraints eventually and appropriately allocate gas to multiple physical generators."

Rothleder said the ISO would be committed to providing "transparency and advance notice" to market participants when it must enforce a constraint and that the measure would be "prudently applied." The Aliso Canyon gas-burn constraint has been invoked only once, over four days in January when SoCalGas had to withdraw gas from the facility to meet heating needs.

"It was more for the gas-side need than the electrical-side need," Rothleder said of the event.

Cathleen Colbert, senior market design and regulatory policy developer at the ISO, who gave a presentation on the proposal, said EIM balancing authority areas would gain use of the gas constraint as part of their market role. "This is similar to existing authority for the EIM entities to use [to] dispatch at their discretion," Colbert said.

Lindsey Schlekeway of NV Energy expressed confusion over how and when EIM members would use the gas constraint.

"I wasn't sure … if we were supposed to contact the ISO and how this would really work," Schlekeway said.

"These are some details that we will have to develop as part of the process, but I think it's important to keep in mind that, whether or not this constraint is enforced, the decision will be made by the balancing authority area and the procedures would be established by the entity itself," replied Anna McKenna, ISO assistant general counsel.

Ryan Kurlinski of the ISO's Department of Market Monitoring said that extending to EIM entities the ability to enforce gas constraints would constitute "a major market design change."

"What we're looking for is that hopefully the ISO can provide more clarity on what are the conditions under which an EIM entity can define a gas nomogram," Kurlinski said, referring to the diagram representing the interrelationship of fuel consumption among gas-fired generators on the system under various operating conditions.

Bentley questioned why CAISO was referring to the initiative as "Aliso Canyon Gas-Electric Coordination Phase 3" when the extended measures will in fact have broad application across the ISO. "I think the name is very misleading and I think potentially you won't get full stakeholder review if you aren't really clear what you're doing here," Bentley said.

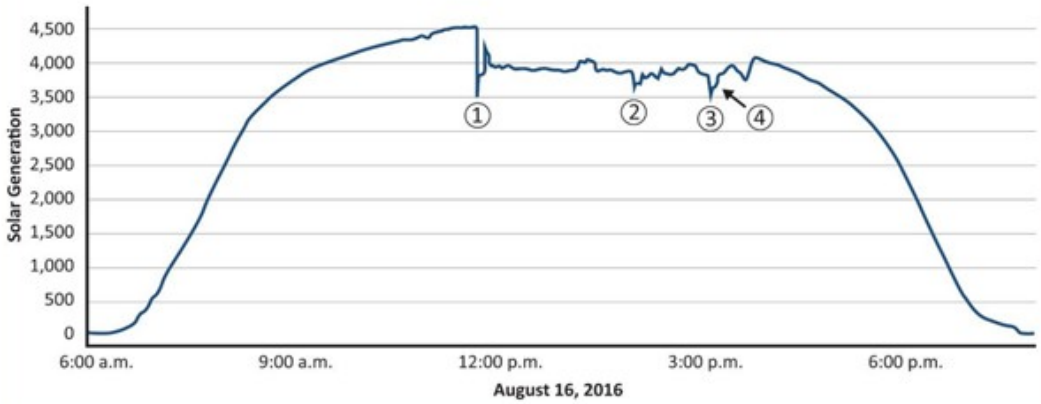
"We actually weighed both sides of that," replied Brad Cooper, the ISO's manager of market design and regulatory policy. Cooper said the ISO had considered a different name but was concerned that stakeholders might lose sight of the fact that it

Continued on page 13

CAISO News

CAISO Boosts Reserves After August Event Report

By Jason Fordney



Utility-scale solar PV output in SCE footprint on Aug. 16, 2016. Four of 15 faults that day caused losses of PV generation. | *NERC*

CAISO will temporarily increase its daily procurement of operating reserves in response to findings that the erroneous tripping of solar generation caused the loss of 1,200 MW of output as the Blue Cut fire burned in Southern California last August.

Beginning June 14, the ISO will procure more operating reserves in response to last week's NERC report showing that solar inverters — which convert photovoltaic DC output to utility frequency AC — are susceptible to erroneous tripping during transients caused by faults on the power system. The ISO did not say how long it will keep the measure in place.

A NERC/Western Electricity Coordinating Council task force said the loss of inverter power injection was caused by a perceived low-frequency condition and low-voltage blocking of inverters. The inverter manufacturer recommended changes to inverter settings to prevent the erroneous tripping, and CAISO and Southern California Edison are working to develop a corrective plan.

The inverters tripped on Aug. 16 as the Blue Cut fire raged in the Cajon Pass and quickly moved toward an electric transmission corridor containing lines owned by SCE and the Los Angeles Department of Water and Power. There were 13 faults on 500-kV lines and two 287-kV faults that took down 1,200 MW of solar. The facilities did not de-energize, but they ceased output because of the system faults, with the most significant losses occurring around 11:45 am. Four of the faults (see chart) caused losses of PV generation.

CAISO said it will increase its reserves "to minimize the potential impact due to loss of inverter power injection during a single transmission contingency event." More reserves will be procured during solar operating hours, and the total target reserve amount will be up to 25% of forecast solar production.

The task force recommended a minimum delay for frequency tripping to ensure an accurate system frequency measurement and that inverters be equipped to quickly return to operation if they cease supplying power during voltage excursions.

It also said generation owners and operators should receive an alert to ensure they are aware of recommended changes to inverter settings.

"With the proliferation of solar development in all interconnections across North America, the results of this disturbance analysis need to be widely communicated to the industry highlighting the present potential for widespread solar resource loss during transmission faults on the [bulk power system]," NERC said.

The growing use of inverter-based technologies that operate in microseconds is rapidly changing the characteristics of the power grid and presents some new challenges, NERC Vice President of Reliability Risk Management James Merlo said in a statement. The loss of generation was a "previously unknown risk to reliability," and NERC is taking steps to mitigate the risk, he said.

Proposal Would Apply Aliso Canyon Measures Across CAISO, EIM

Continued from page 12

was proposing to extend and make permanent the Aliso Canyon measures.

"So I take your point, but I think that either way, we had the potential to be misleading, and we thought it would just be clearer calling it Aliso Canyon Phase 3," Cooper said.

"But I'm not misunderstanding this, right?" Bentley asked. "I mean, the operational risks have really very little to do with Aliso Canyon and you're saying there's all these other circumstances that are leading to this need."

Colbert said the closure of Aliso Canyon had provided insights that can be applied throughout the ISO.

"We're learning as we go, we're learning by doing," Colbert said. "And so other concerns have come up through our continued exercising of this gas-electric coordination. So while we've learned about additional constraints, and we'd like to broaden and expand the scope of this project, the genesis of it is from Aliso Canyon."

ERCOT NEWS

Texas PUC Again Rejects NextEra's Oncor Bid

By Tom Kleckner

Texas regulators on Wednesday rejected NextEra Energy's last-gasp attempt to acquire Oncor, rebuffing a request to rehear a previous decision denying the proposed $18.7 billion deal.

The Public Utility Commission of Texas reiterated the finding of its initial April order, saying Florida-based NextEra "failed to meet its burden of proof" to show its acquisition of Texas utility Oncor was "in the public interest."

Commissioners Ken Anderson and Brandy Marty Marquez spent about a minute during their open meeting agreeing with each other's memos offering edits to a draft order.

NextEra's "fatal flaw" was its refusal to accept "appropriate ring-fencing conditions, and any benefits offered could not overcome that failure," Marquez said.

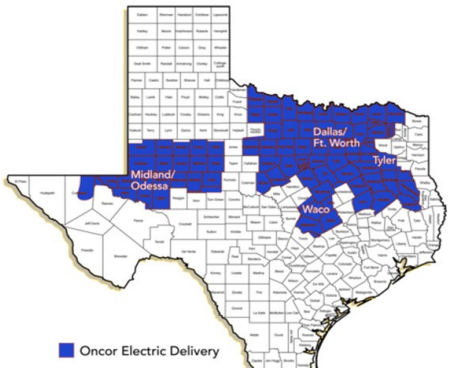
Throughout the docket's (46238) proceedings, the commissioners stressed the importance of ring-fencing measures to protect Oncor's credit rating and local ownership — which had similarly protected the utility during the bankruptcy of parent company Energy Future Holdings.

Anderson was unmoved by NextEra's arguments in its bid for a rehearing. NextEra had argued that the PUC went beyond the scope of its powers in rejecting the acquisition. (See *NextEra's Rejected Oncor Bid Gets Second Look*.)

"It is inappropriate for NextEra Energy to attempt to amend its application to request different relief in a motion for rehearing," Anderson wrote in his memo. "NextEra Energy has failed to meet its burden of proof to show [the transaction] is in the public interest, and so that request is denied."

NextEra proposed last summer to purchase Oncor in three transactions:

- The approximately 80% interest indirectly held by EFH;
- The 19.75% interest indirectly held by Texas Transmission Holdings Corp.; and



- The 0.22% interest held by Oncor Management Investment.

The PUC last year rejected Dallas-based Hunt Consolidated's attempt to acquire Oncor, which owns and operates power lines serving 3.4 million customers. The utility's future is central to EFH's bid to exit Chapter 11 bankruptcy, which has dragged on for more than three years.

Both NextEra and Oncor declined to comment. At stake is a $275 million termination fee.

NextEra's stock gained 65 cents to close the day's trading at $142.58/share.

ISO-NE News

ISO-NE: Won't Override States on Public Policy Tx Needs

By Michael Kuser

ISO-NE on Friday rejected a request that it conduct an independent analysis on whether state renewable energy and carbon reduction policies are creating a need for additional transmission.

The RTO acted in response to the Conservation Law Foundation's May 16 letter asking it to conduct the analysis despite a May 1 submission by the New England States Committee on Electricity, which said there are no current transmission needs, although some could arise in the future.

"The ISO disagrees with the conclusion reached in the May 16 CLF letter," Theodore J. Paradise, ISO-NE assistant general counsel for operations and planning, said in a June 9 letter to CLF Senior Attorney David Ismay. "The Tariff is clear that while there is a process for stakeholders to request an ISO review of the NESCOE letter regarding federal public policies, there is not a similar review provision for state public policy determinations made by the New England states and communicated through NESCOE.

Rollins Wind Farm | *Reed & Reed*

"What NESCOE did provide satisfies, and exceeds, what is required by the FERC-approved Tariff language," Paradise added. "Not only was a written communication regarding the existence of public policies that may drive transmission provided [by NESCOE], but each New England state submitted, as part of that communication, a thorough and reasoned explanation of why each of the identified statutes and regulations are not driving the need for new transmission in the regional planning process."

Ismay had said NESCOE's report was "legally insufficient for purposes of the regional system planning determinations that [FERC] Order 1000 requires."

NESCOE responded to the CLF letter on June 1, saying that ISO-NE should only evaluate potential projects after states have indicated transmission needs resulting from their policies. (See *NESCOE Defends Role in Identifying Public Policy Tx Needs*.)

Ismay told *RTO Insider* on Monday that CLF is considering filing a complaint with FERC in response to the RTO's determination. It "is obvious to all in the region … that state public policies, particularly those of Connecticut, Rhode Island and Massachusetts, are driving the procurement of large volumes of renewable and other low-carbon generation that are directly impacting regional transmission," he said.

MISO News

MISO, Stakeholders Embark on Market Roadmap Rankings

By Amanda Durish Cook

CARMEL, Ind. — MISO has issued its annual survey asking stakeholders to rank possible market modifications the RTO should undertake as part of its Market Roadmap process.


Adams

The survey contains 34 proposals. Stakeholder results will be measured alongside staff weightings to rank what market projects the RTO will tackle first, Senior Manager of Market Strategy Mia Adams said.

This year, MISO is limiting stakeholders' scoring to a maximum of four "high" and six "medium" priority designations, with an unlimited number of "low" and "do not pursue" designations.

"We limit this because if everything is a high priority, nothing is a high priority," Adams said at a special June 8 Market Roadmap workshop. She also said the RTO has finite resources and time to work on simultaneous market changes.

Stakeholders have until July 13 to return their surveys.

This is also the first year that MISO will publicly post a matrix of projects' scores, representing an attempt to increase transparency around which market changes are pursued. Stakeholders last year voiced disappointment at what they viewed as an opaque approach to project selection. Market projects were ultimately reordered late in the process to account for stakeholder preferences. (See *MISO Projects Reordered Following Stakeholder Frustration*.)

Executive Director of Market Design Jeff Bladen said projects won't begin to be ordered until after the Independent Market Monitor releases its annual State of the Market Report. "The actual ranking and prioritization process is months in front of us," Bladen said.

MISO plans to review the results in August and present a final prioritization in September.

At stakeholders' request, Bladen said this will be the first year in which the Market Roadmap process will show the Monitor's recommendations alongside those of the RTO and its participants.

Last month, the Steering Committee created a pair of new project candidates based on Monitor recommendations, improving shortage pricing by revising the operating reserve demand curve to reflect a higher value of lost load and changing the day-ahead margin assurance payment and real-time offer revenue sufficiency guarantee payment rules and performance incentives to reduce gaming. (See *MISO Steering Committee OKs IMM Proposals for Market Roadmap*.)

Minnesota Public Utilities Commission staffer Hwikwon Ham said it would be helpful for State of the Market Reports to be released earlier in the year to enable stakeholders to read the Monitor's recommendations before ranking projects.

Monitor David Patton said his office worked to release some project recommendation descriptions earlier this year to meet MISO's May deadline for submitting Market Roadmap candidates. Patton said in the future his staff will target an earlier publication of the report.

"We're changing some of our processes on the State of the Market so it better coincides with the Market Roadmap," Patton said. Adams also said MISO is open to shifting survey deadlines to give stakeholders time to review the reports before completing surveys.

MISO Examines Potential Mississippi Hub

By Amanda Durish Cook

CARMEL, Ind. — MISO is considering establishing a possible commercial trading hub in Mississippi and will conduct stress tests and sensitivity analyses into the fall to help support its decision.

The RTO will use 12 to 15 months of hourly price and varying load data to create hub parameters and analyze the 618 existing pricing nodes in Mississippi and nearby areas in order to test the viability of the new hub, according to Michael Robinson, principal adviser of market design.

MISO will draft a white paper for stakeholders if the study concludes the Mississippi trading hub is worthwhile, Robinson said. The RTO hopes to finalize the hub in early November and have it go live in early December.

"It looks like there's enough here to consider," MISO South Vice President Todd Hillman said of the upcoming study at a June 8 Market Subcommittee meeting.

The RTO has deliberated over the issue since Mississippi became its 10th local resource zone in 2015, Hillman explained. "As the South region has gotten more knowledge, what we found is that when companies look for new locations, part of the reason they might do that is the gas infrastructure, but they also do it to join RTO pricing," he said.

Hillman also said the state is especially looking for commercial growth. "Mississippi, as you know, is the poorest state in the country, so they're looking to use their infrastructure."


Robinson

MISO has experience in creating and managing new trading hubs. Robinson said the RTO established the FE hub in 2005, redefined the Cinergy hub in 2010 and handled the addition of the Texas, Arkansas and Louisiana hubs during the MISO South integration in 2013.

"We've been through this process before, and it's been a good process," NRG Energy's Tia Elliott said. She cautioned that, not being familiar with MISO's process for creating a new hub, MISO South stakeholders could appreciate periodic updates. Robinson agreed and said he would work with Hillman to keep stakeholders informed about the situation.

MISO News

MISO Proposes Deliverability Rules for Behind-the-Meter Capacity

By Amanda Durish Cook

CARMEL, Ind. — Behind-the-meter generation would need to demonstrate its deliverability before offering into MISO's capacity auction, under a new proposal being floated by the RTO.

The proposal would allow "excess" behind-the-meter (BTM) generation without existing transmission service to submit to an optional engineering study identifying a deliverable megawatt volume of capacity eligible to be bid into a single Planning Resource Auction. Any BTM generation that exceeds a utility's planning reserve margin requirement is considered excess BTM, a term the RTO is considering adding to its Tariff.

But there's a catch: The excess BTM generation volunteering for the study "must commit" to entering the same number of megawatts into the interconnection queue study process to offer capacity in any subsequent auction.

Going forward, excess BTM generation from new projects would have to enter the interconnection queue and commit to a deliverability study to obtain external network resource interconnection service like other MISO generators, Manager of Resource Adequacy John Harmon said during a June 7 Resource Adequacy Subcommittee (RASC) meeting.

Harmon said the optional study and subsequent queue commitment is intended to treat BTM generation more like traditional capacity resources that must demonstrate access to the transmission system before supplying capacity.

"We don't want this optional study going into perpetuity. We want there to be a transition at some point. What we want is a commitment to go through those other study processes," Harmon said. He asked for stakeholders to comment on the proposal by June 21.

MISO said it will continue to allow BTM generation to satisfy load-serving entities' planning reserve margin requirements without a deliverability demonstration. Under RTO rules, demand response resources have first crack at reducing planning reserve margins, followed by BTM generation.

BTM generators identifying as load-modifying resources were able to demonstrate deliverability for excess capacity in the 2017/18 PRA by meeting with staff for a case-by-case review, a process MISO said it will not repeat in next year's capacity auction. (See *MISO to Take Case-by-Case Approach on BTM Generators*.)

Stakeholders have in recent months urged the RTO to consider alternatives for BTM generation to demonstrate deliverability other than acquiring full interconnection service or firm transmission service.

More BTM Generation Talk Upcoming

Harmon said the issue of BTM generation entering the capacity auction will be subject to further assignment decisions by the Steering Committee after a common issues meeting tentatively scheduled for July 24. The meeting was called after storage resource owners Consumers Energy, DTE Energy, Ameren, Xcel Energy and Indianapolis Power and Light submitted a joint request for MISO to create a model for the

Continued on page 18

MISO Embraces Monitor's New Constrained Area Category

By Amanda Durish Cook

CARMEL, Ind. — MISO last week committed to adopting its Independent Market Monitor's recommendation to implement market mitigation for a new category of narrowly constrained areas (NCAs) identified by momentary congestion and associated market power.

Within a month, the RTO will file Tariff revisions on a proposal to create dynamic NCAs after staff spoke extensively with the Monitor on the issue, according to MISO Director of Market Evaluation and Design Dhiman Chatterjee.

"Conceptually, we are in alignment that the broadly constrained areas leave open some needs," Chatterjee said at a June 8 Market Subcommittee meeting.

But while MISO is adopting the Monitor's proposal without changes, there are still some minor details to be worked out, and the RTO is accepting stakeholder feedback, Chatterjee said. The RTO and Monitor will both need to make software changes before the definition is introduced into the market in late fall after FERC approval, he said, adding that stakeholders have generally supported the idea.

Chatterjee

"We don't believe at this point there are any broad, outstanding questions that are in the way," Chatterjee said.

Monitor David Patton recommended in April that the RTO expand mitigation measures on NCAs by creating a new definition aimed at short-lived congestion and applying mitigation if the constraint has bound in 15% or more hours over at least five consecutive days. The new category would set a conduct threshold at $25/MWh. The definition would differ from FERC-defined NCAs, which must bind for more than 500 hours annually. (See *MISO IMM Recommends Tighter Rules for Constrained Areas*.)

Patton said FERC's definition of NCAs is inadequate because it only measures binding constraints annually and does not tackle intense but temporary congestion. Only about 10 to 15% of MISO's footprint is subject to traditional NCA mitigation, in Patton's estimation.

Patton said dynamic NCAs would only be declared in situational congestion where normal market participants have more market power than usual. Mitigation measures would be lifted once the binding congestion dissipates.

"It won't be defined on a more permanent basis like the NCAs are," Patton said.

MISO News

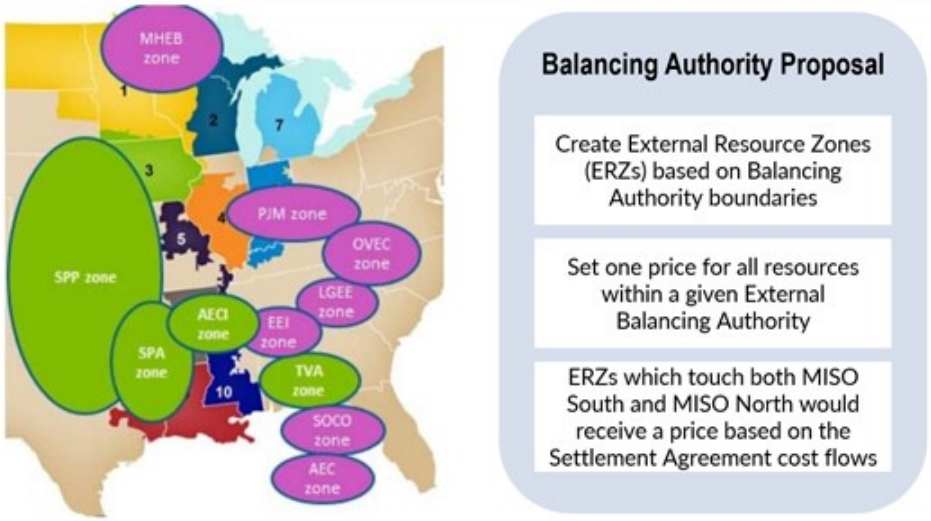
Changing Course, MISO Adopts IMM External Resource Zone Plan

By Amanda Durish Cook

CARMEL, Ind. — In a shift opposed by some stakeholders, MISO has adopted the Independent Market Monitor's recommendation to base pricing of external capacity resources on bordering balancing authorities.

MISO is now proposing a single clearing price for resources based on balancing authority in upcoming Planning Resource Auctions. For external resource zones adjacent to MISO Midwest and MISO South, the RTO plans to use historic shift factors based on energy flows to produce a blended price, Laura Rauch, manager of resource adequacy coordination, said during a June 7 Resource Adequacy Subcommittee meeting.

MISO's original proposal for implementing external resource zones would have set prices based on geographic groupings of external generation regardless of balancing authority. (See "IMM Offers Own PRA External Zone Design," *MISO Resource Adequacy Subcommittee Briefs*.)



MISO

Reliability Concern

Rauch said MISO wants to prevent reliability problems over the RTO's growing reliance on external resources. The RTO says external resources, which averaged about 5,000 MW for planning years 2015/16 through 2017/18, could increase by more than 2,600 MW "in upcoming years."

"It's not too large of a concern right now because they are spread out throughout the footprint, but in the coming years, they are expected to [increase]," Rauch said.

Last month, Michael Chiasson of IMM Potomac Economics said MISO's original proposal would mean that two external resources located in different balancing authorities could be lumped into the same external zone. He argued that preserving balancing authority borders would make for more efficient pricing.

A MISO analysis showed that the Monitor's proposal would have resulted in prices ranging from $6.63/MW-day in MISO Midwest's Zones 1-3 and 5-7 for the 2015/16 PRA (versus an actual $3.48/MW-day) and $3/MW-day in MISO South's Zones 8 and 9 (versus $3.29 actual). The Monitor proposals would not change the $150/MW-day clearing price in Illinois' Zone 4.

Stakeholder Opposition

Not all stakeholders are sold on the Monitor's pricing plan.

WPPI Energy's Steve Leovy and MidAmerican Energy's Greg Schaefer said the proposal would treat far-flung resources the same as resources close to MISO. "It strikes

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MISO Proposes Deliverability Rules for BTM Capacity

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participation of storage in the market and to track its growth using the RTO's Market Roadmap list of market revisions. (See *MISO's Next Step on Storage: 'Common Issues'; Task Team?*)

RASC Chair Chris Plante said the Steering Committee might task the RASC with defining the criteria for "lowercase" BTM generation, which represents resources not registered with or dispatchable by the RTO and not subject to market mitigation. "Uppercase" BTM refers to resources that can be dispatched. (See *MISO Behind-the-Meter Generation Definitions Create Confusion*.)

MISO hopes to adopt Business Practices Manual language that clarifies the market treatment of BTM generation by this fall.

MISO to Study Extended Outage Effect on Loss of Load

Meanwhile, the RTO will continue to investigate whether extended outages should be factored into future loss-of-load-expectation studies. After an analysis of extended outages, the RTO has concluded that planned outages during peak times are "not trivial" to the planning reserve margin, said Ryan Westphal, of MISO's Resource Adequacy Coordination department.

Harmon

The issue will be further discussed in MISO's Loss-of-Load-Expectation Working Group. The RTO is also weighing whether to prohibit units on extended outages from offering into the PRA. (See *MISO May Bar Units on Extended Outage from Capacity Auctions*.)

MISO News

Changing Course, MISO Adopts IMM External Resource Zone Plan

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us as counter-intuitive, at least initially. It seems odd to us that you call this a locational proposal but you really don't care about the location of resources," Schaefer said.


Rauch

Rauch said the concern is "not so much where an external resource is located in a neighboring balancing authority than how a resource impacts the MISO footprint."

NRG Energy's Tia Elliott said her company also opposes the creation of external zones and instead wants the RTO to require firm transmission to both its border and to the sink.

Rauch said resources that MISO designates as "electrically equivalent" will continue to count toward local credit as internal resources do. Some stakeholders have balked at that approach, saying it amounts to special treatment of external zones.

Last month, Consumers Energy's Jeff Beattie said external resources should come in second to MISO resources, as the latter are factored into the Transmission Expansion Plan. MISO also ensures deliverability, while deliverability from external zones, even with firm service, is not certain, Beattie said. "Resources in the MISO footprint do receive preferential treatment, as they should," he said.

Dynegy's Mark Volpe said his company supports creating external zones. "We've always thought that an external resource counting toward the [local clearing requirement] is inconsistent when MISO does not have dispatch control over the external resource," Volpe said.

Motion to Halt Proposal

Customized Energy Solutions' David Sapper, representing the Load-Serving Entities sector, said MISO should simply prohibit external resources from counting toward local clearing requirements. The RTO would conduct a pre-auction check of external capacity that intends to offer to see if any are pivotal suppliers; if there are pivotal suppliers, it would have to institute new mitigation measures, Sapper said.

"We understand that reliability issues have been raised; whether that amounts to a concern or not remains to be seen," he said.

Sapper submitted an LSE motion that called for MISO to file a capacity transfer rights proposal that would treat long-term supply arrangements involving external resources the same as internal planning resources. The RTO would delay creating any external resource zones until FERC's final action on the filing. The motion went to an email vote that will be tallied late next week.

"As stakeholders have already noted in RASC discussions, it is impossible for LSEs to fully assess the risks of MISO's proposal for changing the treatment of [external resources] without having certainty about the rules for the distribution of excess PRA revenue," the motion said. It said a capacity transfer rights filing is the "proper starting point for any discussions about changing the treatment" of external resources.

"Let's take up the hedge proposal first and wait for a FERC decision," Sapper urged stakeholders.

RASC liaison Shawn McFarlane said waiting for final action by FERC could prevent the RTO from heading off reliability problems with the increasing amount of external capacity. Dynegy's Volpe said it could be as late as 2025 before petitions for rehearing are resolved.

"I look forward to the day where these external resources that pose a threat to reliability one day join the MISO footprint," Sapper said. "I think footprint growth or changes have really called into question some of these concerns."

Beattie said Consumers has always disagreed with external resources counting toward local clearing requirements. "Local is the key word here," he said, prompting laughs among the stakeholders. "There is more fuel diversity taking place and there are a number of plant retirements occurring. … If MISO doesn't have control of these external resources through pseudo-tying or something else, then this new rule is worthless," Beattie said of MISO's revised proposal.

MISO plans to alter auction hedging under the external zones, using historical considerations to distribute excess auction revenue to shield some prioritized generators against price separation.

The first in line for excess revenues would be 500 MW of external and internal generation that opted out of the energy market when it was formed. Second would be 4,600 MW of market arrangements made before the capacity market was created, assuming their grandfathered agreements are still valid. Almost 2,800 MW of generation that signed contracts with load before MISO changed zonal boundaries in 2011 would be third in line for revenue distribution for a temporary, seven-year period.

MISO plans to file its proposal with FERC in early fall in order to introduce external zones in the 2018/19 PRA. The RTO will accept feedback on its proposal until June 21 and present any revised proposals at upcoming RASC meetings.

PJM News

Operating Committee Briefs

Black Start RFP Process Offers Opportunity to Re-examine System Setup

VALLEY FORGE, Pa. — PJM will release a request for proposals next January for new black start units intended to begin operation in 2020.

PJM's David Schweizer said the process is the second iteration of a five-year cycle that began in 2013. (See "New Black Start Units Will Have New Annual Revenue Requirements," *PJM Markets and Reliability Committee Briefs*.)

"The purpose of the RTO-wide black start RFP is to look at the system every five years and essentially reoptimize the effectiveness of the cranking paths," Schweizer said. "What really does drive the amount of black start megawatts and units needed is the critical load amount and the need to serve critical load across cranking paths."

Existing black start units are expected to remain in service and are not required to respond to the RFP, Schweizer said. However, an approved black start unit could be issued a one-year termination notice if system changes mean that it is no longer serving critical load. The critical-load analysis is being done this year, he said, so "we should have a good idea by the time that RFP is issued what the critical load will be."

"Even if we don't have a shortage, the RFP gives us an opportunity to reoptimize the process," he said.

Seiler Takes the Reins of the OC

Seiler

Ken Seiler, PJM's executive director of system operations, has assumed the chairmanship of the Operating Committee as of June. He succeeds Mike Bryson, who remains vice president of operations.

Seiler brings 17 years of PJM experience to the position. Prior to PJM, he worked at General Public Utilities for 14 years as a field engineer building substations and transmission lines before moving into other positions, such as managing transmission engineering, construction management and distribution system operations.

Seiler expects the committee to focus on "the evolving resource mix and its subsequent impact on how we operate the system today and in the future, along with the resilience of the power grid."

Stakeholders Challenge PJM Decisions on Reserve-Shortage Identification

PJM's Joe Ciabattoni said PJM's new shortage pricing algorithm hasn't identified any shortages, despite complaints from stakeholders that data available online appear to show shortages. (See "Shortage Rule Takes Effect amid FERC Silence," *PJM Market Implementation Committee Briefs*.)

Citigroup Energy's Barry Trayers asked what it takes to create a shortage case.

"You'd look at all your resources, all your ramp rates, and if you're short of your reserve requires, you'd trigger shortage," Ciabattoni said.

Tom Hyzinski of GT Power Group asked if there have been shortage cases that system operators haven't approved, or if there just have not been any shortages yet.

Dispatchers have to "sanity-check" cases and approve them, Ciabattoni said, but situations haven't warranted a shortage case.

"The cases are the cases," he said. Dispatchers "won't go in and play with the numbers in cases."

However, Calpine's David "Scarp" Scarpignato argued that PJM's publicly available data show that several situations have shortage pricing under its new rules related to FERC Order 825. PJM staff argued that they don't have to implement shortage pricing if the units already dispatched are ramping up to meet the increased reserve requirement, but Scarp said the wording of the order clearly states that the RTO must implement shortage pricing as the units ramp up.

Staff said part of the issue is that units aren't following their dispatch signals, but Scarp said that's no justification for not declaring a shortage.

Order 825 "says quite the opposite," he said. "It says: 'regardless of cause.' … It's black and white."

Staff suggested that an operator might purposefully disobey the signals to induce shortage pricing. Scarp also dismissed that, saying such action is so egregious that the actor would "probably end up in FERC jail."

Seiler attempted to quell the argument by saying that it's a new procedure that will likely require ongoing adjustments.

"We're not going to settle it here," he said.

"There's nothing to settle," Scarp shot back. He asked to convene a discussion between attorneys for each side.

Staff agreed to develop a report of security constrained economic dispatch cases that were not approved by dispatchers but would have resulted in shortage pricing.

OC to Add Report on DER

Benchek

PJM plans to produce a monthly report on its progress developing distributed energy resource rules, PJM staff said.

FirstEnergy's Jim Benchek urged all stakeholders involved with DER to contribute to the process so they can "know what's coming and be able to impact what's coming."

"When you're talking about DER, it's really who the DER is connected to," he said. "If you have the potential to have DERs connected to your system, get engaged."

PJM to Expand Data Capabilities, Discontinue Flat-File Support

The capabilities of Data Miner 2 are being expanded, PJM's Thomas Zadlo explained, which means companies have a year to upgrade their internal systems before the flat files many member systems rely upon disappear.

"Data Miner 2 will become the central source for PJM public data," Zadlo said.

The expanded database will go live in August and flat file postings will be retired in August 2018. Zadlo urged all stakeholders

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PJM News

MIC Briefs

EE Problem Statement Narrowly Approved

VALLEY FORGE, Pa. — It took another hour of debate, but stakeholders at last week's Market Implementation Committee meeting found just enough consensus to approve a problem statement and issue charge developed by PJM to analyze potential changes in how energy efficiency resources can participate in wholesale markets.

The vote was precipitated by a Kentucky Public Service Commission order saying state retail electric customers have no authority "to participate directly or indirectly in any wholesale electric market."

The Advanced Energy Economy has also petitioned FERC to issue a declaratory order on the topic.

Foster

"There was a state commission that was being asked to clarify its requirements" for letting in-state energy efficiency aggregators bid into the RTO's energy efficiency market, PJM's Denise Foster said. "We looked at the rules in PJM and realized there was no way for us to respect any determination that came out of that process. … There was a lot of discussion about jurisdiction … but there was also a lot of discussion about how proscriptive the problem statement and issue charge was — so we cleaned up the problem statement."

Foster was careful to clarify that PJM doesn't want to get involved in the regulatory process but seeks to move the analysis forward to be ready to take action as soon as FERC has made a decision. (See "Energy Efficiency Proposal Sparks Debate over State Jurisdiction, Stakeholder Identification," *PJM Market Implementation Committee Briefs*.)

Representatives of utilities involved in the issue — including Dana Horton of American Electric Power, Chuck Dugan of the East Kentucky Power Cooperative, Jim Benchek of FirstEnergy and Brian Garnett of Duke Energy — all voiced support for the problem statement. Benchek pointed out that rule changes should be careful to avoid unintended effects on electric distribution companies.

Rick Drom, an attorney representing AEE along with an unnamed energy efficiency aggregator in Kentucky, reiterated his position that the activity is premature.

"I was glad to hear [the utilities] say that once the FERC jurisdictional issues are resolved, then we can move forward with the problem statement, because I think it's very clear that until FERC jurisdictional issues are resolved, it would be difficult to modify the Tariff," he said. "To me, this is a simple educational issue."

Energy efficiency resource providers contract with manufacturers and wholesale retailers, not with retail customers, Drom said, suggesting that the Kentucky PSC might not be aware of that nuance. He warned that by moving forward with the problem statement, "PJM stakeholders will be spending resources on a problem that simply does not exist."

Dugan said retail customers' rates will be adversely impacted by energy efficiency providers.

"I don't think any education is going to change their mind," he said of the Kentucky PSC. "I truly believe they knew what they were talking about."

Other stakeholders raised points on both sides of the issue, including EnerNOC's Katie Guerry, who said PJM's demand response processes still have "kinks" to be worked out. "I do see value in working out the kinks in advance," she said.

CPower's Bruce Campbell motioned to defer a vote on the problem statement until after FERC has ruled, a measure seconded by Tom Rutigliano, who represents energy efficiency providers. That measure failed.

Stakeholders discussed whether the problem statement's language should be further neutralized. Foster said PJM was very deliberate in its word choices because it didn't want to be in a position of determining whether participants need to be in compliance.

The measure eventually passed with 85 votes in favor, 81 opposed and 14 abstentions.

All DR Registration Changes Fail

After months of discussion in the Demand Response Subcommittee, all three proposals for increasing flexibility to add and subtract resources from aggregators' portfolios failed to garner necessary stakeholder support. The three options differed on registration deadlines and testing requirements. (See "DR Open Registration Under Consideration," *PJM Market Implementation Com-*

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OC Briefs

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to send representatives to PJM's Tech Change Forum to stay informed and be prepared.

Bryson Leads on Next Steps for Fuel Resiliency

PJM's Bryson laid out a roadmap through 2018 to increase grid resiliency, focusing on short-term risk — such as assuring black start service — and gradually extending the perspective to discuss long-term goals such as enhanced dispatching and strategic islanding for critical infrastructure.

Bryson

The roadmap comes a little more than a month after Bryson led PJM's publicity campaign on its recently released resiliency whitepaper. (See *PJM: Increased Gas Won't Hurt Reliability, Too Much Solar Will*.)

The paper found no point at which the percentage of gas-fired units caused reliability threats, but that a capacity mix of more than 20% of solar would threaten reliability. It was narrowly focused and purposely didn't address other topics, such as environmental issues or whether natural gas infrastructure could keep pace with the high percentage of gas-fired generators PJM's analysis said the fleet could handle.

— Rory D. Sweeney

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mittee Briefs.)

Guerry and NRG Energy's Brian Kauffman were quick to register their opposition.

"At the outset of this discussion, we had reservations because we knew it was going to be very complicated" and create administrative problems along with additional costs that must be passed on to customers, Guerry said. "From our perspective, it just sort of spiraled out of control."

Independent Market Monitor Joe Bowring challenged Guerry's opposition, asking whether she opposed the idea of requiring removal of resources that can no longer reduce load.

"Do I have a specific opposition to that? No, I do not … but these are the additional layers of complexity that we believe are unnecessary just to allow the registration window to be open beyond the window that it's open to right now," she said.

"One person's complexity is another's solution to a problem, but I understand what you're saying," Bowring said.

Campbell, who proposed the problem statement, acknowledged that he hadn't foreseen some of the issue's complexity but was simply attempting to make DR comparable to generators, which can enter PJM's markets at any time.

FTR Revisions Continue Forward

Three new proposals for revising financial transmission rights rules moved forward, although one didn't advance as easily as the rest.

The wave of FTR actions began when stakeholders endorsed by acclamation revisions to Manual 28 regarding allocation of balancing congestion.

A problem statement and issue charge presented by Direct Energy's Jeff Whitehead to review the allocation of surplus funds for day-ahead congestion and FTR auction revenues received a little more discussion. GT Power Group's Dave Pratzon asked if the adjective "alternative" could be substituted for "appropriate" in describing the disposition of the surpluses. The issue, which had received substantial debate previously, was subsequently approved. (See *New FTR Task Force on the Way for PJM?*)

The final measure, resolving delayed results for periods of the year when there are several overlapping FTR products available, didn't fare as easily. Bruce Bleiweis of DC Energy suggested the issue might be technological.

"We think that PJM may not be using the most efficient clearing engine," he said.

Scarp

Other stakeholders offered differing perspectives. Eventually, Calpine's David "Scarp" Scarpignato threw up his hands to register his confusion.

"I can't vote to approve this problem statement because too many people are interpreting it in too many ways," he said. "I hate telling people to come back with another rock, but this doesn't do it for me."

As the meeting broke for lunch, stakeholders debated the issue and eventually agreed upon a two-phased problem statement and issue charge. The first phase would explore reducing the overlapping periods while maintaining liquidity through other market enhancements, and the second would explore other ways to solve the issues, such as through algorithm or technological changes. The revised document subsequently received endorsement.

PJM's Asanga Perera noted that a special session of the MIC will be held on June 23 to begin exploring the issues.

Started from the Bottom, Now We're at the MTSL

PJM and the Monitor remain at odds over how much compensation black start units should be allowed to receive for storing fuel.

The RTO is willing to cover storage costs for the oil units require to meet its black start requirement — usually 16 hours of operation — plus the minimum tank suction level (MTSL), which is the lowest amount of fuel needed to provide adequate supply to the generation unit, PJM's Tom Hauske said.

Bowring argued that the incremental cost of keeping the level of fuel needed for black start capabilities is zero. The tanks are often used for multiple units and are so large that the black start needs are but a small fraction of the tank's overall MTSL.

Bowring later added that his office agrees with PJM that black start units should be paid carrying charges on the fuel required to meet the 16-hour obligation and for the MTSL when there are tanks dedicated to them.

"But the PJM approach can require customers to pay for more than 10 times the MTSL required for the black start unit, depending on the size of the tank," he said. "The PJM approach assigns to the black start unit the MTSL for a very large tank that was designed to serve another unit and continues to serve that other unit. The actual MTSL does not change by even a gallon when a black start unit is added for such a unit. The result is unfair to all the customers who pay for black start service."

Balancing Differences

A PJM analysis of FTR data became a battleground when Roy Shanker, an industry consultant, took exception to the numbers suggesting that auction revenue rights holders benefited from a recent FERC order that allocated the costs for balancing congestion to load.

Perera presented the analysis, which suggested that the value of FTRs for the 2017/18 delivery year would have increased by $91 million compared to the previous year, during which balancing congestion was allocated to the ARR holders.

While other stakeholders defended the analysis as an important backward-looking review, Shanker complained that it seemed to be sending a message.

"I do mind when [the numbers are] represented as a metric of the benefit to the ARR holders," he said.

"I agree it's a material difference in perspective: I'm paying for balancing congestion and you're not," Direct Energy's Whitehead countered.

"And you always should have been!" Shanker immediately shot back.

Bowring said the numbers should be neutral, but analysis should still be done. "I would be shocked if there's a net benefit, but if there is, there is," he said.

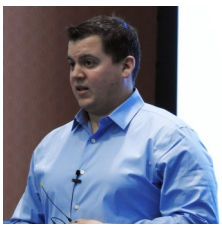
— Rory D. Sweeney

PJM News

PC/TEAC Briefs

Competitive Planning Components Endorsed; Pieces Remain

VALLEY FORGE, Pa. — While some components remain to be finished, the major elements of PJM's proposed structure for its competitive planning processes moved past the Planning Committee at last week's meeting.



Herman

PJM's Michael Herman presented the final version of the new Manual 14F, which outlines rules for competitive bidding on transmission projects as established in FERC Order 1000. The committee finally endorsed the manual, which has struggled to gather momentum and was sent back to staff for revisions several times in recent months.

Members have criticized the manual for its silence on how project bidders might include cost-containment provisions in their proposals and any preferential treatment such assurances might provide, but PJM has pushed to make the manual active prior to opening a competitive-bidding window later this summer. Staff have organized a series of special sessions of the committee to develop cost-containment rules, which will later be added to the manual. (See *PJM Kicks off Transmission Cost Cap Initiative*.)

Glatz

John Farber, who represents the Delaware Public Service Commission, asked if construction contractors must meet any standards. PJM's Sue Glatz assured him the manual includes prequalification standards for bidders.

Members also endorsed a series of design standards to be included in designated entity agreements, which successful bidders must sign with PJM. The endorsement covers standards for overhead lines, substation construction and system protection. The Designated Entity Design Standards Task Force is still developing standards for underground and HVDC lines, Herman said.

PJM is planning to transition the task force into a subcommittee that would continue to review and update standards based on biennial reviews instead of being disbanded following the completion of its charter, Herman said.

Steve Lieberman and Ed Tatum, who represent American Municipal Power, reiterated previous concerns that the design standards will not require additional endorsement from the Markets and Reliability Committee, which is the standard procedure for most rule implementation at PJM.

"I think that's really inappropriate," Tatum said.

Glatz explained that the standards are referenced in revisions to Manual 14C, which will require MRC endorsement. Those revisions, which require that all designated entities follow the design standards, subsequently received planning committee endorsement. (See "DEDS Task Force Ends at PC," *PJM Planning Committee/TEAC Briefs*.)

McGlynn Becomes PC's New Chair

Paul McGlynn, PJM's senior director of system planning who has long overseen the Transmission Expansion Advisory Committee, has assumed duties as the chairman of the Planning Committee. He succeeds Steve Herling, PJM's vice president of planning.

McGlynn acknowledged Herling "will certainly be a tough act to follow" but was confident stakeholders won't notice much of a change in leadership styles.

He brings a decade at PJM and three decades of industry experience to the position, having started in 2007 as a manager of transmission planning and being promoted to his current position two years later. Prior to that, he worked at PECO Energy for 20 years in various engineering and operations positions.

He expects the committee to focus on evolving the planning process as needs change to integrate new technologies, such as distributed energy resources, storage and system resilience. He also plans to work with stakeholders on refining PJM's Order 1000-compliant competitive bidding processes "to improve efficiency and transparency."

PJM Reconsidering Planning Assumptions

PJM staff announced plans to revisit several of its planning assumptions in light of new data. The revisions come as the RTO analyzes how it plans to address resilience in system planning. PJM's Mark Sims said the goal will be to consider potential events and create simulations to study system performance in the face of infrastructure failures such as voltage collapse or thermal issues.

"We want to think about what could happen and run the simulations," he said. "From a planning point of view, [the focus will be to] absorb and adapt."

"Resilience is a really broad topic," McGlynn said. "What we want to focus on, obviously, is what resilience means from a planning discussion."

First on the list is PJM's light-load reliability analysis criteria, which were established in 2011. A lot has changed since then, Sims explained, including EPA's publication of its Mercury and Air Toxics Standards and the emergence of the shale gas boom.

"At the time, the data was telling us that natural gas was barely operating during the [light-load] period," he said.

Demand has also dipped significantly in the interim. Several of PJM's 27 zones experience light-load conditions of less than 35% of the forecasted summer peak load for a "significant number" of hours, he said. That difference can create voltage spikes that cause problems for grid operators.

PJM plans to begin updating its light-load criteria with several changes, Sims said. First, the load-modeling assumption will be reduced from the current 50% of forecasted summer peak to a more appropriate percentage. Next, natural gas' capacity factor for base generation dispatch will be increased from the current 0% to a percentage more in line with current usage. Additionally, PJM plans to establish a ramping limit for natural gas based on statistical data.

Finally, the deliverability ramping limit for wind would be increased from 80 to 100% of nameplate capacity.

Sims acknowledged there are other tweaks to be made, but they would be "sharpening the pencil" beyond addressing the concerns at hand.

"We have some definite issues, for example, with the lower loads and natural gas that are here today," he said.

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PJM also plans to revise its capacity emergency transfer limit (CETL) calculation methodology. Currently, PJM models firm existing transfers and assumes non-firm flows will materialize up to the transmission system's capacity limits. But data confirms that those external zones will likely be experiencing the same capacity emergencies and unable to provide support. NYISO's eastern region and PJM have peaked on the same day, and sometimes the same hour in four of the past six years, Sims said.

"A lot of questions came out of the [Regional Transmission Expansion Plan] planning parameters," he said. "We're assuming our neighboring systems can support us, but maybe that doesn't make sense." Sims also noted that, unlike HVDC lines that can adjust power flows quickly, phase-angle regulators must be manually adjusted and "take time." Several of the ties between NYISO and PJM are controlled by PARs.

Many of the insights Sims noted were pointed out by Public Service Electric and Gas in a letter the utility sent to PJM's Board of Managers in May. (See "Following PSE&G Complaint, PJM to Discuss Updated CETL Requirements," *PJM Planning Committee/TEAC Briefs*.)

Analysis Strategy Announced for MEPs

The plan for analyzing market efficiency project proposals in the 2016-17 window begins with interregional projects, PJM's Nick Dumitriu said at last week's meeting of the Transmission Expansion Advisory Committee. The window is part of PJM's RTEP.

Interregional projects will be considered first, he said, because they require the most lead time when factoring in interregional coordination. Both energy and potential capacity benefits will be examined, he said.

Proposals for the PPL region will be analyzed next, followed by those in the Baltimore Gas and Electric region. "Slam dunk" projects — considered low-cost upgrades with high benefit-to-cost ratios and minimum competition — will be analyzed in parallel. All other regional projects will be analyzed last.

Responding to an inquiry from LS Power's Sharon Segner, Dumitriu confirmed that PJM will re-evaluate previously submitted projects in parallel and present them after the base case is completed, likely at the July or August TEAC meetings. PJM hopes to have the interregional, PPL and "slam dunks" ready for presentation to the board at its meeting in October, with BGE and all other projects ready for the board's December meeting.

Accelerated AEP Project Won't Increase Costs

PJM staff noted that an American Electric Power proposal to speed up the timeline of a planned reconductoring project won't incur any incremental costs.

The previously approved baseline projects 1-11B and 1-11C to reconductor the Dequine-Eugene-Meadow Lake 345-kV line in western Indiana will provide Reliability Pricing Model benefits by improving CETL values, along with energy benefits for reducing congestion. The projects are scheduled to be in service by 2021, but AEP has offered to complete them by 2019, saving two years of congestion costs.

"Anything divided by zero turns into a pretty big number pretty quick, so I think we'd continue to recommend that the project get done by 2019," McGlynn said.

Detail of Proposal Descriptions Still a Concern

Stakeholders reiterated concerns about what they felt was a lack of information about project details. While PJM staff were attempting to clarify the complicated history of proposals to alleviate constraints on the Olive-Bosserman 138-kV line in northern Indiana, Tatum took the opportunity to log the frequent complaint.

"You are aware, though, that we don't share your opinion that the information provided and the methodologies shared so far are adequate?" he asked Sims in reference to the information AEP provides about its proposals.

"I thought we were getting pretty close," Sims said, noting that AEP has held several regional meetings — attended by Tatum — at which company representatives have explained their internal methods. Tatum acknowledged that the meetings were informative, but he asked for a greater level of detail in the TEAC slides.

Mark Ringhausen of Old Dominion Electric Cooperative asked when PJM plans to implement meetings for localized planning and stressed the importance of seeking input throughout the process from the stakeholders such as ODEC and AMP, who pay for the upgrades.

Sims acknowledged the importance of getting their buy-in. "We want to know upfront what are the expectations so we can work toward that instead of getting to the end and having to change

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PJM News

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things," he said.

Segner noted that because some states don't have certificates of public convenience and necessity, local planning is even more important there.

Project Delay Creates Controversial Cost Increase

Recent analysis by PJM shows that a once-approved Virginia project is still needed to alleviate reliability violations but will now cost nearly twice as much.

The PJM Board of Managers in 2014 approved rebuilding Station C in the Dominion zone along the Potomac River and installing a new 230-kV line from there to the Glebe station at a cost of $165.4 million. The project was never constructed. Since then, the estimated cost has nearly doubled.

Several alternatives were considered, Sims said, but ultimately the cheapest option turned out to be connecting the two stations via a line under the river. However, local regulations require expensive "micro tunneling" for the line, and Station C must be rebuilt as a gas-insulated substation. Add in construction of a PAR, and the new estimated cost is nearly $300 million.

Given the substantial cost increase, Ringhausen asked PJM to revisit the alternative solutions and see if any of them are comparatively cheaper now. "I think we owe it to the folks paying the bill to look at it again," he said.

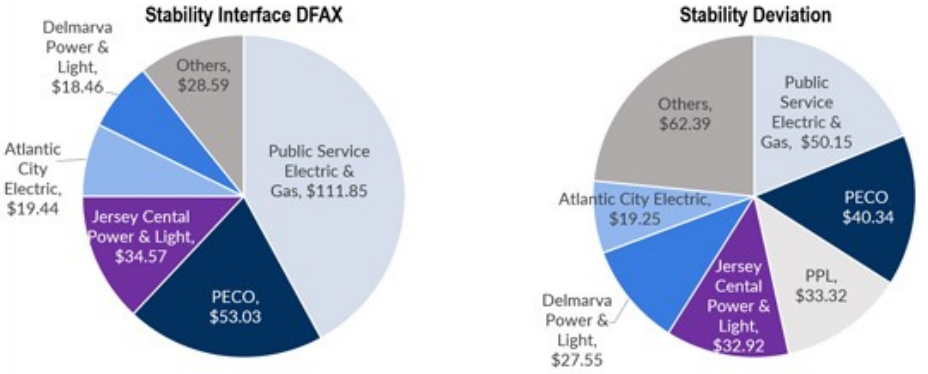
"I'm not sure it's going to be fair to put them all side by side," Sims said, as it would compare the current estimate for the proposed solution with 2014 estimates for the alternatives. But Ringhausen suggested updating the estimates should be a quick process.

— Rory D. Sweeney

PJM: Artificial Island Costs Would Shift to NJ, Pa. Under New Allocations

Continued from page 1

Steve Herling, PJM's vice president of planning, presented the grid operator's analyses on Friday but was careful to explain that the alternative cost allocations were meant to "facilitate discussion" and that the RTO was not advocating for any specific method. The right to petition FERC for any changes under Section 205 of the Federal Power Act remains with the transmission owners, he said, but "we will support any discussion FERC would facilitate on this issue."



Alternative cost allocation methodologies for Artificial Island project ($ millions). Assumes 5% of total costs will be socialized across PJM. | *RTO Insider based on PJM data*

The cost allocations under question will cover the majority of the cost of the project. PJM spokeswoman Paula DuPont said as much as 6.8% of the total will be socialized across the PJM footprint based on the project's reliability value.

The current allocation method would saddle Delmarva Power & Light ratepayers with about 93% of the remaining bill. The first alternative, which Herling called a "direct extension" of the current solution-based distribution factor method, would reduce DPL's responsibility to about 7% while raising the bill for Public Service Electric and Gas to more than 42%. New Jersey's other utilities — Jersey Central Power & Light and Atlantic City Electric — would pick up 13% and 7.3%, respectively. PECO Energy would shoulder about 20% of the costs.

The second alternative, termed a "stability deviation method," would allocate 19% to PSEG, 15% to PECO, 12.5% to PPL, 12.4% to JCPL, 10.4% to DPL, 7.2% to Atlantic City and about 5% to Met-Ed. Herling said the method was like dropping a rock in a pond and measuring impacts based on the ripples.

"Mathematically, you're going to feel this disturbance all the way out to the Rocky Mountains," he said, so PJM "arbitrarily" decided to ignore any load-bus deviations of less than 25%.

"Obviously, with the cutoff being arbitrary, it would give people some concerns," he said. Additionally, the method would be "a lot more work for PJM," he said, but he assured stakeholders that "it's not something that we would shy away from."

The failure of any of the methods will be its subjectivity, he said, and there are "any number of ways to tweak" the numbers.

"Let's face it: Advantages and disadvantages are in the eye of the beholder," he said.

Documents and information about PJM's conclusions were purposefully withheld until minutes before the Friday morning announcement, Herling said, because PJM wanted to be first to provide the information to its membership rather than have them learn of it through media reports.

The Delaware Public Service Commission was cheered by the new analyses, which it said "more appropriately reflect the benefits of a stability-based transmission solution."

"Each of the alternate methods illustrate that Delaware customers benefit substantially less from the AI project than the previous solution-based DFAX cost allocation," the PSC said in a statement.

"This is only a beginning step in a lengthy process to secure an appropriate cost allocation with results that are commensurate with the benefits to Delaware," PSC Executive Director Robert Howatt said.

SPP News

SPP Members Send Z2 Alternatives to MOPC

By Tom Kleckner

SPP members are advancing two proposed modifications addressing the RTO's complicated crediting system for transmission upgrades.

The Z2 Task Force agreed last week in Kansas City to present to the Markets and Operations Policy Committee for member approval "bolt-on" proposals that could be adopted with any of the three alternatives the group has spent several months hashing over. (See *SPP Members Again Struggle with Solutions to Z2 Credits*.)

The task force agreed to eliminate credits for new upgrades that don't add transfer capacity and for all short-term service, approving the motions in roll-call votes. The group has been working to simplify SPP's system for assigning financial credits and obligations, spelled out in Attachment Z2 of SPP's Tariff.

"We're doing an awful lot of talking, but we're not getting anywhere," Oklahoma Gas & Electric's Greg McAuley said during the task force's meeting.

The problem, McAuley told *RTO Insider*, is that there's still not enough detail in the proposals to make informed decisions. But obtaining the necessary data would be "a significant undertaking in itself," he said.

"Without some kind of analytical comparison, it's difficult for anyone to make decisions," he said. "There can be unintended consequences with any of these options that can be significant."

That became apparent as members peppered Westar Energy's Grant Wilkerson with questions as he ran through several scenarios related to his Z2 alternative, which he has presented twice previously.

Under the Westar proposal, transmission rates would be calculated based on an average cost per megawatt. Wilkerson said his approach would not be affected by the order in which upgrade sponsors are compensated; rates would be trued up annually and credits would be based on directly assigned costs and usage factors (as determined by impacts identified in aggregate studies).

Staff is proposing to replace Z2 credits with a credit payment obligation (CPO) determined by multiplying the standard CPO rate by its megawatt impact. The credit rate would apply to both network and point-to-point service requests.

A third proposal, incremental long-term congestion rights (ILTCRs), is no longer being considered a substitute for Z2 credits. It remains an option only if directed by the MOPC.

Staff agreed to provide additional data for the task force's next meeting, when members will resume their analysis of the proposals.

"I'm comfortable if people want to fund this stuff [with ILTCRs]," said Kansas City Power & Light's Denise Buffington, the task force chair. "I think there is more transparency with a market solution [like ILTCRs] than there is with the current Z2 process. I struggle with how 90% of Z2 credits are being base-plan funded. In my mind, there's a choice — socialization or market solutions."

Xcel Energy upgrade project | *Burns & McDonell*

Company Briefs

Exxon Lashes out at Schneiderman over Allegations

Exxon Mobil didn't mince words in responding to claims by the New York attorney general that it was using two sets of numbers to assess the cost of climate change to its business.

The company characterized the claims as "inflammatory, reckless and false allegations" and said in a brief filed Friday with the New York Superior Court that Attorney General Eric Schneiderman was "working backwards from an assumption" of its guilt.

Since 2015, Schneiderman and Massachusetts Attorney General Maura Healey have been investigating whether Exxon misled investors on the financial risk posed by climate change. In a recent court filing, Schneiderman said Exxon maintains separate estimates for private and public use.

More: *Houston Chronicle*

Keystone Starts Fund Targeting Small-Scale Solar Projects

Renewable energy company Keystone Power Holdings has set up a tax equity investment fund targeting primarily small-scale solar projects with capacities of 250 kW to 10 MW, the company announced last week.

The KPH Solar Farms Fund I has an initial target volume of $35 million, with Keystone expecting to be able to finance more than 20 MW of additional small-to-large-scale solar power projects. It will allow Keystone to expand its ownership into key U.S. markets, including Maryland, Massachusetts, New Jersey, New York, Pennsylvania, South Carolina and D.C.

More: *Keystone Power Holdings*

American Solar Direct Files For Chapter 7 Bankruptcy

American Solar Direct filed for Chapter 7 bankruptcy, declaring less than $50,000 in assets with liabilities between $10 million and $50 million.

The company, which filed in the Central District of California, was named in 2013 by Greentech Media as a residential PV installer to watch. Back then, it had seen consistent, positive quarter-over-quarter growth since it began installing PV systems in California in 2010.

A year ago, the company won a round of funding from Dubai-based Adenium Capital. It had its first cash-flow-positive months in late 2016.

More: *Greentech Media*

Vivint Solar Expanding To Colorado Market

Solar power installer Vivint Solar has announced it is expanding into Colorado and will be working with customers in the Denver and Boulder areas.

The company, which has installed solar systems on more than 100,000 homes since it was founded in 2011, will be competing with SolarCity and Sunrun for customers in the Colorado market.

The expansion puts Vivint in 17 states. It also operates in Arizona, California, Connecticut, Florida, Hawaii, Maryland, Massachusetts, New Hampshire, New Jersey, New Mexico, New York, Pennsylvania, Rhode Island, South Carolina, Texas and Utah, plus D.C.

More: *Denver Business Journal*

Minnesota Power Partners to Build $700M Gas-Fired Plant

Minnesota Power announced it will partner with Wisconsin-based Dairyland Power Cooperative to build a $700 million gas-fired power plant in Superior, Wis.

The plant, which will produce 525 MW to 550 MW, is expected to open in 2025 pending regulatory approval. Minnesota power would take 250 MW of the plant's output.

Minnesota Power also announced a 20-year agreement to purchase wind power produced by the 250-MW Nobles 2 farm, which Tenaska is developing in Nobles County, Minn. The farm is scheduled to open in 2019 and will bring Minnesota Power's total wind power capacity to 870 MW.

More: *Star Tribune*

Toshiba Agrees to Pay $3.68B for Vogtle Reactors

Toshiba has agreed to pay $3.68 billion in guarantees to Southern Co. over construction of two unfinished nuclear reactors that its now bankrupt subsidiary Westinghouse Electric was building at the Vogtle plant.

The deal, sealed Friday, calls for Toshiba to

pay installments from October this year to January 2021.

The initial 2008 deal for construction of the reactors provided for a parent-company guarantee. This new agreement establishes the maximum payment, according to Toshiba.

More: *The Associated Press*; *The Japan Times*

Tianna Raby Named Managing Counsel at Entergy Mississippi

Entergy Mississippi has named Tianna Raby as managing counsel.

Raby joined the company in 2014 as senior counsel in the legal department. Previously, she was a partner at a civil litigation defense firm, where she defended clients in claims including product liability, personal injury, professional liability, toxic tort and various commercial disputes.

She earned her J.D. from Vanderbilt University and graduated magna cum laude from Howard University.

More: *Mississippi Business Journal*

Tesla, Sunrun Poised to Resume Rooftop Solar Sales in Nevada

Tesla and Sunrun said they will resume rooftop solar panel sales in Nevada as soon as the governor signs a bill reinstating net metering into law.

Assembly Bill 405, which Gov. Brian Sandoval is expected to sign shortly, reinstates net metering after regulators scrapped it at the end of 2015. The move caused Tesla subsidiary SolarCity and rival Sunrun to stop doing business in the state and resulted in solar installation jobs falling by 32% in 2016.

The bill, which passed in the Senate on Sunday and in the Assembly on May 23, was supported by both Democrats and Republicans.

More: *Reuters*

FEDERAL BRIEFS

Poll: 6 in 10 Voters Think US Should Have Stayed in Paris

Nearly six in 10 registered voters think the U.S. should have stayed in the Paris Agreement on climate change, according to a Morning Consult/Politico survey of 1,999 registered voters conducted June 1-2.

Seventy-nine percent of Democrats and 57% of independents favored staying in the agreement. Forty-four percent of Republicans favored withdrawing, compared with 32% who wanted to stay.

Forty-eight percent of those surveyed did not believe the U.S. should provide aid to help developing nations reduce their carbon emissions, while 32% said the U.S. should.

More: *Morning Consult*

Trump Nominates BP's Oil Spill Lawyer for DOJ Environmental Post

President Trump has nominated Jeffrey Bossert Clark, who represented BP in lawsuits stemming from the 2010 Deepwater Horizon oil spill, to be assistant attorney general for the Environment and Natural Resources Division of the Justice Department.

Clark

Clark, a partner in the law firm of Kirkland & Ellis, has represented industry groups in several challenges against the Obama administration's EPA, including a suit to revoke the scientific finding that gives EPA authority to regulate greenhouse gas emissions.

He served in the George W. Bush administration from 2001 to 2005 as deputy assistant attorney general for environment at the Justice Department.

More: *Reuters*; *InsideClimate News*

WAPA Rate Unchanged for 9th Consecutive Year

Western Area Power Administration

The Western Area Power Administration's firm electric service rate for hydropower facilities on the Upper Colorado River will not change for the ninth consecutive year.

The fiscal year 2018 rate, which applies to more than 130 public power customers, was confirmed during the annual customer meeting in Salt Lake City on May 23.

The rate, which has held steady since October 2009, will remain in place through September 2018.

More: *WAPA*

Other Mining Jobs Included in Pruitt's Coal Growth Figures

When EPA Administrator Scott Pruitt appeared on the talk show circuit this past weekend and said the coal industry has added 50,000 jobs since late 2016, what he really was referring to was mining jobs, which include coal, an EPA spokeswoman said.

Since late 2016, the coal industry has added 1,700 jobs and presently employs about 51,000 people.

EPA spokeswoman Liz Bowman said Pruitt used figures that covered the metals, oil and gas industries in addition to coal.

More: *Reuters*

Trump Fighting Congress, History in Bid to Sell Federal Tx Assets

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ern Power Administration and Western Area Power Administration to private investors for an estimated $4.9 billion over a decade.

The four agencies own a combined 34,000 miles of transmission, nearly all of it belonging to BPA and WAPA. About 1,200 public power utilities and rural electric cooperatives in 34 states purchase electricity from federal hydropower plants via the PMAs.

The elected officials and public utilities disagreed with Trump's rationale that increasing the role of the private sector would encourage more efficient allocation of resources and lower taxpayer risk.

BPA transmission line in Klickitat County, Wash. | © *RTO Insider*

Twenty-one senators, including Democrats Maria Cantwell of Washington and Dianne Feinstein of California, as well as Republican James Risch of Idaho, last week wrote Energy Secretary Rick Perry to oppose the plan. "There are improvements that can and should be made to the operations of some PMAs, but the dismantling of them is simply not sound governmental policy," says the June 7 letter.

Power marketing is one of the few federal programs that pays for itself, and it actually benefits the government's balance sheet, they said. The PMAs also support flood control, navigation, irrigation and other critical services at federal dams.

Cantwell in a tweet called the proposal "a short-sighted plan that will take money out of the pockets of consumers and businesses in our states."

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State Briefs

CALIFORNIA

An Indignant Brown Talks Clean Energy with China

California Gov. Jerry Brown shakes hands with U.S. Energy Secretary Rick Perry in China. | *Nancy McFadden, Brown's executive secretary*

The state has agreed to work with China's science ministry on clean energy technologies, emissions trading and other "climate positive" trade and investment opportunities in the wake of President Trump's decision last week to exit the Paris Agreement.

At a clean energy forum in Beijing on Tuesday, Gov. Jerry Brown told reporters that what he called a failure in leadership was "only temporary."

Brown told Reuters last week that he would discuss linking China's carbon trading platforms with the state's, which is the biggest in the U.S.

More: *Reuters*

CONNECTICUT

House Fails to Pass Bill to Support Millstone Nuclear Plant

A Senate bill that would have allowed the state to change the rules for how Dominion Energy sells power from its Millstone nuclear plant in the state's deregulated market died in the House of Representatives when lawmakers failed to take a vote on the final day of the 2017 legislative session Wednesday. It is unclear whether the bill might be given another chance since lawmakers extended the legislative session to June 30 to discuss budget issues.

Dominion has said it will review the plant's financial viability, including the possibility of closure, unless legislation passed to at least explore financial supports.

The Senate bill was passed 23-9 at 2:24 a.m. Wednesday.

More: *The Connecticut Mirror*

MISSOURI

Kansas City Leading US in EV Adoption

Kansas City is leading the U.S. in electric vehicle growth for the second quarter in a row with a 78% increase in the first quarter of 2017 compared with 2016, according to numbers released by IHS Automotive and the Electric Power Research Institute.

Since deployment in 2015 of Kansas City Power & Light's Clean Charge Network — which provides for installment of 1,000 public charging stations throughout the city's metropolitan area — the area has seen a 95% increase in electric vehicle adoption. Nearly 95% of the 1,000 charging stations have been installed.

The Clean Charge Network provides free charging for electric vehicle drivers and is the first major network implemented by a public utility, KCP&L said in a press release.

More: *Kansas City Power & Light*

Columbia Signs Wind PPA Contingent on Grain Belt Express

The Columbia City Council's $3 million wind power purchase agreement Monday is the latest in a series of purchases by state municipalities that are contingent upon the Public Service Commission approving the Grain Belt Express project, which it rejected in 2015.

Nearly 40 municipalities, including Columbia, established agreements with Grain Belt Express through the Missouri Joint Municipal Electric Utility Commission after regulators rejected the 780-mile transmission line that would cut through three states, saying, among other reasons, that it lacked state customers.

"If we wanted to build the Grain Belt Express, we would have to show Missourians there are benefits to Missourians and the state of Missouri," said Amy Kurt, a project director with Clean Line Energy Partners. "That's exactly what we did."

More: *Columbia Daily Tribune*

NEBRASKA

Public Testifies at 'Last Hurdle' Meeting on Keystone Pipeline

Ninety people testified Wednesday at a public meeting before the state Public Service Commission, which will decide the fate of the proposed Keystone XL pipeline project.

The five-member elected commission must decide whether the route across the state proposed by TransCanada is "in the public interest" and should be approved. The commission's approval is the last regulatory hurdle for the project, which President Trump revived after taking office.

Opponents of the project outnumbered supporters by more than a 3-to-1 margin in testimony.

More: *Omaha World-Herald*

NEW YORK

State Seeks to Spark $1.5B In Clean Energy Projects

In an announcement pushing back at President Trump's decision to withdraw from the Paris Agreement on climate change, state officials said Friday they are seeking to make a $1.5 billion investment in clean energy — and that the money won't come from state coffers.

The New York Power Authority and New York State Energy Research and Development Authority will solicit proposals for projects involving green technology sources, hoping to spark 40 to 60 projects with a combined power generation of 2.5 million MWh/year.

The developers would fund the projects and recover the money over time from ratepayers. Officials predict the new projects will create 40,000 jobs by 2020.

More: *The Times Herald-Record*

NORTH CAROLINA

Senate Expected to Consider Solar Reform Bill

A bill that would change state regulations governing how the Public Utility Regulatory Policies Act is implemented cleared the

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STATE BRIEFS

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House last week and is expected to be taken up by the Senate this week.

Under House Bill 589, Duke Energy will issue annual requests for bids to build more solar projects, with an independent third party administering the bidding. Duke must request 2,660 MW of new solar capacity over the 42 months following establishment of the bid procedure. The bill also requires Duke to offer rebates to customers who install rooftop solar.

The state, which ranks second in the nation for solar capacity on its electric grid, currently boasts slightly more than 3,000 MW of solar. At least 1,300 MW are connected to the grid under PURPA, and Duke maintains the solar development sparked by PURPA is straining reliability of service.

More: *Southeast Energy News*; *Charlotte Business Journal*

OHIO

FirstEnergy's ZECs May Have Stalled in Senate Panel

A bill that would award more than $300 million in zero emission credits to FirstEnergy to keep its Davis-Besse and Perry nuclear plants operating appears to have stalled in the Senate's Public Utilities Committee and may not be taken up again until after June 30.

More than 40 witnesses submitted written testimony, primarily in opposition, to Senate Bill 128, and the committee wrapped up its fourth hearing Thursday without reaching a conclusion. Committee chairman William Beagle said a few opponents are still asking to appear before the committee, and he has not considered calling for a vote yet.

Exelon, which has said it will shut down its Three Mile Island nuclear plant unless Pennsylvania lawmakers approve subsidies, submitted testimony in support of the bill.

More: *The Plain Dealer*; *Columbus Business First*

Oil and Gas Industry Poll: Voters Oppose Subsidies for FirstEnergy

The American Petroleum Institute released a poll of state voters Wednesday in which 58% of respondents said they strongly opposed paying a special fee to increase funding to FirstEnergy's nuclear plants in the state.

The poll asked questions about FirstEnergy's plan for zero-emission credits for the Davis-Besse and Perry plants that would help keep them open. More than half of the 801 respondents strongly agreed with a statement that the electricity market should be based on the marketplace and not on corporations the government decides to grant money to.

FirstEnergy spokeswoman Jennifer Young pointed to another poll by a group called Nuclear Matters that found a 60% approval rating for a zero-emissions nuclear resource program, 21% opposed and 19% unsure.

More: *Columbus Business First*

SOUTH DAKOTA

Farmers, Energy Groups Join Forces To Overturn Wind Ordinance

Farm and energy groups joined together Tuesday in an effort geared at overturning an ordinance passed last month in Lincoln County requiring wind turbines to be spaced at least a half mile from homes unless the neighboring landowner provides a waiver. The matter is scheduled for a public referendum on July 18.

The coalition, which supports a wind farm planned by Dakota Power Community Wind, says the ordinance will curb renewable energy development in the county and that commercial wind could provide payments to owners of farm land as well as tax revenue. "It allows us to harvest something other than crops off our land," said Sara Bovill, president of the Lincoln County Farm Bureau.

Backers of the ordinance say it protects property owners from the impact large-scale projects might have on property values and public health.

More: *Argus Leader*

Trump Fighting Congress, History in Bid to Sell Federal Tx Assets

Continued from page 28

Sen. Ron Wyden (D-Ore.) last week voted to oppose the nomination of Dan Brouillette as deputy secretary of energy because Brouillette would not commit to keeping BPA in public hands in response to a written question from the senator.

"I cannot support a nominee who won't even say whether he opposes a proposal that would hike energy prices for Northwest customers who have invested in a system that runs successfully on its own," Wyden said in a statement.

Wyden called the proposal to sell off BPA assets a "non-starter."

Fifteen members of the House of Representatives from Northwestern states also wrote Perry to oppose the plan, saying it would "harm individuals and businesses, divert capital needed for further infrastructure investment in the Northwest and undermine regional utility coordination." They include Rep. Peter DeFazio (D-Ore.), ranking member on the House Transportation and Infrastructure Committee.

Scott Corwin, executive director of the Portland-based Public Power Council, which represents publicly owned utilities in seven Western states that benefit from low-cost power sold by BPA, said there has been "excellent engagement from Congress" in opposing the proposal.

"On a bipartisan basis, every senator from the Northwest, and every member of the House from Oregon and Washington signed letters of opposition," Corwin told *RTO Insider*. "I have not yet heard of anyone pushing [the sale of the PMA transmission] on the Hill."

Publicly owned utilities also oppose the proposal, saying it is more likely that private owners would increase transmission rates for the same service they now receive.

"These arguments are merely a pretext for actions that would raise electricity costs for millions of people and businesses," says a June 6 letter to Perry from the American Public Power Association and the National Rural Electric Cooperative Association.

Customers have paid "all power program expenses, plus the interest on any capital projects, and have ensured continued investment in the federal infrastructure," they said.

The administrations of Presidents Reagan, Bill Clinton and George W. Bush also proposed selling off the PMA assets, but the efforts did not gain traction in the face of heavy Congressional opposition.

Even so, Corwin was cautious about dismissing the prospects for this latest move.

"There are a couple of things that are different this time that makes the proposal worth watching closely," he said. "First, the fact that it was limited to the transmission systems lends a different dynamic. And, second, the level of uncertainty in Washington, D.C., in general means that it is wise to take nothing for granted."

Wyden called BPA a "key part" of his state's economic future and that selling off its assets would "strangle the power supply for businesses" and "stretch" the budgets of residents.

"Pacific Northwesterners have fought this battle before and we're going to fight these malicious efforts again," Wyden said.

FERC Nominees Easily Advance to Full Senate

The Senate Energy and Natural Resources Committee voted 20-3 Tuesday to advance Neil Chatterjee and Robert Powelson, President Trump's nominees for FERC.

Sens. Ron Wyden (D-Ore.), Bernie Sanders (I-Vt.) and Mazie Hirono (D-Hawaii) voted no.

"Both FERC nominees failed to commit to avoiding political interference from the White House or maximizing public engagement in proposed energy projects," Wyden said. "Given FERC's important role in energy infrastructure in Oregon and communities across the country, I am also concerned that nominating commissioners from only one political party is a signal from the White House that it has no intention of ensuring FERC continues as the bipartisan and independent agency it has long been. I will continue to insist FERC considers local voices in its decisions and that the administration moves beyond politics to keep FERC bipartisan and independent."

Otherwise, the nominees received bipartisan support.

"I am assured both have understood the important role that FERC plays in ensuring fair markets and guarding against market manipulation," said Sen. Maria Cantwell (D-Wash.), the committee's ranking member.

Senate Energy and Natural Resources Committee hearing

This prompted Ted Glick, of environmental group Beyond Extreme Energy, to interrupt the meeting with shouts of protest against FERC. The hearing was interrupted two more times.

The committee also advanced Trump's nominees for deputy secretary of energy and deputy secretary of the interior, Dan Brouillette and David Bernhardt respectively, mostly on party line votes. The committee voted 17-6 for Brouillette and 14-9 for Bernhardt.

— Michael Brooks