RTO Insider

Your Eyes and Ears on the Organized Electric Markets

CAISO ■ ERCOT ■ ISO-NE ■ MISO ■ NYISO ■ PJM ■ SPP

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Wheeler Confirmed to EPA on 52-47 Vote

By Rich Heidorn Jr.

The Senate on Thursday confirmed former coal lobbyist Andrew Wheeler as EPA administrator on a 52-47 vote.

Acting EPA Administrator Andrew Wheeler waits to testify at his Senate confirmation hearing in January. | *© RTO Insider*

Wheeler, who has been serving as acting administrator since the July resignation of Scott Pruitt, was supported by all but one Republican, Susan Collins (Maine).

Collins criticized Wheeler's efforts to replace the Obama administration's Clean Power Plan and weaken air emission standards for vehicles.

"These efforts are of great importance to the state of Maine, which is located at the end of our nation's 'air pollution tailpipe' and is on the receiving end of pollution generated by coal-fired power plants in other states," Collins said in a statement. "Moreover, there is no doubt that the greenhouse gas emissions driving climate change pose a significant threat to our state's economy and our natural resources, from our working forests, fishing and agricultural industries, to tourism and recreation."

Collins also cited EPA's determination that it is no longer "appropriate and necessary" to regulate mercury emissions from power plants. "Controls for mercury, one of the most persistent and dangerous pollutants, are especially important for children and pregnant women," she said. "The agency's recent efforts to halt progress in these critical areas takes us in the wrong direction."

Other Republicans and business groups, however, praised Wheeler for continuing Pruitt's work undoing regulations they contend were

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NYISO Commissions New Social Cost of Carbon Study

By Michael Kuser

RENSSELAER, N.Y. — NYISO on Thursday said it has commissioned Analysis Group to model the social cost of carbon in order to finalize a carbon pricing scheme for its wholesale electricity markets.

"In the last week we decided to have Analysis Group and Sue Tierney and Paul Hibbard do a fresh analysis," Executive Vice President Rich Dewey told the Installed Capacity/Market Issues Working Group, referring to a senior adviser and principal, respectively, at the consulting firm.

"The scope of work for the Analysis Group is to build on the analysis previously done by [The] Brattle [Group] and (a) validate the findings, (b) extend the assessment based on the newly

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STORAGE WEEK SUMMIT

Calif. Needs far more Storage to Decarbonize, Panelists Say

Storage Week Summit in San Francisco Looks to Batteries as Solution

By Hudson Sangree

SAN FRANCISCO — The explosive growth of solar power in California will require a huge amount of new electricity storage to allow the state to meet its ambitious green energy goals, panelists said last week at this year's Infocast *Storage Week* conference.

Tom Habashi | *© RTO Insider*

"What's my vision for storage? Very quickly. We're going to have to have a lot of it," said Monterey Bay Community Power CEO Tom Habashi, who was part of a panel on storage and community choice aggregators (CCAs). "We are not even at a fraction of 1% of what we need to be at. I don't see any other way of reaching decarbonization unless we have a lot of solar and a lot of storage to go with it so we can cover all the hours when the sun doesn't shine."

Last year's SB 100 established a timeline for the state's utilities and CCAs to get all their electricity from zero-carbon sources by 2045. But the state's ample solar production peaks at a time when it's least needed — during the lowest point of the so-called "duck curve" in the middle of the day. (See *Can Calif. Go All Green Without a Western RTO?*)

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Editorial

Editor-in-Chief / Co-Publisher
Rich Heidorn Jr. 202-577-9221

Deputy Editor / Senior Correspondent
Robert Mullin 503-715-6901

Art Director
Mitchell Parizer 718-613-9388

Associate Editor / D.C. Correspondent
Michael Brooks 301-922-7687

Associate Editor
Shawn McFarland 570-856-6738

CAISO/West Correspondent
Hudson Sangree 916-747-3595

ISO-NE/NYISO Correspondent
Michael Kuser 802-681-5581

MISO Correspondent
Amanda Durish Cook 810-288-1847

PJM Correspondent
Christen Smith 717-439-1939

SPP/ERCOT Correspondent
Tom Kleckner 501-590-4077

Subscriptions

Chief Operating Officer / Co-Publisher
Merry Eisner 240-401-7399

Account Executive
Marge Gold 240-750-9423

RTO Insider LLC
10837 Deborah Drive
Potomac, MD 20854
(301) 299-0375

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strangling industry.

"I believe he will do an excellent job leading the agency," said Sen. John Barrasso (R-Wyo.), chair of the Environment and Public Works Committee. "As acting administrator of EPA, he has prioritized commonsense policies that protect our air and water, while allowing our economy to grow."

Sen. Lisa Murkowski (R-Alaska), chair of the Energy and Natural Resources Committee, said she supported Wheeler because "he has proven himself during his tenure as acting EPA administrator as a leader who hears and takes seriously the concerns of Alaskans."

"Regulatory certainty has been key to the historic manufacturing job growth we've seen under the current administration, and that would not have been possible without Andrew's leadership at EPA," said Jay Timmons, CEO of the National Association of Manufacturers.

Democrats and environmental groups blasted Wheeler's appointment.

"At this moment of growing harm from climate change, appointing someone to lead the EPA who has vigorously opposed our efforts to reduce carbon pollution ... would be like putting the Monopoly Man in charge of regulating big banks," Sen. Chris Van Hollen (D-Md.) said.

"As a former fossil fuel lobbyist, he consistently worked against the public interest to advance an anti-environment agenda and dismantle many hard-won climate change programs," Sen. Dianne Feinstein (D-Calif.) said.

Acting EPA Administrator Andrew Wheeler at his confirmation hearing in January. | © *RTO Insider*

"As administrator, we expect he will continue doing the bidding of the polluters he used to represent," said John Bowman, senior director of federal affairs for the Natural Resources Defense Council. "And what he can expect from us, and many others, is a wall of opposition and legal challenges to stop this dangerous agenda."

At his confirmation hearing before Murkowski's committee on Jan. 16, Republicans praised Wheeler's nearly two decades of experience at EPA and on the committee staff. Wheeler began his career at the agency during the George H.W. Bush administration and later served as staff director and chief counsel to Republicans on the committee.

Several Democrats credited him for being more responsive to their offices than Pruitt. But they were frustrated by his tepid comments on climate change. (See *Dems Press EPA's Wheeler on Climate at Confirmation Hearing*.) ■

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Calif. Needs far more Storage to Decarbonize, Panelists Say

Storage Week Summit in San Francisco Looks to Batteries as Solution

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Larger batteries are just beginning to store a tiny portion of the electricity needed during the evening ramp, when the sun goes down and electricity demand soars as people arrive home on the West Coast. Doing away with natural gas peaker plants, as the state envisions, will require solar projects to be coupled with storage, speakers said.

The Monterey Bay CCA, for example, has 265 MW of solar energy plus 85 MW of storage. "We're way, way ahead of what we are required to do," Habashi said.

John Zahurancik | © *RTO Insider*

John Zahurancik, CEO of Fluence Energy and a 20-year veteran of large-scale storage projects, said larger and longer-duration battery projects are coming online all the time, but that it's likely just the beginning.

"We're in the early days of when this starts to scale," Zahurancik said during a panel on standalone storage. "It's just starting to pick up speed."

Fluence is building a 100-MW standalone storage project, among the largest in the U.S., he said. More utilities are looking to lithium-ion batteries, in "increasingly large types of systems," as a solution to the challenges of intermittent solar and wind power.

Asked whether any technologies would emerge to compete with lithium-ion batteries, Zhurancik said the batteries are a proven technology being built at volume with backing from deep-pocket investors. He said he expects to see improvements and changes but probably not a "wholly new" storage solution in the next five years.

Rooftop Solar 'Underestimated'

In a panel on ISOs and storage moderated by *RTO Insider* Deputy Editor Robert Mullin, Clyde Loutan, CAISO's principal planner for renewable energy integration, said the ISO hadn't anticipated how fast rooftop solar would proliferate and create challenges for it.

RTO Insider's Robert Mullin (right) moderated a panel on storage in ISOs/RTOs. On the panel (left to right) were: Kenneth Ragsdale, ERCOT; Clyde Loutan, CAISO; Mike DeSocio, NYISO; Eric Hsia, PJM and Kevin Vannoy, MISO. | © *RTO Insider*

"We completely underestimated the speed at which rooftop PV was going to come onto the grid," Loutan said. There are 7,000 MW of rooftop solar in California, and planners expect to see as much as 13,000 MW by next year, he said.

Clyde Loutan | © *RTO Insider*

Utility-scale solar projects supply another 12,000 MW of electricity in CAISO, he said.

With a variable resource like solar, output can suddenly drop by 1,000 MW, requiring battery storage that can come online quickly and make up for the shortfall, he said, and solar falls away each night.

"During the evening you got to meet that huge ramp when the solar drops off," Loutan said.

On the other hand, there's far too much solar power available on weekends. Oversupply and undersupply create challenges controlling the grid and maintaining the frequency at 60 Hz, Loutan said.

"You need a lot of stability," he said. "You need a lot of fast-injecting capability. Storage can provide that."

'Best, Highest Use'

Mullin cited an *RTO Insider* story in which MISO CEO John Bear said RTO staff are working to determine the "best, highest use" for storage projects.

"We've almost internally forced ourselves as a company to calling them batteries, as opposed to storage, just because we don't want to presuppose what the best use of them might be," Bear said at the Gulf Coast Power Association's MISO South Regional Conference in February. (See ***Overheard at GCPA MISO South Regional Conference***.)

Batteries might be most valuable as quick-response resources to help balance the grid, he said.

Kevin Vannoy | © *RTO Insider*

Asked to elaborate, Kevin Vannoy, MISO's director of market design, said, "What I think John was getting at there was it's not about just storing energy for later injection."

"I think we don't want to limit ourselves to just a single product when it comes to storage or a single use or a single application because of the flexibility and the different products it can

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provide and the problems that it can solve.

"We don't want to get stuck into just thinking of these as we have our traditional pumped hydro units," Vannoy said. "We want to make sure we're getting the full value ... [and] capabilities that batteries and storage can bring."

Loutan said the highest and best use for storage right now is to provide reliability and frequency response.

"We still need to explore the capabilities of storage," he said. "How can we utilize the capabilities of storage to develop new products and help operate the grid differently?"

Challenges and Opportunities

Connecting storage to the grid isn't as simple as plugging in a battery, panelists said. Challenges exist, with more to come, but batteries also present potential solutions to pressing needs, they said.

"One thing I would recommend is ... making sure that the battery's sized accordingly," said Eric Hsia, liaison to the CEO at PJM. Oversizing or undersizing can cause trouble.

"If they do that and they do it wrong, it could potentially pose operational issues, which we did experience in the regulation market," he said.

Kenneth Ragsdale, market design principal with ERCOT, said "I don't want to sound like a Texan, but I think our challenges are a little harder than theirs."

CCA panelists said more storage is needed to meet the goals of 100% clean energy. From left to right: Girish Balachandran, Silicon Valley Clean Energy; Vicken Kasarjian, Marin Clean Energy; Jan Pepper, Peninsula Clean Energy; Tom Habashi, Monterey Bay Community Power and JP Ross, East Bay Community Energy. | *© RTO Insider*

Kenneth Ragsdale | *© RTO Insider*

The Texas Interconnection is smaller than the Western or Eastern interconnections, "so the loss of our two largest units in the ERCOT system is a big hit in terms of trying to maintain the frequency. We're very careful about making sure we have enough rotating mass, enough inertia, on the system."

ERCOT adopted a "fast frequency response" protocol, he said. "Basically, you need a resource that can respond to a frequency deviation within 15 cycles," he said. "We see a lot of hope for some batteries coming in and doing that."

Batteries could also help alleviate five- to 15-minute price spikes and deal with the daily four-hour peak in the hot Texas summers, Ragsdale said.

Mike DeSocio | *© RTO Insider*

In New York, "there's tremendous opportunity for storage," said Mike DeSocio, senior manager of market design with NYISO. The state mandated storage and has about 2,000 MW queued up, from 1.5- to 300-MW storage projects. "Storage is coming," he said.

The state is looking to develop large quantities of offshore and onshore wind power along with rooftop solar. Batteries could help balance those variable resources with low-carbon electricity, he said.

Batteries could also buffer the state's ample nuclear output (which is set to get financial support from zero-emission credits) — the same way pumped hydro did when the nuclear plants were first built, he said.

"I kinda feel like we're going back to the future here a little bit," DeSocio said. ■

Standalone storage was discussed on Tuesday last week. From left to right: John Zahurancik, Fluence Energy; Holly Christie, Invenergy; Randolph Mann, Esvolta; and Brian Knowles, Cypress Creek Renewable Energy. | *© RTO Insider*

CAISO/WECC News

SMUD Cancels 500-kV Tx Line Project

By Hudson Sangree

SMUD, headquartered in Sacramento, canceled a 500-kV transmission line project it was planning in conjunction with WAPA.

The Sacramento Municipal Utility District (SMUD) said Friday it is canceling a 500-kV transmission line project it was developing in conjunction with the Western Area Power Administration because the project had proven too expensive and was no longer needed.

The Colusa-Sutter Transmission Line Project (CoSu) was intended to increase SMUD's ability to import hydroelectric power from the Pacific Northwest and export from the Sacramento area. (See ***WAPA, SMUD Extend Scoping Period for Colusa-Sutter Project***.) It would have created a new link between the California-Oregon Transmission Project (COTP) and SMUD and WAPA facilities on the east side of the Sacramento Valley.

"A recent California Energy Commission study makes the case for projects like this that enhance transmission capability to import valuable out-of-state renewable resources for California to meet its 50% renewable energy goals by 2030," WAPA and SMUD said in a statement in 2017. That study pointed out that a shortage of available transfer capacity on the California-Oregon Intertie would inhibit California's ability to import additional carbon-free energy from the Northwest

In a news release Friday, however, SMUD said "it was determined that the project is too costly."

As planning for the project commenced, federal power marketing agency WAPA said its existing transmission facilities did not have enough capacity to meet SMUD's increasing need for energy.

SMUD said that the project's initial phase, meant to evaluate environmental impacts and conduct preliminary engineering, had shown the estimated $245 million price tag had increased by more than $100 million and could end up costing much more.

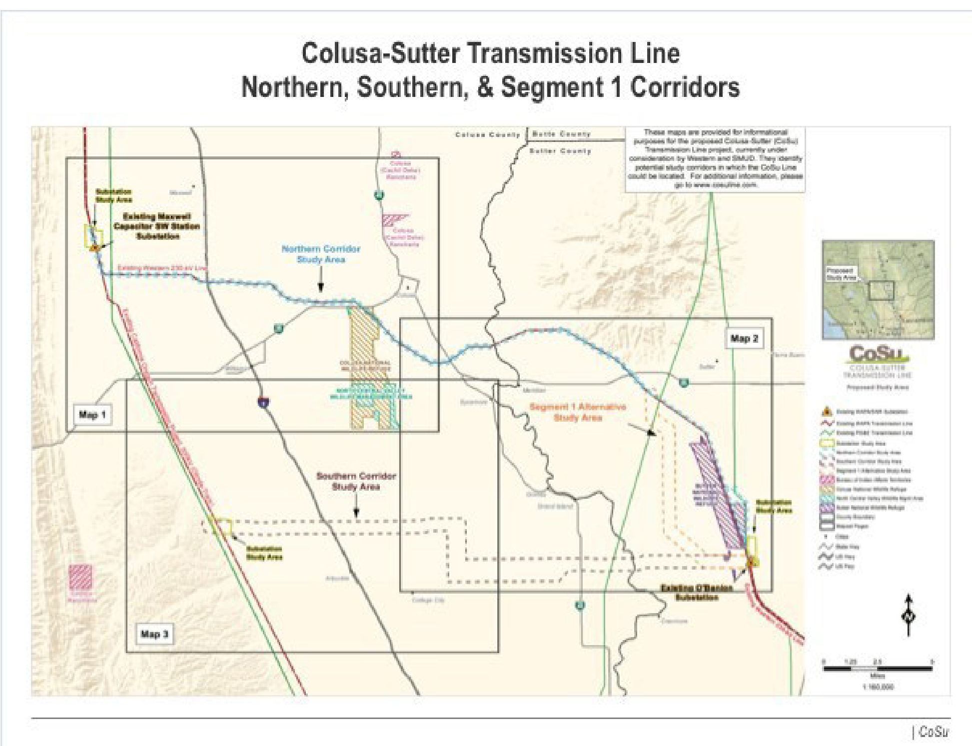
The utility said its decision to join CAISO starting in April "will provide lower-cost access to a broader regional market," reducing the need for transfers to and from the Pacific Northwest.

SMUD and WAPA have been working on the CoSu project since the utility's board of directors approved a development agreement in December 2014. The new line would have connected the COTP system in Colusa County with the Central Valley Project system in Sutter County, improving access to renewable energy generated in the Northwest.

Since the project's inception, the need for it has diminished, SMUD said.

"Since SMUD started planning the project, the development of SMUD's long-term integrated resource plan has greatly reduced the value and need of the proposed line," it said. "The IRP analysis indicates SMUD would better focus its resources on the suite of local, regional and in-state renewable and reliability projects, as well as incremental transmission infrastructure.

"Canceling CoSu also reduces pressure on SMUD rates during the early critical phase of IRP implementation," SMUD added. ■



The proposed Colusa-Sutter transmission project was intended to improve SMUD's access to Pacific Northwest renewable resources via the California-Oregon Transmission Project. | *WAPA*

CAISO/WECC News

FERC OKs CAISO Tariff Changes on Generator Outages

By Hudson Sangree

FERC last week approved CAISO Tariff changes designed to incorporate generator contingencies and remedial action schemes into its market optimization and congestion pricing methodology (*ER19-354*).

"The commission accepts CAISO's filing because we agree with CAISO that its proposal will more closely align market dispatch and prices with actual operations," FERC wrote. "This will allow prices received by generators to more accurately reflect their contribution to congestion under a dispatch that is secure against generator contingencies. We also agree with CAISO that its proposal will be beneficial by reducing reliance on exceptional dispatch."

The ISO filed the Tariff revisions in November. It proposed language to clarify its rules on modifying and operating the grid to expressly include generator contingencies and remedial action schemes to deal with the loss of generators. It also proposed adding new components to its marginal cost of congestion formula.

"CAISO states that making several clarifications to existing terminology will improve transparency," FERC wrote. "In particular, CAISO proposes to add a sentence to the definition of a 'contingency' to expressly include 'potential outages due to remedial action schemes.'"

The ISO proposed similar clarifications to section 27 of its Tariff, which addresses its market and processes.

"CAISO states that these clarifications consist of parentheticals to clarify that remedial action schemes are included in CAISO's modeling of transmission contingencies," FERC said.

The ISO also proposed adding a new component to its formula for calculating congestion prices that accounts for generator outages. Currently, the grid operator calculates the marginal cost of congestion based on the "economic effect of additional power at a specific point flowing across a given transmission constraint," the commission said.

NRG's Etiwanda Generating Station

To do so, CAISO multiplies the transmission constraint coefficient by the power transfer distribution factor and its shadow price, FERC noted.

"The power transfer distribution factor is the percentage of a power transfer that flows on a transmission facility as a result of the injection of power at the relevant bus and the withdrawal of power at the reference bus," the commission said. "CAISO notes that the shadow price is the marginal value of relieving the constraint."

Under the revised formula, CAISO will calculate the cost of congestion, then subtract the product of the power transfer distribution factor for the relevant generator contingencies and its shadow price, FERC said.

"CAISO contends that its proposal will ensure that its preventative modeling and market prices reflect grid realities. CAISO argues that the proposed revisions will also decrease out-of-market actions and the need for operators to manually monitor remedial action schemes and generator contingencies," the commission said. "In addition, CAISO asserts that its proposal will appropriately price each generator's contribution to congestion in the markets." ■

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Overheard at Infocast ERCOT Market Summit

Speakers Expect Strong Market Performance this Summer

AUSTIN, Texas — Infocast's annual ERCOT Market Summit last week attracted more than 150 policymakers with utility, solar, wind and other energy executives to explore potential solutions and opportunities in Texas.

Attendees participated in discussions on an expected surge of solar capacity, living with ERCOT's shrinking reserve margin, the benefits of energy storage and the market's transmission needs.

Shell Energy's Resmi Surendran delivers the keynote address. | © *RTO Insider*

Resmi Surendran, Shell Energy North America's senior director of regulatory policy, keynoted the three-day event by saying the rising forward curves reflect the increased risk ERCOT faces this summer. The grid operator's reserve margin has dropped to 7.4%, reflecting a lack of new baseload generation additions and the recent loss of yet another aging coal plant. (See *ERCOT Says Emergency Conditions this Summer 'Likely'*.)

Noting the 2019 forwards are $50/MWh below 2018, Surendran said, "It may be skepticism, because so much wind is coming, or the possibility of a lot of demand response or because of the ORDC [operating reserve demand curve] changes, or just waiting for the [March 5 seasonal resource assessment] to come out and see how tight the summer will be.

"The only thing we can really say is the capacity will be really tight, and any small change can swing it one way or the other," she said.

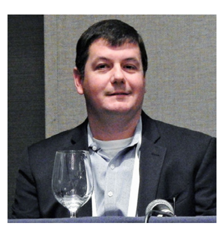
Thompson & Knight's Katie Coleman | © *RTO Insider*

Speaking on a panel taking a long-term view of ERCOT's wholesale market, Thompson & Knight's Katie Coleman, who represents industrial customers, disputed the notion that the market "got lucky" last summer. Operating with an 11% reserve margin, ERCOT met 14 demand peaks above the previous record without resorting to emergency measures.

Attendees at Infocast's 2019 ERCOT Market Summit listen to panel discussion. | © *RTO Insider*

"My clients don't think we got lucky. We think the market performed the way it was supposed to perform," she said. "You have a market with a ton of risk, people will show up. When you have the type of financial risk we had last summer, it really motivates people. I think you will also see that this summer, and people should start adjusting their expectations."

Coleman said "empirical evidence" revealed customers "were doing things they hadn't done before" last summer to reduce their loads and help the market meet demand. "It's a misconception that a low planning reserve margin corresponds to higher real-time prices," she said. "Barring contingencies, you're going to see good performance again this summer, and you may or may not see high prices in real time."



Citibank's Hugh Byrd | © *RTO Insider*

"You're just going to get more continued price volatility around wind because of the renewables buildout," said Hugh Byrd, Citibank managing director for ERCOT/West power trading. "We'll get to the point where we almost need renewable generation to meet peak demand, which will increase price volatility."

LCRA's John Dumas | © *RTO Insider*

"Wind penetration has created impacts on pricing, where it's hard for baseload generation to stay active in this market," said the Lower Colorado River Authority's John Dumas, vice president of market operations.

Dumas said changes to the ORDC's calculation prescribed by the Texas Public Utility Commission will increase scarcity pricing sooner, but he was doubtful those modifications will have a "dramatic impact" on unit commitment decisions this summer. (See *Texas PUC Responds to Shrinking Reserve Margin*.)

"[They're] not going to be enough to drive a combined cycle [plant]. They plan to be online for the peak anyway," Dumas said. "Potentially, you might commit some gas turbines sooner."

"We're moving away from a world where you can count every megawatt out there," Coleman said. "You have to trust the market."

Panel Debates ERCOT's Competitive Market

Bill Barnes, NRG Energy's director of regulatory affairs, also urged attendees to place their faith in the ERCOT market. Saying he didn't want to reflect on the market's shrinking reserve margin, he trained his focus on what

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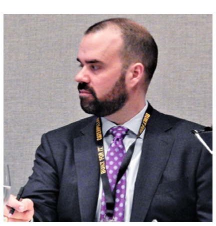
NRG Energy's Bill Barnes and ERCOT's Cheryl Mele | © *RTO Insider*

he called a "success story."

"The ERCOT market is really the envy of the rest of the country and the world," Barnes said. "It should not be a surprise that we have low reserve margins. We've had six to seven years of low pricing; pricing drives waves of exit and investment. We've seen some investment funded by subsidies [the Competitive Renewable Energy Zones], and exit driven by these same subsidies and some by low natural gas prices. When you have low prices for such a long period of time, you will have financial discipline.

"It's time for the market … to support that next wave of investment in our energy supply, and it should not be tempted to intervene with out-of-market actions or subsidies. [Low reserve margins] should not be a surprise. We've known for years … an energy-only construct without a capacity construct always results in lower reserve margins."


Calpine's Brandon Whittle | © *RTO Insider*

Calpine Director of External Affairs Brandon Whittle countered by pointing out that competitive electric markets "are not the perfect competitive markets we studied in ECON 101, where everything made sense."

"One of the traits of a perfect competitive market is low barriers to entry and exit," Whittle said. In ERCOT's case, he said, that would be the units' start-up costs, which become sunk costs once the unit is online.

"We're going to need dispatchable generation to come online. To do that, they have to overcome the barrier to entry," Whittle said. "The reserve margin will remain uncomfortably low over the next few years, depending on new entrants into this market. There are significant costs to build new generators, so significant that it takes decades to recover those costs."

In the meantime, Barnes said the probability of an emergency event this summer is "pretty high … probably 90 percent-ish," and that the market should be prepared.

"That's how an energy-only market is intended to function. That's how you increase revenues to incentivize the next wave of investment," he said. "These events can be well-managed and organized and have very little disruption to consumers. We're going to get a good sense of what our appetite for the real risk of reliability is. We lived it a little in 2011, but that was a weather event. This is more a lack of supply."

ERCOT COO Cheryl Mele, sitting alongside Barnes, said, "We would expect to operate effectively."

One audience member pointed out the only drawback with Barnes' premise will be the political blowback from rotating outages, driven by constituent complaints.

"Hopefully, ERCOT will help manage any emergency event and explain that voluntary load reduction is not necessarily a bad thing," Barnes told *RTO Insider* in response, referring to the grid operator's emergency response service.

Wind Developers: PTC has Served its Purpose

A trio of wind energy developers agreed there was a time and a place for production tax credits, which *expire* in 2020. With the Dec. 31 deadline to begin construction fast approaching, they debated what to expect in a post-PTC world.

"We've had a love-hate relationship with PTCs," said Tri Global Energy's Tom Carbone, who expects to see 25 GW of wind energy come online in Texas through 2020. "Today, even without the PTC, [wind] is a very competitive solution. It's also created somewhat of a perverse market, where you have runs with negative pricing. I'm probably one of the few


Tri Global Energy's Tom Carbone (left) and Pattern Development's Ward Marshall enjoy their time on a wind energy panel. | © *RTO Insider*

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guys in the room who looks forward to when the PTC is gone."

"At least two of us are getting our feet wet in national markets. We see how they structure deals in a way they should post-PTC," Pattern Energy's Ward Marshall said. "[PTCs] were a necessity. It kind of leveled the playing field. It's a great story from that standpoint, but I do believe theirs is a valiant death. I think it's a dip, as we work on structuring on the other side."

Originally enacted in 1992, the PTC is an inflation-adjusted tax credit of 1.9 cents/kWh for electricity generated by qualified facilities. The credit has been reduced 60% for those facilities that begin construction this year.

"We're not afraid of a post-PTC world," Macquarie Capital's Thomas Houle said. "They served their purpose, and quite well, but we have a cheaper pool of long-term debt available now. It's amazing how quickly the market adapts to these changes. We're expecting a nine- to 12-month dip, but we'll see what happens."

Solar Energy a Promising Market

Recurrent Energy's Jacob Steubing | © *RTO Insider*

Asked to describe the difference between ERCOT's and SPP's solar markets, Recurrent Energy's Jacob Steubing used an analogy internal to his company.

"If you want to go to a market where they don't need additional capacity, SPP is the market for you," said Steubing, the company's director of origination and structuring, pointing to the RTO's 30% reserve margin. "ERCOT has a low reserve margin. SPP is the opposite end of the spectrum. … If you're trying to sell in Texas, you're selling to people who don't have a car. In SPP, you're talking to people with three 2001 Honda Accords. Maybe they will talk to you when one of those breaks down. You're not going to find super motivated buyers in SPP."

As Steubing spoke, Enel Green Power North America was announcing a *497-MW solar project* in West Texas, the state's largest. The day before, food distribution heavyweight Sysco said *three solar garden sites* in Houston and Dallas were operational. They are part of a 25-MW, 10-year renewable energy agreement with an NRG subsidiary.

ERCOT has more than 43 GW of solar projects in its interconnection queue, but only 5 GW have interconnection agreements. SPP has 26 GW of solar in its queue, according to one count.

AEP's Brian Whitlatch | © *RTO Insider*

"The natural resource, the sun, is fantastic in Texas. We have to start there," said Brian Whitlatch, AEP Energy Partners' managing director of energy marketing. "The ERCOT market is one of the best-run RTOs, so it's a very efficient market and it's deregulated, so there are lots of buyers on the retail and wholesale side."

ENGIE's Marc-Alain Behar | © *RTO Insider*

Marc-Alain Behar, ENGIE Solar's managing director for North America, said the Texas market's liquidity and its "sophisticated wholesale environment … allows for financial innovation around commercial structures."

"The first utility-scale solar project with a hedge is going to happen in Texas," Behar said. "What's new is the corporate demand for virtual [power purchase agreements], which started three to four years ago and which were mostly taken on by wind, from a price standpoint. Last year, we saw solar taking its share of that market. Here in Texas, we are seeing that the price point of solar being offered to those customers for a 12-year, 15-year PPA is competitive with wind. I see a lot of this continuing, because that demand from corporate customers is still there."

"We've been watching Texas for some time. We thought there would be a tipping point, and I think we saw that last year," Steubing said. "There were lots of transactions happening, and that's carried forth in 2019, in Victoria, outside Houston and the greater Dallas area. It's really exciting to see how solar has been able to avoid the pitfalls of wind and get built outside of the West."

Is There a Place for Storage in ERCOT?

If solar and wind energy are going to increase their share of the fuel mix, energy storage could play a key role.

RTO Insider's Tom Kleckner moderates a panel addressing the market impacts of coal retirements in ERCOT. Panelists include (left to right) Skylar Capital Management's David Bellman, Association of Electric Companies of Texas' Julia Rathgeber, ENGIE's Bob Helton and Lower Colorado River Authority's Randa Stephenson. | © *RTO Insider*

John Hall, the Environmental Defense Fund's associated vice president for clean energy, is working on a comprehensive plan to increase the use of wind, solar, energy efficiency and DR in Texas. He hopes to significantly reduce the state's carbon emissions by 2030 through legislative and regulatory changes.

"ERCOT projects that within the next 10 years, Texas could be on track to achieve 40 to 50% wind and solar capacity on the grid," Hall said. "Storage is what would make that level of non-emitting capacity not just possible, but practicable. Its ability to address intermittency issues and ensure grid reliability is key to unlocking the potential of these energy resources."

There are also market realities, Steubing and Behar said.

Steubing said Recurrent has executed on a solar/storage product in California for a 180-MW battery. But, he pointed out, California has a storage mandate, and neighboring states have capacity markets that lend themselves to solar and storage.

"I'm not saying there's no value to storage, but not when we've seen customers motivated in states where they're obligated to capacity and energy requirements," he said.

"Between the solar and the wind, there's a good complementarity which makes the storage proposition more difficult. You can buy cheap wind and cheap solar when you need it," Behar said. "ERCOT is not the place we see [energy storage] happening." ■

— Tom Kleckner

ERCOT News

Texas PUC Briefs

PUC, ERCOT Set Real-time Co-optimization Workshops

Saying they want to move forward quickly with real-time co-optimization (RTC), Texas regulators approved a list of issues to be discussed during a summer workshop on the potential market change (Project *48540*).

ERCOT staff have said it will take four to five years and about $40 million to implement RTC, under which energy and ancillary services are procured simultaneously every five minutes in the real-time market to find the most cost-effective solutions for both.

"I want real-time co-optimization moving forward, the sooner the better," Public Utility Commission Chair DeAnn Walker said during the commission's open meeting Thursday. "We are hearing in my office that the more ERCOT's operations staff learns about real-time co-optimization, the more excited they're getting about the tools and benefits, as far as efficiencies not only in the market, but system efficiencies as well."

The commission is *asking stakeholders* to file written comments on what value to set as the systemwide offer cap, what value to set for lost load and which ancillary services should be used in developing ancillary service demand curves, among other issues.

The PUC is scheduling the workshop in early June.

ERCOT has already set up an RTC workshop for *Wednesday* at its Austin headquarters to "educate and engage" stakeholders and begin a discussion on policy principles.

Legal counsel Lino Mendiola (left) for Sharyland, Katie Coleman for Texas Industrial Energy Consumers and Matt Henry for Oncor discuss amendments to the PUC's preliminary order.

PUC Amends Preliminary Sempra-Sharyland Order

The commission adopted an *amended preliminary order* on proposed transactions involving Sempra Energy, its Oncor subsidiary, Sharyland Utilities and Sharyland Distribution & Transmission Services (Docket *48929*).

The order sets aside the prudence of investments in any assets for future rate cases and clears up inconsistencies involving allocation factors.

The applicants are seeking the PUC's approval for the $1.37 billion worth of transactions, which were announced in October. The deals would result in Sharyland T&D becoming an indirect, wholly owned subsidiary of Oncor, owning transmission and distribution lines in Central, North and West Texas. Sharyland Utilities would remain in South Texas, with Sempra owning an indirect 50% interest. (See *Sempra, Oncor Deals Target Texas Transmission*.)

A hearing on the merits is scheduled for April 10-12.

The PUC also:

- *approved* $369.2 million in AEP Texas system restoration costs stemming from Hurricane Harvey in 2017 (Docket *48577*); and
- *levied* a $68,000 administrative penalty against Southwestern Public Service for exceeding its system average interruption duration index value (Docket *48826*).

PUC, Gas Regulator Call for Coordination

The PUC and the Texas Railroad Commission (TRC) issued a *joint statement* last week describing their efforts to prepare for the summer months by guiding coordination among natural gas pipelines, gas-fueled power plants, and utilities that service the pipelines, plants and other customers. The TRC has jurisdiction over natural gas utilities.

The agencies urged companies to finalize their coordinated preparations for the summer, maintain clear lines of communication as the summer progresses and participate in ERCOT's *Gas-Electric Working Group*. Natural gas fuels about half the generation in ERCOT.

"Texas has more than enough natural gas to fuel power generation," TRC Chair Christi Craddick said. "We must make sure it can get where it's needed, when it is needed, and that requires coordination between gas pipelines companies, electric generation facilities and electric utilities."

PUC spokesman Andy Barlow said the agencies' goal is to "guide maintenance scheduling to reduce situations in which pipeline maintenance might interrupt the flow of gas to Texas gas-fired plants and/or electricity flow to pipeline facilities."

Texas Senate Confirms Commissioners

The Texas Senate on Wednesday unanimously confirmed all three commissioners, who were appointed by Gov. Greg Abbott between legislative sessions. The commissioners have been serving between eight and 17 months.

Commissioner Shelly Botkin's term expires on Sept. 1, with Walker's expiring in 2021 and Commissioner Arthur D'Andrea's in 2023. ■

— Tom Kleckner

ISO-NE News

FERC Accepts ISO-NE Storage Tariff Revisions

By Michael Kuser

FERC last week accepted rule changes broadening energy storage resources' ability to provide capacity, energy and ancillary services in ISO-NE's markets, effective April 1 (*ER19-84*).

The commission on Feb. 25 said the Tariff revisions, which were largely backed by the Energy Storage Association and include a new section devoted to electric storage, "enhance competition."

The commission declined to respond to ESA's complaints regarding how ISO-NE's plans to assign reserves to storage, saying it would deal with the issue in responding to the RTO's compliance filing with Order 841 (ER19-470).

Storage resources could face tougher requirements in some regions than in others under proposed tariff revisions filed by RTOs and ISOs in their Order 841 compliance filings in December. (See *RTOs/ISOs File FERC Order 841 Compliance Plans*.)

Issued last February, Order 841 set a Dec. 3, 2019, compliance deadline.

Storage Old and New

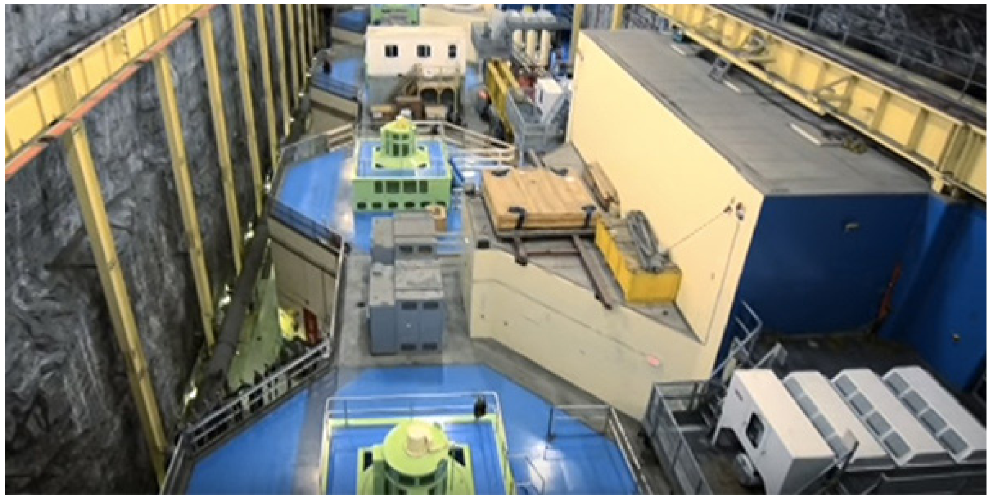
ISO-NE says it has 19 MW of battery storage already participating in its markets, with more than 800 MW in its interconnection queue and another 170 MW of proposed battery storage in the queue that would be co-located with wind and solar power projects.

The RTO noted that while it has limited experience with electric battery storage, the region has been home since the 1970s to nearly 2,000 MW of pumped-storage hydroelectric units. Pumped storage has participated in the region's wholesale electricity markets as two distinct asset types: a dispatchable generator asset that submits offers to supply energy and regulation, and a dispatchable asset-related demand (DARD) asset that submits bids to consume energy.

"The defining physical and operational characteristic of an electric storage resource is its ability to transition between consuming and injecting electric energy," the RTO said in its filing.

The new Tariff section (III.1.10.6) defines electric storage facilities as one of two types:

- Binary storage facility: a pumped-storage hydro unit that offers both its generator as-



FirstLight Power Resources owns the largest pumped-storage hydroelectric plant in New England, the 1,143-MW Northfield Mountain Project on the Connecticut River in Massachusetts.| *FirstLight Power Resources*

On-site storage | *ESA*

ISO-NE News

set and DARD in the energy market as rapid response pricing assets.

- Continuous storage facility, which the RTO explained in its Order 841 compliance filing "can transition seamlessly between charging and discharging." It must be registered as both a dispatchable generator asset and a DARD, with each registration representing the same equipment. It also may provide regulation and must be registered as an alternative technology regulation resource (ATRR). The ATRR construct, ISO-NE explained, allows continuous storage facilities to "provide regulation in a manner that permits them to take full advantage of their ability to follow a regulation signal that traverses all or part of their negative-to-positive range nearly instantaneously."

Sustainable for 1 Hour

The Northeast Power Coordinating Council mandates reserves be sustainable for at least one hour from the time of activation, which the RTO said can be met by traditional generators but can constrain limited energy resources such as continuous storage.

To comply with this standard, the RTO said it will automatically reduce the economic maximum limit of a continuous storage facility's generator asset when the facility has less than one hour of available energy remaining. If such a unit were at risk of running out of energy in less than one hour, ISO-NE's software will automatically adjust the unit's economic maximum limit to an output level that can be sustained for the hour.

ESA asserted that "the operational impact of the proposed Tariff implementation" is unjust and unreasonable because it prevents some electric storage from providing all the energy service of which it is technically capable.

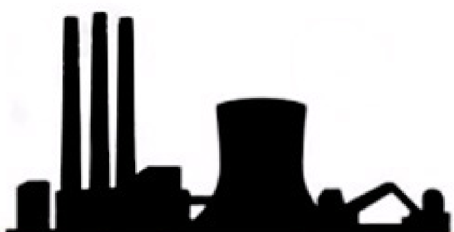
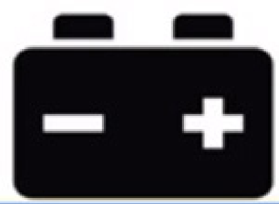
ISO-NE includes as reserve providers those generators that have dispatchable "headroom" above their current dispatch point and maximum output level and offline generators able to start up within 30 minutes.

The RTO said its Tariff revisions do not become unjust and unreasonable "simply because they may not facilitate a participant's efforts to maximize its revenues, as ESA suggests."

It also said ESA exaggerated the extent to which revenues would be impacted by redeclaration. The grid operator said it would not issue a dispatch instruction unless it could be followed for at least 15 minutes, and therefore "the figures that ESA provides are not entirely accurate."

The commission said ESA's concerns regarding the assignment of reserves were beyond the scope of the proceeding, noting that "what ESA describes as the 'automatic redeclaration process'" was referenced only in ISO-NE's transmittal letter and not the Tariff changes. It added the Tariff "already requires resources to update their operating limits in real time."

"To the extent that the practices described in ISO-NE's transmittal letter relate more generally to compliance with Order No. 841, we decline to address their merits in this proceeding," the commission said. "ESA has filed a motion to intervene and submitted comments addressing automatic redeclaration in [the Order 841] proceeding, which will be addressed there." ■

	Gas Peaker	Energy Storage
Range	~80% of capacity--minimum operational limits	200% of capacity--can act as supply or demand
Utilization	Low--only to meet peak demand or emergencies	High--simultaneous grid services
Dispatch time	Minutes	Seconds
Standby	Costs and emissions	No costs or direct emissions

| *ESA*

ISO-NE News

FERC Drops Salem Harbor 'False Offer' Case

By Rich Heidorn Jr.

FERC has ended its enforcement action against the operators of the Salem Harbor Power Station, dropping allegations that plant operators made supply offers in ISO-NE that they could not meet because of insufficient fuel.

The commission's Feb. 25 order approved the Office of Enforcement's recommendation last summer that FERC withdraw its Order to Show Cause against plant owner Footprint Power (*IN18-7*). (See *FERC Walks Back Salem Harbor Manipulation Case*.)

Enforcement had sought to force Footprint Power to disgorge more than $2 million in capacity payments that Salem Harbor Unit 4 received for a period in June and July 2013 during which the commission said the plant's fuel supply prevented it from operating at its offered capacity. The office also had sought $4.2 million in civil penalties.

Staff recommended dropping the matter based on Footprint's arguments that FERC had failed to consider the 17.5 hours it took Salem Unit 4 to reach full output from a cold start.

The company made its argument in its response to the Order to Show Cause, saying: "The commission should terminate this misguided investigation, just as it terminated the 200-plus other referrals the ISO-NE Internal Market Monitor made during this same time frame."

Enforcement staff told the commission they still believed that Footprint violated ISO-NE Tariff provisions and regulations in its day-ahead limited energy generator (LEG) offers from July 18 to July 25, 2013. But they recommended the commission vacate the Order to Show Cause and not assess a penalty because the reduced scope of the violations lessened the impact on the market.

In Footprint's Sept. 26 reply to Enforcement's concession, the company denied the office's allegations regarding the July offers.

"In light of the submissions made by Footprint and OE litigation staff, as well as OE litigation staff's recommendation not to pursue the remaining alleged violations, we terminate the proceeding in this docket," the commission said in ending the case. "In doing so, the commission makes no findings of fact or conclusions of law concerning the merits of any issues in the proceeding, either procedural or substantive."

Footprint's lead attorney, John N. Estes III of Skadden, Arps, Slate, Meagher & Flom, declined to comment.

"Our policy is not to comment on FERC investigations," ISO-NE spokeswoman Marcia Blomberg said. ■

Salem Harbor Power Plant | *Tetra Tech*

ISO-NE News

NEPOOL Seeks Rehearing of Press Ban Order

By Rich Heidorn Jr.

The New England Power Pool indicated Thursday it won't let reporters into its meetings without a fight, asking FERC to reconsider its order rejecting the group's press ban.

The commission ruled unanimously Jan. 29 that it had jurisdiction over NEPOOL's membership rules and that barring journalists from joining was unduly discriminatory (*ER18-2208-001*). (See *FERC Rejects NEPOOL Press Membership Ban*.)

FERC said it would rule separately on *RTO Insider*'s complaint under Section 206 of the Federal Power Act asking the commission to terminate the group's stakeholder role or direct ISO-NE to adopt an open stakeholder process like those used by other RTOs (EL18-196). New England is the only one of the seven U.S. regions served by RTOs or ISOs where the press and public are prohibited from attending stakeholder meetings.

The stakeholder group sought to amend the NEPOOL Agreement to bar members of the press from membership after *RTO Insider* reporter Michael Kuser, an electric ratepayer in Vermont, applied to join as an End User in March 2018.

In its *request for rehearing* or clarification, NEPOOL contended that "the commission's jurisdictional determination not only lacks sufficient explanation, but its conclusion that the membership provisions are jurisdictional is potentially limitless in scope.

"Under these circumstances and given the issues pending before the commission in the complaint proceeding in Docket No. EL18-196, NEPOOL files this request to preserve its rights until the commission provides clarity and explanation for its decision to exercise jurisdiction over the membership arrangements of an entity that does not provide wholesale power or transmission service to any customer," the organization continued.

The commission's order rejected NEPOOL's contention that its membership provisions were not FERC-jurisdictional, concluding that "they directly affect commission-jurisdictional rates."

NEPOOL said FERC's ruling cited as precedent only "one factually dissimilar case … and provides no explanation as to how the cited precedent supports the commission's jurisdictional claims."

The case cited was a 2016 ruling involving PJM in which the commission found that the RTO stakeholder process is "a practice that affects the setting of rates, terms and conditions of jurisdictional services." The commission made the filing in rejecting rehearing of an order approving PJM's funding of the Consumer Advocates of the PJM States. (See *FERC Upholds PJM Advocates' Funding*.)

"Without an explanation of how and why *PJM* is relevant to the treatment of NEPOOL's membership amendments, the January order fails to meet the commission's obligation to carry out reasoned decision-making," NEPOOL said. "NEPOOL requests that the commission further articulate the basis for its conclusion that the membership amendments are jurisdictional. As it stands, the January order could be read to sweep virtually any NEPOOL practice, procedure or protocol under commission jurisdiction, no matter how tangential to rates, terms or conditions of jurisdictional service."

NEPOOL said the commission's reasoning was "similar to the expansive view of its jurisdiction that was rejected" by the D.C. Circuit Court of Appeals in its 2004 CAISO ruling.

In that case, the court rejected FERC's attempt to replace CAISO's Board of Governors, ruling that the commission "does not have the authority to reform and regulate the governing body of a public utility under the theory that corporate governance constitutes a 'practice' for ratemaking authority purposes."

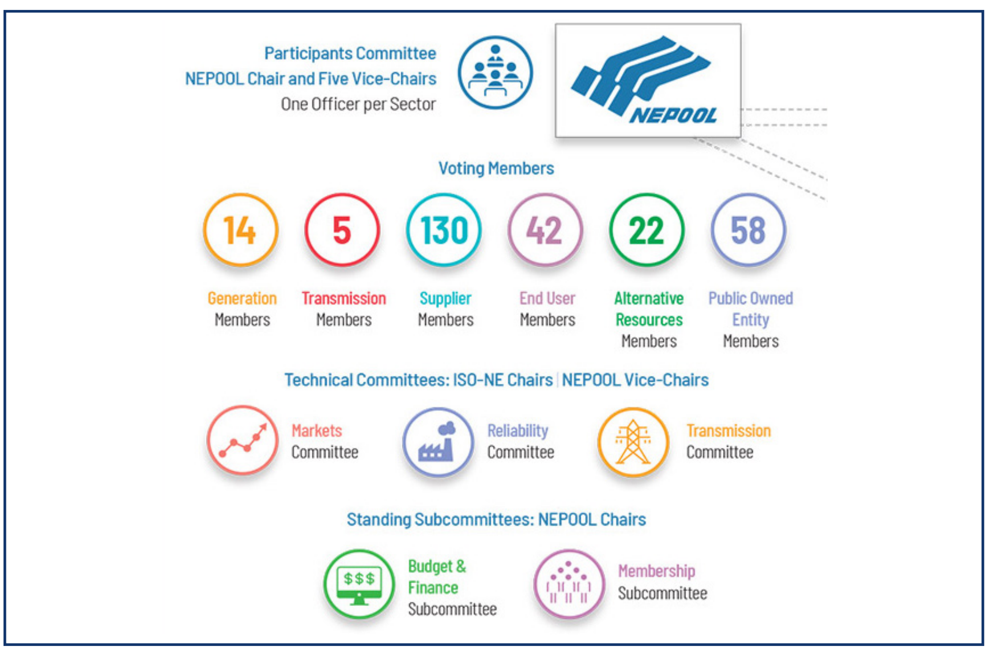
Membership Pending

NEPOOL's rehearing request comes two weeks after its Membership Committee *recommended* to the Participants Committee that Kuser be granted membership. The Participants Committee has listed the issue on the *agenda* for its next meeting, March 13.

In addition to seeking to change its Agreement to bar press from membership, NEPOOL last year also amended the Participants Committee bylaws to limit the ability of meeting participants to share what they've heard.

The new language — which was not submitted for FERC approval — states that: "Attendees may use the information received in discussion, and may share the information received within their respective organizations or with those they represent, provided those who receive such communications are not press and also are aware of and agree to respect the nonpublic nature of the information. In no event may attendees reveal publicly the identity or the affiliation (other than sector affiliation) of those participating in meeting discussions."

The commission's January order left that prohibition intact. ■



NEPOOL Participants Committee | *NEPOOL*

MISO News

MISO MEP Cost Allocation Plan Goes to FERC

By Amanda Durish Cook

MISO and a majority of its transmission owners last week filed a new cost allocation plan with FERC that would change the way the RTO allocates costs for its market efficiency projects (MEPs).

The proposal applies to MISO's 2019 Transmission Expansion Plan and includes MISO South, which saw its five-year transmission cost-sharing moratorium expire at the end of 2018.

The 622-page filing includes proposals to lower the voltage threshold for MEPs from 345 kV to 230 kV and eliminate a 20% footprint-wide postage-stamp cost allocation method for projects. It will also create two new project benefit metrics: the value of deferred or avoided reliability transmission projects, and the value of reducing power flows on the contract path on shared transmission from MISO Midwest to South (*ER19-1124, ER19-1125*).

The proposal additionally creates a new category for economic projects below 230 kV and above 100 kV where 100% of costs would be allocated to the local transmission pricing zone. Such projects were previously categorized as "other" transmission projects without clear allocation rules.

MISO said the proposal was "extensively vetted" through its stakeholder process for more than three years. It noted that the package creates "additional opportunities for the identification and approval of market efficiency projects and greater precision in cost allocation for such projects, and formalizes the process for development of locally based economically beneficial projects."

The RTO told FERC that the lower voltage threshold will likely result in more MEPs and, by extension, more opportunities to bid projects under the competitive transmission process. Because of the expected uptick in activity, MISO also proposed a limited exception to the competitive selection process for MEPs that can also demonstrate an immediate reliability need. The exception would only apply when a lengthy bid selection process would push a project's in-service date past the expected reliability need date, MISO said, urging the commission to accept the provision, because it had approved similar selection exceptions in three other RTOs.

More Benefit Metrics?

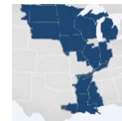
MISO last year opened the door to the two new benefit metrics on MEPs besides the usual adjusted production costs; last month staff signaled willingness to add even more benefit metrics to the list this year.

At the February Planning Subcommittee meeting, MISO planning coordinator Adam Solomon said the RTO and stakeholders will likely begin with ideas that didn't make the cut last year, including increased capacity import and export limits, reduced congestion from fewer transmission outages, reduced transmission losses and the ability of a project to boost grid resilience.

MISO will work with stakeholders to identify new benefit metrics to pursue during the first half of the year and then determine how to quantify them during the second half. The work could culminate in a FERC filing by the end of the 2019. ■

| MISO

MISO NEWS



MISO Reliability Subcommittee Briefs

MISO Researching Generation Cutoffs, Voluntary Load Curtailment

CARMEL, Ind. — In the wake of its January grid emergency, MISO has pledged to further study generation cutoffs in extreme temperatures and how it can best account for voluntary load curtailments in load forecasting.

MISO said its Jan. 30-31 emergency was in part triggered by a greater-than-expected drop in wind generation, with emergency demand difficult to predict as schools and businesses closed for the day and millions of energy consumers lowered their thermostats during the event in response to utility requests. (See *MISO Details 'Uncertainty' Behind Winter Max Gen Event*.)

MISO said temperatures in its North region were more than 6 degrees Fahrenheit below those during the 2014 polar vortex. Forced outages surpassed 20 GW, while total outages and derates took more than 35 GW of generation offline. Although the RTO didn't call on its neighbors for imports, its higher emergency prices attracted more than 5 GW of imports. Over the two days, the RTO exceeded $18 million in uplift charges, on par with other severe cold snaps. Load-modifying resource (LMR) use peaked at almost 3.9 GW on Jan. 30.

"Basically, it was unprecedently cold in MISO," Director of Central Region Operations Ron Arness said during a Reliability Subcommittee meeting Wednesday. "Temperatures were colder than any since the existence of MISO, and we suspect that's why wind generation was cutting off. … Even though the temperatures are abnormal, we should have this cutoff information so we can make good assessments about what generation is forecasted for the next day."

Arness said MISO will gather operating parameters to determine what generating resources must switch off in response to temperature thresholds and establish a load forecast variable that includes known voluntary load curtailment.

He added that quantifying voluntary curtailment is "a difficult thing to do, but one that MISO will look at nevertheless."

Grid Strategies' Michael Goggin, representing the American Wind Energy Association, said that while there were cold-weather wind cutoffs, large amounts of imported wind from PJM into MISO helped alleviate the emergency. He also said wind generation in Michigan helped to cover Consumers Energy's gas supply issues following a *fire* at a compressor station.

Goggin also said it "makes perfect sense" for MISO to keep an account of the operating cutoffs across all classes of generation.

"I think once they do that, they won't have an issue," Goggin said in a telephone interview with *RTO Insider*.

He added that significant outages across all MISO resource types on Jan. 30 were a "much larger factor" than the missed wind forecast.

"There's just a lot of equipment failures across all resources when you have temperatures this extreme," he said.

As with past emergencies, some LMRs did not respond or verify availability in MISO's communication system, Arness said. The RTO will hold training for LMR owners on how to navigate its system April 23-24 and again May 21-22 in anticipation of its summer peak.

As expected, MISO's January operations *report* reflected the extreme cold and emergency declaration on the last two days of the month. The RTO's peak load of 101 GW occurred on Jan. 30.

MISO also hit a new record wind output peak of 16.3 GW on Jan. 8, besting the previous record of 15.6 GW from March 31, 2018.

MISO to Work Through 2-Hour LMR Notification

MISO plans to work with stakeholders to determine how it will provide two-hour notice to LMRs called up to respond to emergency conditions.

FERC last month accepted MISO's stricter LMR rules with a caveat that the RTO revise its pledge to give a two-hour notice to resources prior to calling or canceling emergency action. The commission told the RTO to clarify language so it either calls or cancels an emergency declaration at least two hours ahead of the start of the actual emergency. MISO had promised the two-hour notice prior to the start of scheduling instructions to LMRs, which FERC said contradicted other language in the proposal that referenced the start of emergency conditions, not scheduling instructions. (See *MISO LMR Capacity Rules Get FERC Approval*.)

Customized Energy Solutions' Ted Kuhn asked how long LMRs are on the hook under the two-hour warning should MISO need to shift the emergency declaration to a later time.

"You just need to make sure it's clear how long they have to be available. It's not an indefinite; it needs to be [a fixed time period]," Kuhn said.

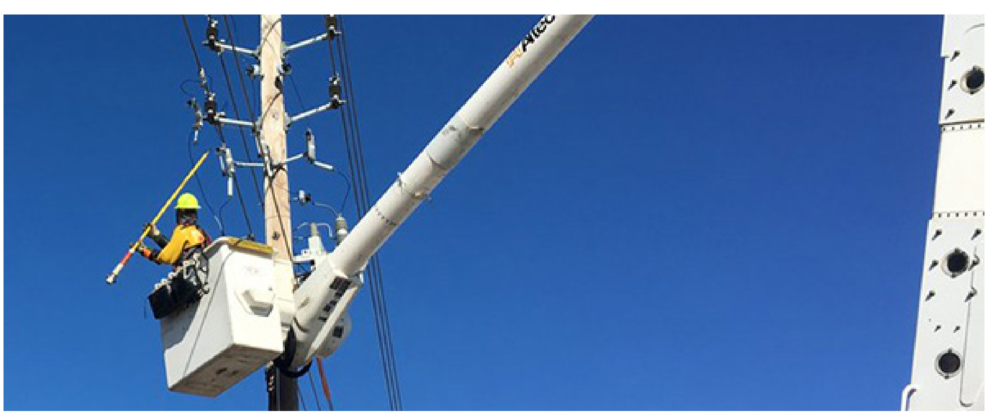
MISO staff said it was extremely unlikely that the RTO would continuously delay an emergency declaration over several hours, but it may need a little flexibility as it monitors possible maximum generation events.

"The timing of the peak is not a fixed thing. It could come earlier; it could come later," said Dustin Grethen, MISO market design adviser.

"The two-hour notification is just that: making sure if they have someone drive out to flip the switch, they're driving at the right time," MISO Director of Resource Adequacy Coordination Laura Rauch said.

The RTO will discuss the filing amendment with stakeholders during this month's Resource Adequacy Subcommittee meeting. ■

— Amanda Durish Cook



IPL crews restoring power Jan. 31 | *Indianapolis Power and Light*

MISO News

MISO to Extend Louisiana SSR Agreement

By Amanda Durish Cook

MISO will keep a system support resource agreement in MISO South intact for another few months while it awaits completion of an area transmission project.

MISO signed the SSR agreement after Cleco announced in 2016 it would retire Teche Unit 3, a 335-MW natural gas-fired generator in Baldwin, La., on April 1, 2017.

The continued operation of the nearly 50-year-old plant mitigates the risk of a cascading trip and voltage instability on a nearby 138-kV line. The reliability issue is set to be resolved by Cleco and Entergy Louisiana's Terrebonne-to-Bayou Vista 230-kV joint transmission *project*, still under construction.

During an annual review of the SSR agreement on Feb. 26, MISO staff said they found no changes in study conditions and could not identify an alternative to the agreement while the region waits for the new line.

Tung Nguyen, of MISO's system planning department, said the RTO will likely need to extend the SSR from April 1 to about June 30 while the companies finish the line, and it may add provisions for early termination.

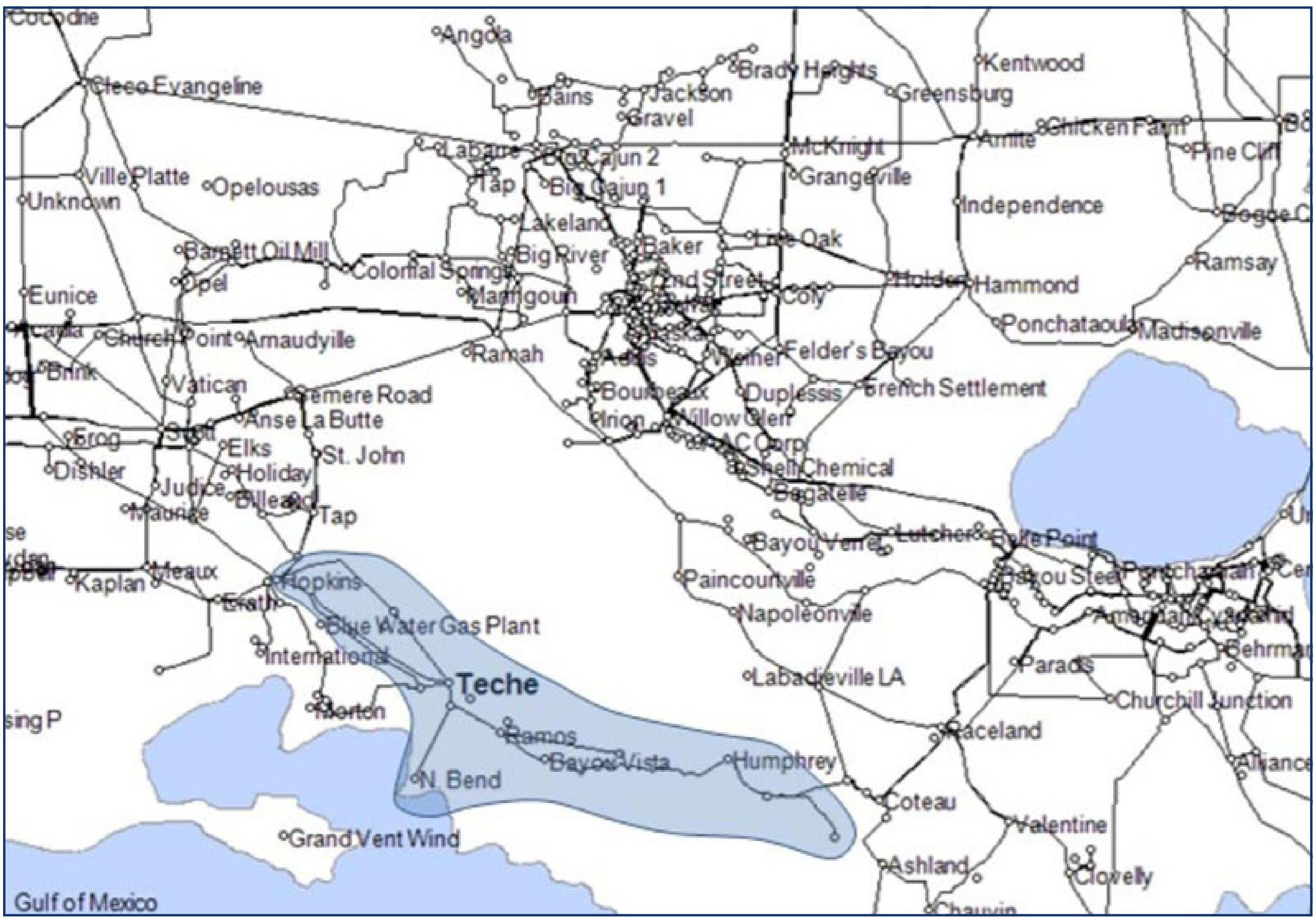
"MISO and Cleco will continue negotiation of the renewal SSR agreement," Nguyen told stakeholders during the conference call.

The Terrebonne-Bayou Vista project was slated to be completed in early 2019, but Cleco and Entergy encountered delays in securing permits to build the line. Nguyen said MISO doesn't anticipate any further delays.

FERC last week approved an uncontested settlement setting the payment terms for the SSR (*ER19-318*).

Under the settlement, Cleco will be paid $1.57 million monthly for April 1, 2017, to March 31, 2018, and $890,000 per month under a second agreement running through March 31, 2019. Cleco had initially proposed a monthly payment of $1.69 million for the first contract and $981,000 for the second.

Agreeing to the settlement were MISO; Entergy; Louisiana Energy and Power Authority; NRG Power Marketing; GenOn Energy Management; the Louisiana Public Service Commission; and Lafayette Utilities System. ■



Teche load pocket | *MISO*

MISO News

FERC: No Merit in MISO Deliverability Complaint

By Amanda Durish Cook

FERC has rejected a trade group's complaint that MISO is improperly accounting for the deliverability of some capacity resources, saying it could find no Tariff language to support a violation.

The commission on Thursday said MISO isn't in violation of its resource adequacy construct over capacity deliverability as the Coalition of Midwest Power Producers (COMPP) alleged late last year (*EL19-28*).

Rather than finding any Tariff provisions that evidenced violation, FERC said that MISO is "responsible for determining whether ... capacity resources are deliverable to load."

"Although power producers contend that 'deliverable to load' should be read to mean that capacity resources must have firm transmission service up to their full installed capacity levels, power producers fail to identify any Tariff provisions that support this assertion," FERC said.

The commission also said COMPP didn't demonstrate that MISO's current practice jeopardizes reliability.

| MISO

COMPP's complaint alleged that MISO doesn't properly account for capacity deliverability because its loss-of-load expectation (LOLE) study assumes that all capacity resources are fully deliverable on an installed capacity (ICAP) basis. However, the RTO allows resources to demonstrate deliverability only up to the unforced capacity (UCAP) levels, which tend to be about 5 to 10% below full ICAP levels. The group said MISO's megawatt count from deliverable resources comes up short annually and drives down payments to capacity resources demonstrably positioned to deliver on their obligations. COMPP asked FERC to direct MISO to develop a solution to comply with its Tariff before the 2019/20 capacity auction. (See *Trade Group Lodges Complaint over MISO Capacity Rules*.)

MISO's Tariff requires capacity resources to demonstrate deliverability either by having network resource interconnection service (NRIS), which stipulates that the entire ICAP of the resources must be deliverable, or by having energy resource interconnection service (ERIS) and procuring firm transmission service up its UCAP level.

No Discriminatory Treatment

In response to the complaint, MISO said it doesn't hold capacity resources to different standards because it doesn't require NRIS resources to perform to ICAP levels, instead requiring both to demonstrate deliverability up to their UCAP levels for the purposes of the capacity auction.

FERC agreed. "As described in its resource adequacy Business Practices Manual, MISO calculates the [UCAP] level of a resource by first determining its [ICAP] level. Once the [ICAP] value is determined, MISO applies the resource's forced outage rate, thereby converting the [ICAP] level to a lower [UCAP] level. Next, MISO validates that the resource is deliverable by having the resource demonstrate deliverability up to its [UCAP] level," FERC said.

The commission also said UCAP values are a vital part of MISO's resource adequacy construct, with even the reserve margin formed as an "unforced capacity requirement."

"Given the consistent use of unforced capacity values for purposes of resource adequacy in ... its Tariff, we find that MISO reasonably implemented [its Tariff] by requiring capacity resources with ERIS to demonstrate deliverability up to their unforced capacity levels," FERC said.

MISO said COMPP mischaracterized its Tariff "process improvements" discussions with the Independent Market Monitor as "admissions of Tariff violations." The RTO has promised to have stakeholder discussions about resource deliverability and LOLE implications, with any potential fixes aimed at the 2020/21 capacity auction. (See "Capacity Auction Recommendations," *MISO Concurs with Monitor Ideas, Pledges More Study*.) It said there was no evidence it violated Tariff provisions establishing a planning margin, the LOLE study methodology to create the planning margin or its duty to ensure the deliverability of capacity resources. MISO also said working on a rule change less than a month before the April capacity auction would seriously disrupt the auction.

At any rate, transmission deliverability is outside the scope of its LOLE analysis because the study assumes no internal transmission constraints, MISO added.

However, the Monitor had asked FERC to side with COMPP, agreeing that "the terms of the Tariff result in a mismatch for some ERIS resources between the capacity assumed to be available in the LOLE studies and the capacity those suppliers can actually deliver." But the Organization of MISO States urged FERC to hold off on ordering relief so the RTO could continue to address the issue through ongoing stakeholder discussions.

'False Sense of Urgency'

MISO said the complaint created a "false sense of urgency" by implying that its recent emergency events had anything to do with capacity deliverability. To the contrary, MISO said the events "have been driven largely by correlated planned outages and the use of emergency-only resources outside of the summer season."

The RTO also argued that the power producers represented by COMPP are not prevented from auction participation nor are they suffering harm from MISO's existing rules. It also said COMPP should have first sought dispute resolution with MISO. Finally, MISO alleged the complaint only sought to "disqualify 1,400 MW of generation owned by other auction participants to gain a competitive advantage." The Monitor last year said as much as 1,400 MW worth of capacity resources needed to meet reserve requirements may not have been deliverable in the 2018/19 planning year. ■

MISO News

MISO, SPP Seek Coordinated Plan in 2019

Could Result in 1st Interregional Tx Project

By Amanda Durish Cook

SPP and MISO staff and stakeholders recommended performing a coordinated system plan in 2019-20 that will study six possible sites for interregional transmission projects.

The RTOs announced the recommendation during their Feb. 26 Interregional Planning Stakeholder Advisory Committee meeting, which served as their annual *review* of congestion issues.

MISO Expansion Planning Engineer Ben Stearney said both "staffs are fully in support" of the study, which was approved by stakeholders on the conference call.

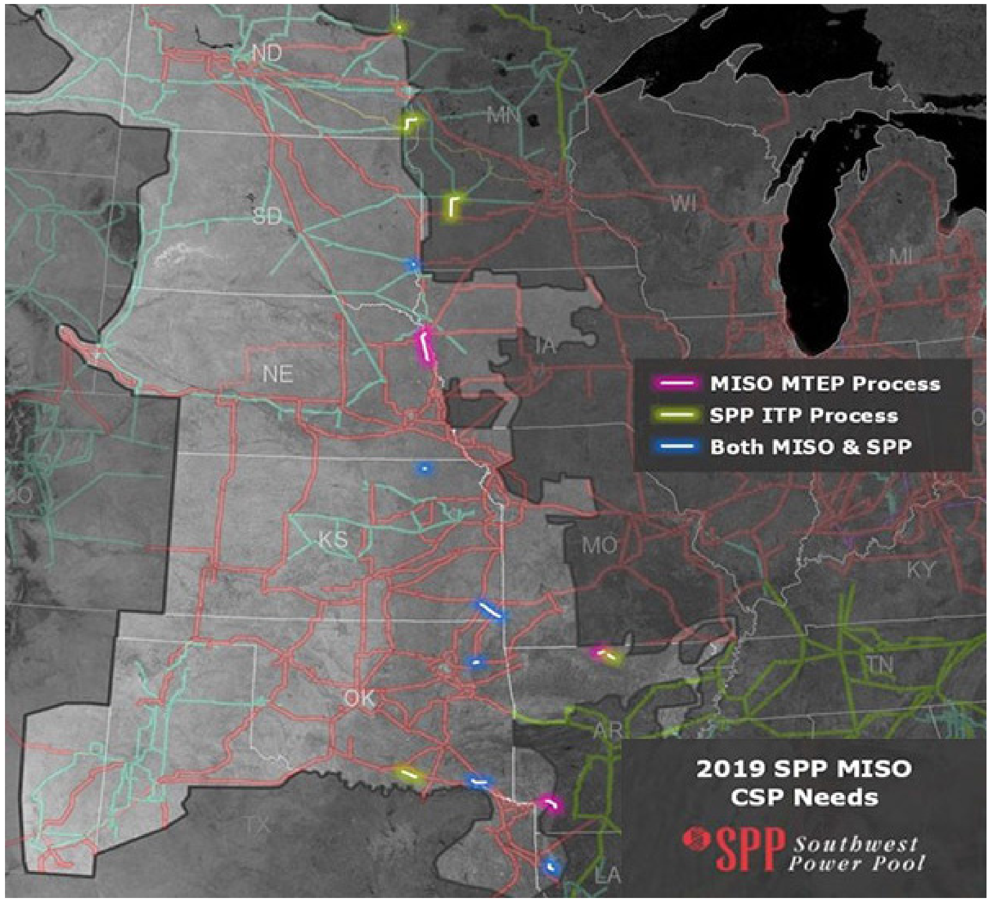
The recommendation still needs approval from the MISO-SPP Joint Planning Committee, which is composed of planning staff from both RTOs. The committee will meet sometime in March to hold the vote. If the JPC approves, the RTOs will begin working on building the scope of the CSP.

The study could result in a first-ever interregional transmission project for the RTOs, which conducted CSP and regional reviews in 2014 and 2016 but were unable to reach an agreement on any projects.

So far, the RTOs' studies show that they may need transmission projects along multiple spots near their southern seam in addition to a location on the South Dakota-Iowa border.

The six possibilities for joint economic projects are:

- The Neosho-Riverton 161-kV line on the Kansas-Missouri border, which also appeared in the RTOs' 2016-17 CSP study;
- A circuit on the Kerr-Maid 161-kV double-circuit line in northeast Oklahoma, needed for west-to-east bulk transfers;
- The 138-kV South Shreveport-Wallace Lake line in northwest Louisiana, where the area is experiencing load growth;
- The 345-kV Hugo-Valliant line in southern Oklahoma, the loss of which causes overloads on the nearby 138-kV system;
- A 230-kV line in Sioux City, where MISO predicts that growing wind generation in South Dakota will drive up north-to-south flows; and



| SPP

- The 115-kV Marshall-Smittyville line in northern Kansas, needed as a generation corridor.

If approved, the CSP would be the first in which MISO and SPP rely on their individual regional processes instead of a joint model to evaluate potential transmission projects.

Some stakeholders asked MISO and SPP for a special study of the seam's most expensive flowgates to see if the RTOs could identify needs that the separate regional processes might be missing. A few said some of the most costly flowgates don't seem to be captured in the models.

But MISO and SPP staff said a special joint study would introduce more hurdles and negate last year's decision that the joint model was too cumbersome and ineffective at identifying projects. "To me that was part of the decision-making in 2018 that led to where we are … that we won't do anything separate and one-off," SPP's Adam Bell said.

"I support the study, but I disagree with what we're looking at," said Omaha Public Power District's Josh Verzal, one of the stakeholders who criticized the RTOs for not taking stakeholder-submitted project needs seriously enough.

The RTOs plan to make a FERC filing soon seeking approval for interregional process changes they agreed to last year. In addition to doing away with the joint model, they also agreed to eliminate a $5 million cost threshold for projects, add avoided costs and adjusted production cost benefits to project evaluation, and make CSP studies a more regular occurrence.

In late January, the RTOs said stakeholders and staff support an annual joint study of interregional transmission projects. Currently, their CSP is not mandated annually. (See *MISO, SPP Pushing for Annual Joint Studies*.) ■

NYISO News

NYISO Management Committee Briefs

AC Public Policy Tx Projects near Approval

RENSSELAER, N.Y. — NYISO stakeholders on Wednesday concluded an unusually lengthy public policy transmission planning process and reviewed a revised *report* and new analysis for selection of two AC transmission projects to improve transfer capability into the New York City area.

The new analysis by ISO staff followed a December decision by the Board of Directors to decline the Management Committee's recommendation to build Project T029 — a standard 345-kV line from Knickerbocker to Pleasant Valley — on Segment B, a section of the grid feeding the Upstate New York/Southeast New York (UPNY/SENY) electrical interface. (See *NYISO Board Partially Reverses AC Tx Project Selection*.)

ISO staff are now recommending Project T019, as is the board, saying it has the highest incremental UPNY/SENY transfer capability, which results in the lowest cost-per-megawatt ratio, highest production cost savings, greatest CO2 emissions savings and highest Installed Capacity (ICAP) savings of the Segment B projects, Zach Smith, vice president for system and resource planning, told the committee.

The board did not object to the committee's selection of Project T027, a double-circuit 345-kV line from Edic to New Scotland for Segment A, which feeds the Central East interface.

Advised by consultant Substation Engineering Co., NYISO reviewed seven proposals for Segment A and six for Segment B before making their choices last June. (See *NYISO MC Supports AC Transmission Projects*.)

Project T019 was proposed by National Grid's Niagara Mohawk Power and NY Transco, while North America Transmission (NAT) and the New York Power Authority together proposed both projects T027 and T029.

Cost estimates for both NAT/NYPA projects ranged from $900 million to $1.1 billion. The estimated capital costs for T027 and T019 are higher, at $1.2 billion, but the project is made more cost-effective by the up to 550 MW of additional N-1 emergency transfer capability provided on UPNY/SENY by T019, Smith said.

The ISO estimates the two AC transmission projects, if approved by the board this month, will be in service by December 2023.

Process Matters

FERC last month approved NYISO's proposed Tariff revisions "to clarify, streamline and enhance" its public policy transmission planning process, including a provision to hold a technical conference prior to issuing a solicitation on a public policy transmission need (PPTN). Another provision removes a requirement that the ISO wait to evaluate and select a project until the New York Public Service Commission issues an order confirming a PPTN (*ER19-528*). (See *NYISO Public Policy Tx Revisions Approved*.)

Lawrence Willick of LS Power said the incremental benefits of T019 do not justify the incremental costs, but New York Transco General Counsel Kathleen Carrigan said the ISO on two occasions (including with the selection of T027 for Segment A in the AC Transmission PPTN and for the Western New York PPTN) has recommended projects with higher capital costs to be selected as the most efficient or cost-effective solution to satisfy a PPTN. In both cases, she said, the higher capital costs correlated to significantly greater benefits to the statewide electric system than the lower-cost alternative proposals. She contended that the ISO should take a similar approach in its recommendation for Segment B as well.

| NYPA

Several stakeholders requested an opportunity to address the board, and LS Power and NY Transco will make oral presentations on March 18, one day before the board meets, interim NYISO CEO Rob Fernandez said.

"We only wish to present if LS Power presents — if they don't, we don't," Carrigan said. Fernandez responded that the ISO would work out the details soon. Comments on the PPTN review were due Friday.

Stakeholders in January informed the ISO of a modeling error in the analyses, specifically that the impedance data had been transposed for the New Scotland-Knickerbocker and Knickerbocker-Alps 345-kV projects.

"We corrected the impedance and confirmed it with the developers," Smith said. "The ISO also revised its dispatch methodology after the board said it created a perception of a constraint. The board requested we dive a little deeper into operability analysis."

Specifically, the impedance data correction impacted the UPNY/SENY limit, he said. For T019, the incremental UPNY–SENY emergency transfer capability decreased from the previously calculated level of 2,100 MW to 1,850 MW. For T029, the data correction caused the incremental emergency transfer capability to increase from 1,150 MW to 1,300 MW.

Additional analysis also included a "sensitivity" in which the G–J Locality is eliminated and a new H–J Locality is created.

"The capacity scenario should be eliminated as being more misleading than useful," said Mark Younger of Hudson Energy Economics, which helped the Independent Power Producers of New York submit *comments* on the analysis. IPPNY took no position on the board's PPTN project selection.

Younger said it was unreasonable to assume capacity could be replaced in the more densely populated areas of Zones H and I for the same price as in the more rural Zone G, and that it was also impossible that the market would not

NYISO News

respond to stopping payments to resources based on their locational value. He also noted that NYISO's own analysis in the study showed that there continues to be a need for capacity in Zone G.

Entry and Exit Modeling

"One of the things that limits the benefits from the recommended projects is limited transfer capability south of the projects, so future increases in transfer capability south of these projects could lead to substantial additional benefits," said Pallas LeeVanSchaick of Potomac Economics, the ISO's Market Monitoring Unit.

"At the same time, if the PSC relies more on offshore wind than upstate renewables to achieve the goals of the Clean Energy Standard, then it would tend to reduce the benefits," so the location and amount of intermittent renewables is in flux, he said in summarizing his *report's* conclusions.

NYISO's public policy transmission planning process calls for the Monitor to review and consider the impacts on the ISO's markets.

The Monitor made several recommendations for improvement, but LeeVanSchaick particularly highlighted one: to model entry and exit decisions for generators in a manner consistent with the expected competitive market outcomes.

Ranking	Project ID	Developer Name	Project Name
1	T019	National Grid / Transco	New York Energy Solution Seg. B
2	T029	North America Transmission / NYPA	Segment B Base
3	T023	NextEra Energy Transmission New York	Enterprise Line: Segment B-Alt
4	T022	NextEra Energy Transmission New York	Enterprise Line: Segment B
5	T030	North America Transmission / NYPA	Segment B Enhanced
6	T032	ITC New York Development	16NYPP1-1B AC Transmission

The ISO estimates the two AC transmission projects, if approved by the board in March, to be in service by December 2023. | *NYISO*

"If the ISO could incorporate entry and exit scenarios into its modeling, that would be very useful for ensuring the scenarios provide a realistic picture of the future benefits of the projects," he said.

Marc Montalvo of Daymark Energy Advisors, representing the New York Department of State's Utility Intervention Unit, said the UIU was concerned, as were several other stakeholders, about the qualitative measures being applied and decisions being reached in a different way from the MC's understanding during its serious deliberations.

"We ought to make sure we are not creating a process that gives developers pause," Montalvo said. "Given how much time and energy on behalf of the developers goes into the process, the last thing we want to see is a lack of confidence ... whereby developers might choose not to participate, reducing the efficiency of market outcomes and possibly harming consumers." ■

— Michael Kuser

NYISO News

NYISO Commissions New Social Cost of Carbon Study

Continued from page 1

announced more aggressive policy goals and (c) identify any complementary benefits that might have been overlooked in the scope of the Brattle study," Dewey said.

Dewey's surprise announcement came near the end of a meeting devoted to new Tariff rules on carbon emissions and pricing. Stakeholders had begun to push ISO staffers to explain the timeline ahead of an anticipated vote on carbon pricing in the second quarter and describe exactly how the grid operator is learning whether the state supports their efforts.

"We all recognized when we started that this was new ground, uncharted territory," Dewey said, indicating that the ISO would not present a carbon pricing package to FERC without state support. "We're not going to take a vote and put forth a [Federal Power Act Section] 205 filing without state support. ... We're not going to ram through a vote by June without all on board."

Howard Fromer, director of market policy for PSEG Power New York, said timing is critical.

"While we are figuring out how to price carbon, the state is moving forward with significant implementation of its policies," Fromer said. "Renewables, a host of storage solicitations and draft air emission regulations were just issued for comment that impact over 3,000 MW of peakers in the New York City-Long Island area, all affecting how the market responds and thinks about what's happening. We can't wait too long to decide on how to act."

Mark Reeder, representing the Alliance for Clean Energy New York, said, "The only thing we can affect is whether or not to have a carbon price, not whether or not the state's environmental goals are admirable."

Filling the Gaps

A task force created in October 2017 by NYISO and the New York Public Service Commission worked for more than a year developing a proposal to price carbon into wholesale markets. In December, it turned the proposal and final details over to the ISO's stakeholder process. (See *IPPTF Hands off Carbon Pricing Proposal to NYISO*.)

"What we worked on in our stakeholder process is to get to a package that people are comfortable with, and at the end of March we'll know what are the gaps," Dewey said.

He added that the contract with Analysis Group is not meant to undermine the initial analysis done by Brattle, but "to look at unmonetized benefits," whether in public health or other areas. The ISO will post details of the study as soon as possible, he said.

Couch White attorney Michael Mager, who represents Multiple Intervenors, a coalition of large industrial, commercial and institutional energy customers, said he had no issues with the decision to conduct another study on the impacts of carbon pricing, but he was critical of the ISO's decision to commission the study without even consulting stakeholders on the decision and, in particular, on the scope of the study.

Before Dewey's announcement, Mager said, "It might be helpful to get a list of what the ISO considers to be open issues. Right now we have no clarity, and we want to understand the [carbon pricing] proposal on a comprehensive basis and go back to our clients."

"We want more than silence from the state; we need a positive statement of support, at least when we go to FERC," said Luthin Associates' Aaron Breidenbaugh, representing Consumer Power Advocates, an unincorporated group of nonprofit institutional customers.

Breidenbaugh said his clients already have uncertainties regarding subsidies, questioning how the state would structure thousands of megawatts of renewable energy contracts and whether the contracts will reflect carbon pricing effects or be layered atop them. He said they are "profoundly skeptical" about carbon pricing, especially in the context of a potential carbon tax being imposed by the state.

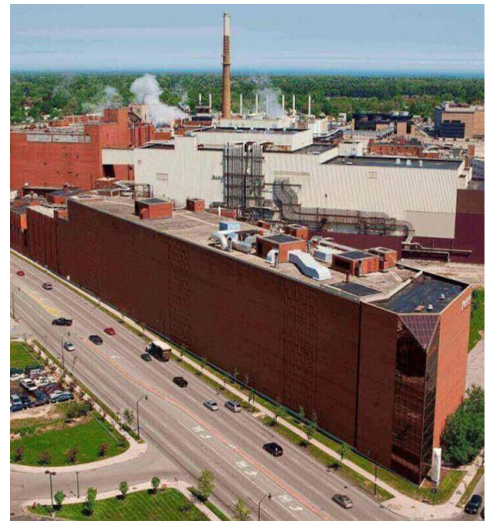
NYISO will discuss Tariff revisions and price calculation — specifically identifying marginal units — on March 18, and Tariff revisions again on March 28.

There will likely be at least one more meeting after that, said Nicole Bouchez, NYISO's principal economist.

Tariff Terms, Penalties

NYISO on Thursday also *proposed* new Tariff sections to describe carbon charges, payments and residual allocation.

The ISO requires new Tariff definitions of carbon emissions and the cost of such emissions to effectuate carbon pricing, said Ethan D.



Rochester Energy Storage Hub | *NY-BEST*

Avallone, an ISO senior energy market design specialist. He also reviewed the work done so far on carbon residuals. (See *NYISO Ponders Response to Carbon Charge Shortfalls*.)

New sections of Rate Schedule 18 will include carbon charges and payments for import and export transactions, as well as for wheel-throughs and the carbon residual allocation, Avallone said. New sections of Rate Schedule 9 will include carbon charges for suppliers.

The Tariff language defines emissions as "point-of-production carbon dioxide emissions that result from energy injected, or start-up to inject energy, in connection with participation in the wholesale market."

The ISO proposed a price on carbon emissions equal to the SCC — presumably as determined by the PSC — minus the value of any other state, multistate or federal charges for carbon emissions that a supplier must pay, including but not limited to emission allowance costs.

Penalties for failing to report or underreporting carbon emissions ramp up according to the severity of the lapse, from 0.5 times the applicable charge for failure to report emissions data by day 60, to 1.5 times the applicable invoice charge for failure to report by day 170, to double the charge for underreporting.

One stakeholder questioned the procedures for levying such penalties but was reassured that generators have a significant window in which to correct emissions data before being subject to penalties for underreporting or failing to report. ■

PJM NEWS

Draft of Pa. Nuke Subsidy Bill Leaked

By Christen Smith

Pennsylvania lawmakers may create a new tier within the state's alternative energy program for nuclear power, according to draft *legislation* leaked last week.

The plan would carve out subsidies intended to save two of the state's five nuclear plants from decommissioning as the deadline for government intervention looms. (See *Exelon: Need Pa. Action by May to Save TMI*.)

The bill would revise the 2004 Alternative Energy Portfolio Standards Act (AEPS), which mandates electricity distributors boost usage of renewable or alternative energy sources to 18% by 2021. It could hit the legislature March 7, according to prime sponsor Rep. Thomas Mehaffie (R).

Supporting lawmakers say the legislation will thwart a projected $4.6 billion annual cost to taxpayers should the state's five nuclear facilities deactivate — including $788 million in increased electricity rates, a $2 billion GDP loss, $1.6 billion in carbon emissions-related increases and $260 million lost to managing harmful criteria air pollutants.

"I wouldn't introduce the bill if I didn't think it would pass," Mehaffie said Feb. 26, describing it as one the most important proposals to be vetted in the last 25 years. "I'm really confident we can get something completed" before May.

State Sen. Ryan Aument (R) will introduce a similar bill in the Senate this week, according to his chief of staff, Ryan Boop.

"The leaked draft that is being circulated is not a draft that Sen. Aument's office drafted," he said. "I can verify that we are working on language with a number of other legislators that will create a new Tier 3 within the AEPS, and we hope to have that language introduced in the next week or so."

Nuclear Carve-out

Nuclear generation supplied about 42% of Pennsylvania's net generation in 2017, compared with 4.5% for renewables, according to the Energy Information Administration. In the draft bill, lawmakers would create a third tier of resources in the portfolio from which companies must purchase at least 50% of their electricity by 2021: nuclear, solar, geothermal and low-impact hydropower, with a few exceptions. The first two tiers include many of the same resources — plus fuel cells, municipal solid waste, biomass energy and biologically derived methane gas — with targets of 8% and 10%, respectively.

Pennsylvania lawmakers are prepared to introduce a bill to save the state's nuclear facilities from closure. | *123rf*

Analysts with ClearView Energy Partners suggest the qualifying language found in the third tier — such as rules excluding renewable resources that receive other tax credits and exemptions — is designed to solely benefit nuclear energy.

That's a big problem for Citizens Against Nuclear Bailouts, a coalition of natural gas industry advocates opposed to saving Three Mile Island Unit 1 near Harrisburg before Exelon shuts it down in September.

"It's still unclear to us what exactly the problem is that legislators are trying to solve," said Steve Kratz, spokesperson for the group, in an email Feb. 26. "Three Mile Island is the only facility in Pennsylvania that isn't profitable, and regulators at all levels, including FERC and PJM Interconnection, have been very clear that Three Mile Island can close as planned with no impact to grid reliability or ratepayers."

In a 2017 filing with the U.S. Securities and Exchange Commission, Exelon *said* TMI had lost money for the last five years as a result of "prolonged periods of low wholesale power prices," its failure to clear the last three PJM capacity auctions and "the absence of federal or state policies that place a value on nuclear energy for its ability to produce electricity without air pollution while contributing to grid reliability." The company, manager of the largest nuclear fleet in the country, announced similar closures in New York and Illinois before lawmakers approved zero-emission credits in both states. (See *Seeking Subsidy, Exelon Threatens to Close Three Mile Island*.)

"While we can't comment until we see legislation introduced, the principles outlined in the recent co-sponsorship memo represent an important next step toward valuing the carbon-free energy that nuclear energy provides Pennsylvania," said Dave Marcheskie, senior site communications manager at TMI. "The loss of these plants would cost the commonwealth $4.6 billion annually in the form of increased pollution, higher electricity prices to consumers, lost jobs and reduced economic activity."

Other proponents say nuclear energy deserves inclusion in the AEPS because it provides 93% of the state's zero-carbon electricity. Rescuing the state's aging generators from decommissioning could likewise preserve up to 16,000 full-time jobs and $69 million in state tax revenues, they contend.

Martin Williams, business manager for Boilermakers Local 13 in Philadelphia and co-chair of Nuclear Powers PA, described the draft as "pleasing" and said the group "eagerly" awaits the final bill language.

"We have known for some time that changes to the AEPS law could be one of the commonsense mechanisms for treating carbon-free nuclear energy like the other 16 forms of environmentally friendly forms of energy currently included in the AEPS," he said. "Pennsylvanians want clean, safe and reliable energy and [want] to keep energy prices in check. This type of approach would allow that to happen."

Fixed Resource Requirement

Last June, a FERC order concluded that increasing state subsidies for renewable and nuclear power were suppressing capacity prices. The commission's 3-2 ruling required PJM to expand the minimum offer price rule (MOPR) to cover all new and existing capacity receiving out-of-market payments, including renewable energy credits and ZECs for nuclear plants. The MOPR currently covers only new gas-fired units. (See *Little Common Ground in PJM Capacity Revamp Filings*.)

FERC suggested modifications to PJM's fixed resource requirement (FRR) option to allow the removal of state-subsidized resources and corresponding amounts of load from the capacity market. The first round of filings in the commission's "paper hearing" on the issue were filed in October (EL18-178).

ClearView suggested the leaked draft would allow AEPS payments to be rolled into an FRR, though it's unclear how far the bill will get before May. Pushback from free-market conservatives and the natural gas industry could derail Mehaffie's and Aument's tight timelines.

"It's a work in progress," Mehaffie said. "We're working extremely hard with our colleagues and others in explaining what this bill does and how important it is to Pennsylvania." ■

PJM News

PJM MIC to Vote on Alternative Must-offer Exception Rules

By Christen Smith

PJM's Market Implementation Committee, which approved changes to its must-offer exception rules in November, will consider two alternative proposals at its meeting Wednesday.

Members will vote on a joint *proposal* by PJM and the Independent Market Monitor and one by Exelon in a review prompted by the Markets and Reliability Committee's decision to defer a vote on the earlier proposal and send the issue back to the MIC for further discussion.

The initial proposal, which won 79% stakeholder support at the November MIC, would:

- Codify the current must-offer exception process in Manual 18.
- Add timing to the list of acceptable reasons for an exception. Exceptions would be permitted for capacity market sellers that can demonstrate they will "be physically incapable of satisfying the requirements for a Capacity Performance generation resource by the start of the relevant delivery year."
- Allow a capacity market seller to voluntarily initiate a status change to energy-only by making a request to PJM and the Monitor. Status changes would not be permitted while the resource holds a capacity commitment for the relevant time period.
- Require existing capacity resources approved for CP must-offer exceptions and not offered in three consecutive auctions to change to energy-only.
- Treat capacity interconnection rights (CIRs) of resources converted to energy-only the same as if the unit had been deactivated. CIRs will terminate one year from the date on which the resource status change takes effect, unless the rights holder submits a new generation interconnection request within that year which uses the same CIRs.
- Permit participants to request exemptions from multiple auctions in a single exception request.

Stakeholders Delay Action

On Dec. 20, the MRC deferred a vote on the MIC-approved proposal at the request of Susan Bruce, representing the PJM Industrial Customer Coalition. Bruce, who made the motion on behalf of industrial gas producer Praxair, said industrial consumers wanted stakeholders to conduct additional discussion on resources wanting to move between capacity- and energy-only status. (See "Must-offer Exception Process Deferred," *PJM MRC Briefs: Dec. 20, 2018*.)

The alternate PJM/Monitor plan to be considered this week adds to the MIC-endorsed package documentation requirements to support exception requests. Effective with the 2023/24 delivery year, exception requests would have to include a plan showing how the resource will become able to satisfy the CP requirements, including a timeline with design, permitting, procurement and construction milestones. Regular status updates also would be required. Exceptions would be limited to two auctions, and status changes would be mandated for existing resources that fail to provide a plan or show good-faith effort to make the resource physically capable of CP.

PJM's Pat Bruno | © *RTO Insider*

"The general idea of a plan is just for the seller to inform PJM if they are CP-capable," PJM's Pat Bruno explained at the MIC's Feb. 6 meeting. "The plan would be reviewed by the IMM and PJM."

Exelon Demurs

Exelon, which initiated stakeholder discussions on the *issue* a year ago, will offer a second alternative that does not include a requirement for resources to become energy-only.

Sharon Midgley, senior manager of wholesale market development for Exelon, questioned PJM's insistence on revoking CIRs. "Storage and renewables have no must-offer requirements," she said at the February MIC. "So why target conventional generation owners?"

Bruno said there are separate rules for intermittent resources and storage.

Exelon's Sharon Midgley | © *RTO Insider*

Midgley said Exelon's proposal does not include a mandatory switch to energy-only because stakeholders are not in consensus on the issue and that aspect of the updated PJM/Monitor proposal raises important CIR equity issues that haven't been addressed. "We think there is clear consensus on the process enhancements and the voluntary process if generators want to become energy-only," she said. "It seems like a double standard. … For that reason, we are agnostic and don't have anything in our proposal that addresses a mandatory process."

Monitor Joe Bowring | © *RTO Insider*

Monitor Joe Bowring said the IMM has recently seen "a lot of people seeking deactivation and then changing their mind."

"A voluntary process, in our view, is not sufficient," he added.

If any of the packages receive more than 50% support at the Wednesday MIC meeting, a second nonbinding vote will be taken asking whether participants prefer that package over the status quo and the original MIC-endorsed proposal.

Any proposals receiving 50% MIC approval will be given a first read at the March 21 MRC meeting. The committee will vote on the alternatives at its April 25 meeting. ■

PJM News

FERC: Stability Deviation Method Best for Artificial Island

By Christen Smith

PJM's "stability deviation" method best suits cost allocation for the Artificial Island project, FERC said Thursday, denying rehearing requests from transmission owners who favor the status quo.

The ruling comes eight months after the commission established a paper hearing to settle on the calculation for determining how PJM should distribute costs for grid stability projects, agreeing — in this case and for future stability upgrades — the existing solution-based distribution factor (DFAX) method doesn't align allocations with benefits (*EL15-95*).

"Based on the record developed through the additional hearing procedures, we find that the stability deviation method is a just and reasonable replacement rate for PJM to apply to all of the costs of lower-voltage facilities that address stability-related reliability issues and [to] 50% of the costs of regional facilities and necessary lower-voltage facilities that address stability-related reliability issues, including the Artificial Island project," FERC concluded in its Feb. 28 ruling.

Unjust and Unreasonable Status Quo

The debate stems from a yearslong discussion over who should pay for new transmission lines between New Jersey and Delaware to address stability limits on generation at the Salem and Hope Creek nuclear plants and transmission constraints that sometimes prevent the generators from exporting power at full capacity. Such a project is rare and doesn't conform well to the DFAX method, PJM contends. (See *DFAX: 'Poison Pill' or 'Best Method' of Cost Allocation?*)

For reliability projects, PJM assigns 50% of the costs of regional facilities (500-kV lines or higher and double 345-kV lines) and "necessary" lower-voltage facilities required to support regional lines on a load-ratio share basis. The other 50% is allocated using DFAX. All costs of lower-voltage facilities not supporting regional lines are allocated via DFAX.

Using this methodology, 93% of the $280 million Artificial Island project cost would have fallen on Delmarva Power & Light — much to the dismay of Maryland and Delaware utility regulators who said the distribution disproportionately targeted their ratepayers.

In July, FERC agreed with the state commissions, noting that unlike thermal overloads, the parties that cause stability issues don't necessarily have flows on the corresponding transmission facility. While Delmarva customers will use the new transmission lines from the Artificial Island project, the company neither caused the need for the lines nor does it benefit from those flows sufficiently because its transmission system already was adequate to serve its load, FERC found.

"While Delaware load will receive some increase in reliability from having a more robust transmission system, we find that the costs that would be allocated to the Delmarva parties under the solution-based DFAX method would not be at least roughly commensurate with the benefits received," FERC concluded.


The Hope Creek and Salem nuclear units on Artificial Island in southern New Jersey | *BHI Energy*

Stability Deviation Method

PJM long agreed it needed a different way of divvying costs for stability-related issues, noting those who cause these problems aren't always the same ones who will benefit from it being repaired — such as in the cases of thermal violations, voltage/reactive issues, storm hardening, end-of-life/aging infrastructure or real-time operation concerns.

Staff crafted a few different possibilities, including the stability deviation method, which determines that a measurement of the change in the voltage angle is higher for substations that are more impacted by a disturbance or stability event, also referred to as the angular deviation. This change would identify the loads that would be most impacted by a stability disturbance and would benefit from transmission projects that address stability-related issues.

Under this calculation, costs of the Artificial Island project would fall 19% to the Public Service Electric and Gas, 15% to PECO Energy, 12.5% to PPL, 12.4% to Jersey Central Power & Light, 10.4% to Delmarva Power, 7.2% to Atlantic City Electric and about 5% to Metropolitan Edison. (See *PJM: AI Costs Would Shift to NJ, PA Under New Allocations*.)

TOs described the method as arbitrary, unexplained and unjustified, saying it amounts to the opposite of the basic underlying principle of PJM transmission cost allocation in the post-Order 1000 era. Instead, TOs pushed for a reversion back to the status quo — an idea FERC outright rejected.

"The PJM transmission owners have not demonstrated that, for transmission facilities addressing stability-related reliability issues, it would be just and reasonable to revert to the solution-based DFAX method to identify the beneficiaries of transmission facilities, once the stability-related reliability issue supporting the need for the transmission facility is resolved," the commission said. "Further, while the PJM transmission owners' reversion proposal identifies retirement of generating facilities as triggering the reversion, other system topology changes, such as transmission facility enhancements or expansion, may also affect the stability concern, but are not addressed by the reversion proposal." ■

SPP

MISO, SPP Monitors to Conduct Seams Analysis

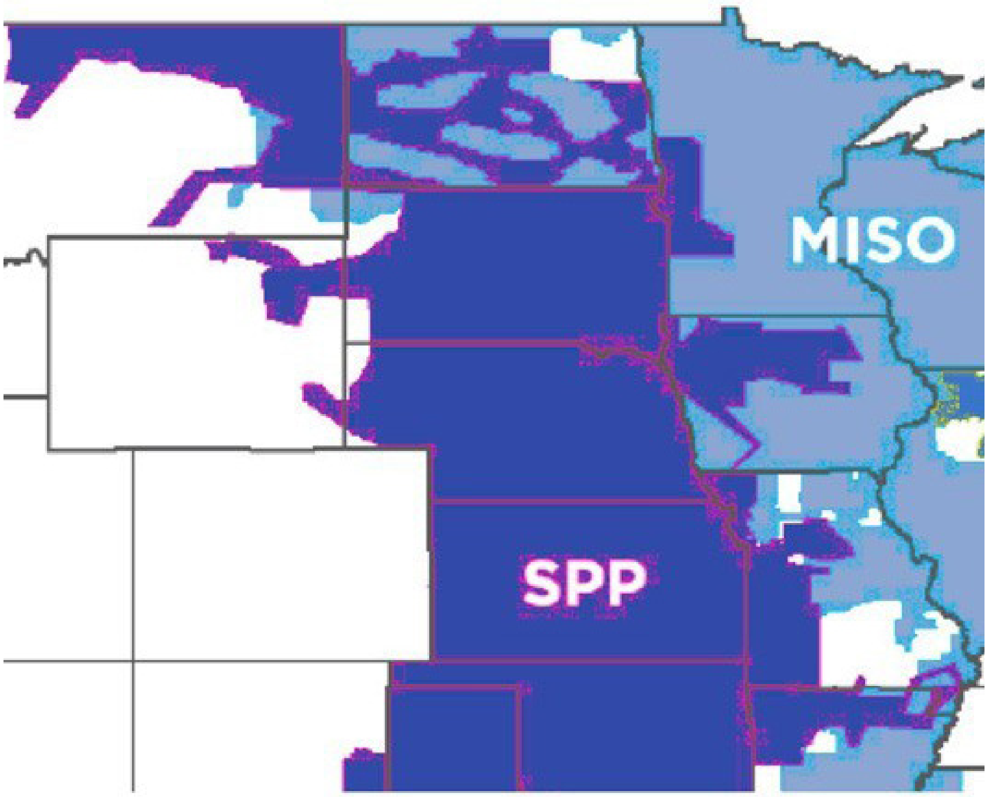
State regulators are bringing in the MISO and SPP market monitors to help solve seams issues between the two RTOs.

The Organization of MISO States and SPP's Regional State Committee's Liaison Committee has asked MISO's Independent Market Monitor Potomac Economics and SPP's Market Monitoring Unit to conduct a seams analysis and identify "specific seams issues from their perspective."

Potomac's Michael Wander and the MMU's Keith Collins will provide a list of issues to Missouri Public Service Commissioner and OMS President Daniel Hall and Kansas Corporation Commissioner Shari Feist Albrecht, the committee's chair and vice chair, respectively. Committee members are scheduled to hold a March 15 conference call to narrow the list for the monitors' analysis.

Potomac Economics' Michael Wander | © RTO Insider

MMU's Keith Collins | © RTO Insider



The MISO-SPP seam | ACES

"Hopefully, they will pick issues that can be monetized for ratepayers," Hall said during a March 1 conference call.

Hall said he prefers a single report from the monitors but agreed two reports might be appropriate should their perspectives differ.

The Liaison Committee has been meeting since mid-2018 to help improve the grid operators' interregional coordination, which has never produced a major project. That has frustrated some stakeholders and caused market inefficiencies.

Members met most recently in a closed session during the February National Association of Regulatory Utility Commissioners meeting. (See "OMS-RSC Talks Continue," *OMS Taps State Attorney for Leadership Role*.)

Future meetings will be open to the public, Hall said then. ■

— Tom Kleckner

SPP

FERC Reverses Waiver on SPP's Z2 Obligations

By Tom Kleckner

FERC last week reversed a waiver it had previously issued to SPP on Attachment Z2 of its Tariff and directed the RTO to provide refunds of credit payment obligations, with interest (*ER16-1341*).

SPP's headquarters in Little Rock, Ark. | *WER Architects*

The commission ordered SPP to refund credit payment obligation amounts dating back to 2008, except for the one-year billing adjustment limit allowed in the Tariff.

SPP was seeking a retroactive waiver of its Tariff so that it could invoice transmission service customers for Attachment Z2 credit payment obligations for the 2008-2016 time period prior to its April 2016 request. In its reversal Thursday, FERC found "the relief sought by SPP … is prohibited by the filed rate doctrine and the rule against retroactive ratemaking."

The commission approved the waiver request in a July 2016 order that set aside the one-year time limit. In November 2017, FERC denied a rehearing request by several stakeholders. (See "Z2 Waiver Upheld," *FERC Rejects SPP Change on Network Resource Upgrades*.)

But FERC issued a voluntary remand of the waiver orders after Xcel Energy appealed to the D.C. Circuit Court of Appeals in January 2018. The commission's reversal was prompted by the court's June decision to uphold FERC's order rejecting Old Dominion Electric Cooperative's request for a waiver of PJM's $1,000/MWh rate cap so that it could retroactively recover high natural gas costs the company incurred during the 2014 polar vortex. (See *Duke, ODEC Rebuffed on Polar Vortex Gas Refunds*.)

FERC noted the D.C. Circuit has recognized the commission's "'broad remedial' authority to remedy unjust outcomes." But it said that exercising its authority under the Federal Power Act in this instance "would be inappropriate," noting that the court in *ODEC* "highlighted that the commission cannot disregard for good cause or any other equitable grounds either the filed rate doctrine or the rule against retroactive ratemaking."

Attachment Z2 details how sponsors that fund network upgrades can receive reimbursements through transmission service requests, generator interconnections or upgrades that could not have been honored "but for" the upgrade. SPP said that delays in implementing computer software kept it from listing certain creditable upgrades in aggregate facilities study reports, calculating and assessing costs, and distributing credits to transmission customers before August 2016.

An SPP spokesman said the company is reviewing the order and its options. It estimates the credit payment obligations for the historical period to be approximately $200 million.

Last week's order requires SPP to file a report within 120 days detailing how it plans to make the required refunds and allows third parties to comment on the RTO's proposal. "SPP shall not provide any refunds prior to the issuance of a further commission order directing refunds," FERC said.

Commissioners Cheryl LaFleur and Richard Glick, who reluctantly concurred with the decision, issued separate statements attached to the order.

"The financial impacts of today's order will rightly be frustrating to those parties that would otherwise receive credits for the historic period, and the order provides an unfair windfall to those who benefited from those upgrades during the historic period but are not required to pay for them," LaFleur wrote.

"This is a result that could have been avoided, and we should, where possible, take steps to prevent similar issues in the future. As today's order notes, the New York Independent System Operator Inc. Tariff authorizes the commission to order changes to otherwise 'finalized' data and invoices. I join Commissioner Glick in encouraging SPP and other RTOs/ISOs to consider comparable revisions to their tariffs to avoid similarly inequitable outcomes in the future." ■


Xcel Energy upgrade project | *Burns & McDonnell*

Company Briefs

Filing Shows PG&E Delayed Safety Work on Tx Line

For five years, PG&E Corp. repeatedly delayed a safety overhaul of the century-old, 115-kV Caribou-Palermo transmission line, a prime suspect behind the deadliest wildfire in California history, according to a filing the company submitted to the U.S. Securities and Exchange Commission.

The company had told FERC in 2013 it planned to replace many of the towers, wires and hardware pieces on the line. It said in 2017 that it would spend $30.3 million in 2018 to eliminate clearance issues on the line that were identified in 2013. The project was expected to be operative in December 2018.

PG&E shares fell 3% on Wednesday, when *The Wall Street Journal* published a report on the SEC filing. The company said the *Journal* inaccurately portrayed planned electric transmission regulatory compliance work and omitted key aspects of the work the company was doing to enhance safety.

More: *Reuters*; *The Wall Street Journal*

CenterPoint Quarterly, Year-end Earnings Slide

CenterPoint Energy last week reported fourth-quarter earnings of $90 million ($0.18/share), as compared to $1.3 billion ($2.99/share), a year ago. For the year, the Houston-based company reported consolidated GAAP earnings of $333 million ($0.74/share) compared to $1.79 billion ($4.13/share) for 2017. CenterPoint received a one-time boost of $1.1 billion in 2017 from the Tax Cuts and Jobs Act federal income tax rate reduction.

CEO Scott Prochazka told financial analysts during a Thursday conference call that it was a "strong" year for CenterPoint. "The 2018 results … represent another solid year of meeting the financial goals we set," he said.

The company said it benefited from a strong performance by its utility, which added 77,000 customers, and a 50% increase in equity income from its Enable Midstream Partners investment. CenterPoint owns a 54.1% share of the gas-gathering and processing joint venture with Oklahoma's OGE Energy. CenterPoint's share price lost nearly 6% following the announcement, falling from $31.14 to $29.33, before recovering to finish the week at $30.18.

More: *CenterPoint Energy*

Disney's 50-MW Solar Facility Starts Powering Theme Parks

Disney Parks last week announced that its new 270-acre, 50-MW solar facility is officially online and providing energy to Walt Disney World Resort.

According to the company, the facility, built in collaboration with the Reedy Creek Improvement District and Origis Energy USA, will provide enough electricity to power two of Disney World's four theme parks.

The Walt Disney Company has set a goal of reducing its carbon emissions by 50% below 2012 levels by 2020.

More: *WOFL*

Federal Briefs

Republicans Cancel Climate Hearing After Poor Dem Attendance

Republican members of the House Natural Resources Committee's Oversight and Investigations subcommittee last week voted to adjourn a hearing on climate change only minutes after it began, as only two Democratic members had attended.

The hearing was designed to probe the "denial playbook" that Democrats say fossil fuel backers have copied from cigarette companies. But subcommittee ranking member **Louis Gohmert** (Texas) took issue with notion that the topic was within the panel's jurisdiction. He quickly motioned to adjourn the hearing before the witnesses could even deliver their opening statements.

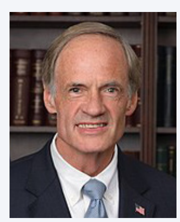
That motion quickly passed, with the four Republicans present outvoting the two Democrats in the room, including subcommittee Chairman T.J. Cox (Calif.), who quickly pivoted and shifted the proceeding to a Democratic-led forum — a gathering that allows the witnesses to speak but lacks the weight of an official committee hearing.

More: *Politico*

Senate Democrats Introduce Climate Resolution

All 47 Senate Democrats last week signed on to co-sponsor a resolution to acknowledge climate change is happening, that it's human-caused and that something must be done.

Introduced by **Sen. Tom Carper** (D-Del.),



ranking member of the Environment and Public Works Committee, the resolution doesn't offer any specific plans to decrease emissions or combat climate change. But Democratic leaders championed it as a push in the right direction as Republicans failed to back or introduce any climate bills of their own.

The new resolution is meant as an alternative to the Green New Deal resolution introduced in early February by Sen. Ed Markey (D-Mass.). Majority Leader Mitch McConnell (R-Ky.) has fast-tracked a vote on the GND in an effort to highlight a Democratic divide over the plan.

More: *The Hill*

4th Circuit Denies Atlantic Coast Pipeline Rehearing Request

The 4th Circuit Court of Appeals last week declined Atlantic Coast Pipeline developer Dominion Energy's request for the full court to rehear a three-judge panel's decision to reject Forest Service permits for the project.

The panel ruled in December that the agency violated the National Forest Management Act and the National Environmental Policy Act when it issued approvals to allow the 600-mile pipeline to cross the George Washington National Forest, Monongahela National Forest and the Appalachian Trail.

Construction is currently halted along its entire route. Dominion says it will appeal the 4th Circuit's decision to the Supreme Court.

More: *West Virginia Public Broadcasting*

State Briefs

ARIZONA

Navajo Plant Negotiations Hit Roadblock

Negotiations for a Navajo Nation energy company to take over a troubled coal plant have hit a major impasse over who could be responsible for the eventual cost of cleanup.

The owners of the Navajo Generating Station, which is on tribal land and fed by a mine on Navajo and Hopi land, are planning to close the power plant this year. Navajo Transitional Energy Co., which is owned by the tribe, has been negotiating to take over the plant.

But a Feb. 25 letter from NTEC to the power plant owners, which include Salt River Project and Arizona Public Service, indicates the deal has stalled because the parties cannot agree over the long-term liability for the plant.

More: *The Arizona Republic*

CONNECTICUT

PURA Fines Direct Energy $1.5M over Business Practices

The Public Utilities Regulatory Authority last week issued a draft decision fining Direct Energy $1.5 million over accusations it engaged in unfair and deceptive business practices.

PURA said the company has made misleading statements as part of its marketing, citing as examples kilowatt-hours being billed, misrepresented savings and early termination fees.

Direct Energy earned nearly $55 million in gross revenue in Connecticut in 2017, which PURA said justified the fine as "appropriate given the volume of business" and "duplicitous nature" of its conduct. The company also is barred from accepting new residential customers from March 21 through Sept. 21. A company spokesperson said the heavy penalty proposed by PURA is unfounded.

More: *Hartford Courant*

IDAHO

Idaho Power Files to Suspend Community Solar Program

Idaho Power's Community Solar Program won't go live any time soon, as the company filed a proposal to suspend the program indefinitely with the Public Utilities Commission.

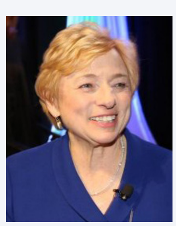
The company planned to build a field of solar panels outside of Boise, bankrolled by customers who paid $526 upfront or $26/month for two years. The program would have required an additional 15% subsidy by shareholders, as well as $323,000 from customers through the Power Cost Adjustment mechanism.

However, the program never got enough subscriptions to even build the field of solar panels, a company spokesperson said. It would have required a minimum of 1,200 subscriptions, but Idaho Power maxed out at 239.

More: *Idaho Press*

MAINE

Mills Sets 100% Renewables by 2050 Goal



Gov. Janet Mills last week outlined an extensive climate agenda, pledging to reduce greenhouse gas emissions, work toward 100% renewable electricity generation and to work with other governors on regional solutions.

Mills said she will propose the creation of a Climate Council — composed of scientists, state leaders and industry representatives — to develop an "action plan" to determine the best way to generate 80% of the state's power needs from renewable resources by 2030 and 100% by 2050.

"We need to consult with the industries affected, we need to consult with the scientists and we need to have the input of all sectors of the economy and the wider Maine community," Mills said. "I don't have the expertise personally to sit down and draft a bill that will reduce our fossil fuel dependency, but I know there are an awful lot of ideas out there that have been brewing for many years."

More: *Portland Press Herald*

NEW MEXICO

PNM Seeks Supreme Court Stay on San Juan

Public Service Company of New Mexico wants the state Supreme Court to delay regulatory proceedings on shutting down the coal-fired San Juan Generating Station.

The Public Regulation Commission ordered PNM on Jan. 30 to submit an application for plant abandonment by March 1 that details all costs, impacts and plans associated with the shutdown, something the utility had expected to file in mid-2019. PNM told the commission it was impossible to comply with its order, as it lacks the basic information needed for such a filing, including selection and cost estimates for alternative energy resources that would replace San Juan.

The company filed a motion last month with the PRC requesting it reverse the January order, but the commission failed to act on that request during its open public meeting Wednesday, triggering PNM's decision to file for Supreme Court intervention.

More: *Albuquerque Journal*

NEW YORK

DEC Proposes Stricter Emission Regulations on Plants

The Department of Environmental Conservation last week released proposed new, stringent requirements on peak-use power plants.

The proposal would establish lower thresholds for emissions of nitrogen oxides in phases from 2023 to 2025. "Dozens of simple cycle and regenerative combustion turbines at power plants across the state — many approaching 50 years old and operating infrequently — emit NOx at levels that are at least 30 times more than newer turbine emissions," the state said in a press release. "However, when they do operate, these turbines collectively can account for over a third of New York's daily power plant NOx emissions while producing less electricity for consumers than cleaner sources."

"Climate change is a frightening reality, and while the federal administration buries its head in the sand, New York is taking action to protect our environment and the health of our residents," Gov. Andrew Cuomo said in a statement.

More: *Andrew Cuomo*

RHODE ISLAND

Coastal Regulators Approve Vineyard Wind

The Coastal Resources Management Council last week unanimously determined the $2 billion offshore Vineyard Wind project to be consistent with state policies.

Although the 84-turbine project is planned in Atlantic Ocean waters south of Martha's Vineyard where the federal Bureau of Ocean Energy Management holds lead permitting authority, it needed a consistency certification from the council because it would affect the state's fishing industry. The project stills needs approval from the council's counterpart in Massachusetts.

A monthslong dispute with fishermen in the state who argued that the wind farm would effectively block them from accessing fishing grounds rich in squid, lobster and other species had snarled the process. But a turning point came on Feb. 23 when the Fishermen's Advisory Board, the group that advises the council on fishing issues related to offshore wind, accepted a compensation package from Vineyard Wind that includes the creation of two funds totaling $16.7 million.

More: *Providence Journal*

WISCONSIN

Evers Proposes Carbon-free Electricity by 2050

Gov. Tony Evers last week proposed to require the state's utilities be carbon-free by 2050.

The proposal, which would go further than the self-imposed goals of almost all utilities, is part of a budget that would also significantly increase state funding for renewable energy and conservation.

Evers' proposal includes nuclear generation. About 15% of the state's electricity is currently generated at the Point Beach Nuclear Plant.

More: *Madison.com*