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Your Eyes and Ears on the Organized Electric Markets
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FERC: No Emergency on Grid

Murkowski Faults 'Policy Vacuum'

By Rich Heidorn Jr.

WASHINGTON — FERC commissioners told Congress last week the grid is not facing a national security emergency, as the Trump administration has claimed in its call for saving at-risk coal and nuclear generation.

At a June 12 oversight hearing before the Senate Energy and Natural Resources Committee, Sen. Martin Heinrich (D-N.M.) asked the five commissioners whether any of them believed there is a national security emergency in the wholesale power markets.

"I do not, senator," Commissioner Cheryl LaFleur responded.

"Anyone answer that with a yes?" Heinrich asked. None of the other commissioners spoke.

FERC Commissioners Left to right: Chair Kevin McIntyre, Cheryl LaFleur, Neil Chatterjee, Rob Powelson and Richard Glick. | © *RTO Insider*

But coal-state senators also got commissioners to offer soundbites supporting their positions.

When Sen. John Barrasso (R-Wyo.) asked whether the commissioners agreed on the need to keep coal in the generation mix, Chairman Kevin McIntyre responded by reiterating his support for "an all-of-the-above strategy."

Continued on page 39

FirstEnergy Calls out FERC 'Failure' to Act on Resilience (p.29)

Solar Inverter Problem Leads CAISO to Boost Reserves

By Jason Fordney

CAISO will make permanent a once-temporary practice of boosting its power reserves to account for utility-scale solar tripping offline because of an inverters problem, something NERC has identified as a major reliability issue.

When solar generation is at its peak, CAISO will set the operating reserve target at either 15% of the total solar production forecast or the maximum NERC/Western Electricity Coordination Council requirement, whichever is greater.

The ISO has worked with solar operators to reprogram inverters since last year, CAISO Shift Supervisor John Phipps said last week

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Conn. Awards 200-MW OSW, 50-MW Fuel Cell Deals

By Rich Heidorn Jr.

New England's offshore wind industry got another boost Wednesday as Connecticut officials announced they will purchase 200 MW of output from Deepwater Wind's Revolution Wind project, adding to Rhode Island's 400-MW procurement.

Rhode Island announced its selection of Revolution last month at the same time Massachusetts agreed to procure 800 MW from Vineyard Wind. (See *Mass., R.I. Pick 1,200 MW in Offshore Wind Bids*.)

Doosan fuel cell | *Doosan Fuel Cell America*

"With demand for 1,400 MW of U.S. offshore wind announced in less than a month, there's a golden opportunity for heavy manufacturing companies and

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IN THIS WEEK'S ISSUE

Editor's Note: RTO Insider Institutes Quote Check Policy in MISO

In a continuing effort to ensure the accuracy and fairness of its reporting, *RTO Insider* has begun implementing a quote check policy for MISO stakeholder meetings.

Excluding breaking news bulletins, every story *RTO Insider* publishes goes through at least two editors. In addition, they are reviewed by a proofreader before being included in our weekly newsletter. However, given the complexity of the issues we cover, we have found that checking quotes with RTO officials and stakeholders allows us to provide the proper context for their comments and to catch factual errors before they appear in print.

Following its coverage of MISO stakeholder meetings, *RTO Insider* will submit a story draft or quotes we intend to publish to any stakeholder quoted, including MISO staff. We email such drafts the afternoon or evening following the meeting and will give all quoted until 5 p.m. ET the following day to respond with any corrections or clarifications.

We will do our best to incorporate all feedback in the published story. However, recognizing that stakeholders may have different views of what transpired at the meeting, *RTO Insider* retains final editorial control on what is published.

We have no higher goal than ensuring our reporting is accurate and fair. If you have any questions about our policy, or a question or complaint about our coverage, please do not hesitate to contact me.

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COUNTERFLOW
BY STEVE HUNTOON

Please Feel Free to Surprise Us

By Steve Huntoon

As bailout hour approaches for coal and nuclear units — Rick Perry doesn't want to be the next Jeff Sessions — let's recap highlights from the Department of Energy's leaked memo and a Trump official's comments.

As all of us in the industry know, the 40-page memo is a ludicrous attempt to put lipstick on a $65 billion pig.[1] I'm not going to waste your time on how ludicrous the substance is — if you don't know already you can go to my prior columns[2] and to the informed commentary of just about every unbought person in the industry (like former FERC chairs and commissioners, the RTOs themselves and, indeed, *The Wall Street Journal* in a lead editorial).

I will offer a couple comments on the supposed legal support. Defense Production Act Section 101b says that power under Section 101 can only be exercised when the subject material is "scarce," and of course electric generation resources aren't scarce at all.[3] Federal Power Act 202c applies only to emergency, shortage and temporary situations, so invoking it here would require lying about all three prerequisites.

The DOE memo's authors are presumably lawyers (maybe DOE lawyers, maybe not) and know that these legal requirements can't be met, so the memo relies on what might be called the spaghetti approach — throw everything against the wall and hope something sticks. And if it doesn't stick in court Trump can always blame evil judges and the nefarious Deep State. But meanwhile, creating massive chaos and distracting us from serious matters. Sad.

Let me turn to DOE Undersecretary Mark Menezes' remarks to reporters at a conference the other day.[4] I'll quote the remarks and offer some thoughts in italics.

"It is the premature closing of baseload that is really upsetting the industry," Menezes said. *This short sentence has three total untruths. First, the retiring units are not retiring "prematurely" — they are old. Second, the retiring coal units are not baseload (high capacity factor) units — they are inefficient, low capacity factor units. My prior column discussing the rampant abuse of the words "premature" and "baseload" is posted.[5] Trump officials are simply parroting FirstEnergy and Robert Murray untruths.*

The third untruth is a claim that the industry is "upset" by retirements. Nothing could be further from the truth. Clunkers are retiring as part of a natural, orderly, market-driven process that has been going on for decades. The retiring units are three times less reliable than new units, which means that keeping the old ones, and thus keeping out new units, actually makes the grid less reliable.

The industry is upset, but only about the prospect of a Trump bailout that has no legitimate basis whatsoever and would cause major if not permanent damage to the electricity markets that have served us so well.

"We are not talking about disrupting the markets." *Of course Trump and his acolytes are talking about disrupting the markets — that's the whole idea. This is universally understood, even by those who want a bailout.*

"It is more than the markets. The markets don't exist everywhere in the country. These markets have not been mandated by Congress. They are voluntary. They are approved by FERC." *His point seems to be that utilities can leave RTOs, perhaps if states are not happy with an RTO. This is legally true but apropos of nothing. And no utility that joined an RTO has left an RTO except for a couple Kentucky utilities more than 10 years ago. These remarks are vacuous on multiple levels.*

"The RTOs … are not natural markets. In fact, electricity is a natural monopoly." *Electric generation is not a natural monopoly, which is why an RTO like PJM has dozens of competing electric generation suppliers and has had for decades.*

There's no legal justification or public policy justification for the Trump bailout. We all know that.

"Profiles in Courage During the Trump Administration" is the world's shortest book. Perry could contribute a first chapter by reprising his vital role in the development of Texas' electric market and just say no to a bailout (and nationwide $65 billion rate increase).

If Trump insists, Perry could invoke Davy Crockett's immortal words: "You may all go to hell and I will go [back] to Texas."

We're not holding our collective breaths but, hey, please feel free to surprise us.

[1] Industry expert Rob Gramlich provided this annual cost estimate in Capitol Hill testimony June 7, based on an analysis by PJM's Independent Market Monitor. https://science.house.gov/sites/republicans.science.house.gov/files/documents/HHRG-115-SY20-WState-RGramlich-20180607.pdf (page 12).

[2] http://energy-counsel.com/recent-publications.html.

[3] As Gramlich testified, "Each region already has a Strategic Generation Reserve. It's called a reserve margin."

[4] See *FERC Blindsided by Half-Baked Trump Order*.

[5] http://energy-counsel.com/docs/Clunker-Poster-Child.pdf.

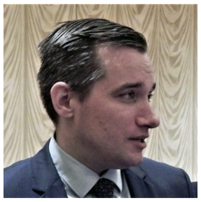
Mark Menezes | © *RTO Insider*

American Market Architect Reflects on Mexico's Reforms

By Tom Kleckner

Mexican power market auction winners | *Bravos Energia*

MEXICO CITY — So what drove a nice kid from Chicago — a "regular American" with a minimal knowledge of the Spanish language — to move to Mexico and not only make his home there, but help design the country's deregulated electricity markets?



Jeff Pavlovic in April | *© RTO Insider*

"I really had no link to Mexico," said Jeff Pavlovic, the nice-kid-turned-40. "After looking at the whole world, I figured electricity is a very important industry, and I could make a very big impact. If you can make electricity cheaper, you can change the economy.

"I saw Mexico as a great opportunity, as a place that hadn't embraced market principles in the electric industry," he said in a recent interview. "It was a long shot. You're making a big bet on major change. If I could help change the electric markets in Mexico, I thought that could have as big an impact on the world as anything. I just thought about it and came to Mexico."

Simple as that. Pavlovic obviously has an analytical mind. The son of a teacher, he also has the academic pedigree to match his entrepreneurial spirit. He picked up economics and math degrees from Duke, an MBA from Stanford and, after moving to Mexico in 2008, a master's in economics from the Centro de Investigacion y Docencia Economicas (Center for Economic Research and Teaching).

Pavlovic, who spent a few months studying Spanish before moving to Mexico, is now fully bilingual. "I thought my Spanish was good enough, but it took three or four years before I could really communicate," he said.

Fortunately, Pavlovic found himself in the right place at the right time. He was in Mexico, where the state-run electric monopoly doesn't have "51 state governments deciding the rules."

And though he admits it was a longshot, Pavlovic's expertise in unbundling electric utilities as a financial consultant and in generation control and dispatch for Xcel Energy landed him several different positions with the Ministry of Energy (SENER) and the Federal Electricity Commission (CFE), Mexico's national utility. In 2011, he took a position as general director of generation, conduction and energy transformation with SENER, just as the push for electric reform, driven by the need for more efficient generation and lower prices, began in 2012.

"Very good timing. I thought it would happen six years later than it did," Pavlovic said, referring to Mexico's single, six-year presidential terms. "When I was dreaming of this, I didn't think I'd be in government writing the rules. I thought I'd be on the sidelines, maybe in some private company sending suggestions that would mostly be ignored. Being in the middle of the process was better than anything I dreamed of."

Big Designs, Slow Progress

Anxious to make the sector "more efficient and reduce costs," Pavlovic said he and the market-design team borrowed textbook principles and elements from RTOs in the U.S. "We wanted a Day 2 settlements market at least. We wanted nodal prices," he said. "We followed MISO and PJM in letting the system operators make the commitment decisions."

Mexico began its incremental rollout of market reforms in 2014, but progress has been slow and halting. The financial transmission rights market has been delayed until 2019, frustrating participants who have complained about a lack of liquidity. The first midterm capacity auction in February cleared only one transaction, Enel's 50-MW purchase from Spain's Global Power Generation, leading one observer to say, "Whenever a bilateral agreement is signed, [the market] has a party."

Market participants have complained about the market's lack of transparency, exemplified by the confusion around transmission retail rates that led to a new, transitory methodology. Rate increases will be phased in through 2018 while a permanent solution is developed.

Some market participants have given themselves six months to see how the market shakes out and "grows legs," as one player said during the recent Gulf Coast Power Association market conference in Mexico City, before jumping headlong into the market.

Pavlovic left the government last year, forming his own generation asset firm, Bravos Energia, and taking his message on the speaking circuit. (See "Market Architect Calls for Increased Transparency," *Overheard at the GCPA Mexico Electric Power Market Conference*.)

Asked about his reaction to how the market has developed, Pavlovic said he believes the market design "was mostly efficient."

"A perfectionist can always find things that could have been done better, but in the big picture, I was happy," he said. "The way the powers were separated among the government authorities was right. The implementation has had some very good early successes with the short-term market, the auctions, the capacity market. I was pretty satisfied, but always conscious of things not going as well as I had hoped."

Continued on page 5

American Market Architect Reflects on Mexico's Reforms

Continued from page 4

Pavlovic pointed out that several market pieces — FTRs, virtual trading and a fully functional real-time market — still need to be implemented.

"Most of the [market's] weaknesses are caused by the environment the market operates in," he said. "How many participants are there? What kind of positions do those participants need to take?"

Pavlovic said many market participants can't take large positions because of the lack of private generation assets in operation and uncertainty over regulated transmission rates.

"A lot of auction projects are under construction, but the market suffers from the lack of a dynamic retail market," he said. "It's a chain of cause and effect. With no retail market, the speed of investments is slowed down."

A New Wave

When Pavlovic rejoined the private sector, his biggest worry was whether the market reform's unbundling of CFE's generation, distribution and retail businesses would hold. It hasn't. During his GCPA keynote, he said the former monopoly continues to combine the financial accounting for its several subsidiaries.

"It's not turning out to be as strong a separation as we had hoped for," Pavlovic said. "They are the big player in the market, but I don't think they have built the systems or generated the knowledge to be able to use the market as a tool to hedge their risks. If they were using those markets, then there would be a lot more liquidity, a lot more price discovery, and that would bring in a lot more participation from private companies."

Complicating matters is the country's July 1 presidential election. With presidents and their administrations limited to a single-six year term, governmental work naturally slows to a crawl in the months before the election. This year, populist Andres Manuel Lopez Obrador holds a 26-point lead over his two opponents from the traditional ruling parties.

Obrador's energy platform includes increasing hydroelectric generation and preventing the retirement of 16 GW of thermal generation, without allowing their modernization, repowering or conversion to cheaper fuels. He is also calling for a million small renewable plants for residential users and the services sector.

"It's dangerous, because those [hydro and thermal] investments could crowd out more productive and efficient investment from the private sector," Pavlovic said. "The rest of his proposals are not going to have a big impact on the market. He's not talking about undoing the power market, he's not talking about the states taking over private assets. It doesn't look like there's a very big downside to be worried about."

Pavlovic's greater worry is about the industry's regulation. The Energy Regulatory Commission (CRE) consists of seven commissioners serving staggered seven-year terms. Every New Year's Day, a new commissioner joins.

"The big risk is whether they will nominate competent technical leaders to regulate the electrical sector," Pavlovic said. "There's still a lot of work to be done, in the regulation and implementation of the market. You need competent technocrats and technical leaders in the power sector."

Still, Pavlovic draws hope from the growing number of participants in the market's capacity auction.

"There is a new wave that will come in," he said during the GCPA conference. "I think the market will continue to get deeper and help us exercise influence over the policy."

CAISO NEWS

Gas Costs Drive Sharp Gain in CAISO 2017 Prices

By Jason Fordney

CAISO wholesale prices jumped 25% last year on higher natural gas costs stemming from tight supplies in Southern California, where the region's main pipeline operator has no timetable for returning a critical line back into service.

The ISO's total cost to serve load in 2017 was $9.3 billion, or $42/MWh, compared with $34/MWh in 2016, its Department of Market Monitoring estimated.

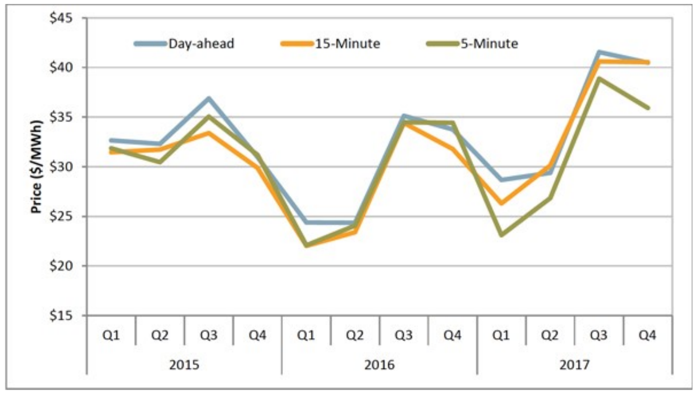
Regional spot gas prices increased 27% last year, helping to drive up electricity prices, the department said Thursday. It calculated the prices based on the average of the SoCal Citygate and Pacific Gas and Electric Citygate delivery hubs. Without factoring the gas price increases and greenhouse gas compliance costs, ISO prices rose by a much lower 4%.

Power prices received an additional boost from reduced energy supplies in the day-ahead market, a rising need for ancillary services and increased transmission congestion, the Monitor said in its 2017 Annual Report on Market Issues & Performance.

2017 wholesale prices "reflect the efficient and competitive conditions that exist during most hours of the year. However, DMM notes that the tightening of supply and demand conditions observed in 2017 has created the increased potential for uncompetitive market outcomes in 2018 and beyond."

About 3,000 MW of gas-fired generation retired in 2017, the largest one-year volume in the ISO's history. Another 600 MW has announced retirement in 2018, while about 770 MW of summer peak generating capacity was added, mostly solar.

The day-ahead market comprises most of the total wholesale market and remained structurally competitive, except for 36 hours, or 0.4% of intervals, when there was a single pivotal supplier needed to meet demand. The two largest suppliers were pivotal in 128 hours (1.6% of intervals), while the three largest suppliers were pivotal during 336 hours (3.8%),



CAISO quarterly prices, system energy, all hours | *CAISO Department of Market Monitoring*

Day-ahead prices spiked past $770/MWh on Sept. 1 and were greater than $200/MWh for a four-hour period.

"These high day-ahead prices reflect a tightening of supply conditions during peak ramping hours that DMM expects will continue in 2018 and the coming years," the Monitor said. Conditions were also competitive in the Western Energy Imbalance Market and its expansion and performance improved efficiency for the CAISO real-time market and other balancing areas.

Ancillary service costs increased to $172 million from $119 million in 2016 and $62 million in 2015 on tight supply conditions and higher operating reserve requirements during the summer. CAISO this week described how a problem with solar inverters led to a need to increase operating. (See *Solar Inverter Problem Leads CAISO to Boost Reserves*.)

The DMM is continuing its campaign against CAISO's congestion revenue rights auction, saying payouts to CRR holders exceeded auction revenues by more than $100 million in 2017 and $42 million in the first quarter of 2018. The ISO is working to overhaul the CRR auction process. (See *CAISO Developing New CRR Proposal*.)

SoCalGas Says 'No Timetable' for Line 235

Southern California's tight gas supplies were largely driven by the loss of Southern California Gas' Line 235-2, which ruptured on Oct. 1, 2017, also taking nearby Line 4000 out of service. The company told *RTO Insider* there is "no timeline" for the return to service of the pipe, characterized as a "backbone" facility at certain points in the region.

Another factor: a restriction on withdrawals at the Aliso Canyon storage field, leading SoCalGas to warn of possible supply problems and curtailments for gas-fired plants this summer. The company has been seeking to regain full use of the facility, which has been on restricted status since a large methane release in October 2015. (See *CPUC OKs Temporary Increase in Aliso Canyon Injections*.) Residents near the facility are pushing for its closure, saying they are still suffering negative health impacts, and Gov. Jerry Brown has also called for its eventual closure.

To study the capacity issue, CAISO, the California Public Utilities Commission, the California Energy Commission and others formed the Aliso Canyon Technical Assessment Group, which has determined about 500 MMcf of line capacity is missing per day compared with last year at this time, with about 2,655 MMcf available on May 1. The Line 235-2 outage will require SoCalGas to draw more from storage.

Those factors have led CAISO to warn of tight generation supplies this summer. SoCal Gas said that it has concerns the technical assessment done by the state agencies is "overly optimistic."

"Service reductions or interruptions to electric generators may be necessary this summer and withdrawals from Aliso Canyon may be required to prevent more extensive customer outages," the company said. No cause has been publicly identified for the Oct. 1 rupture and subsequent 5-acre fire, which occurred the day after the expiration of an CPUC-approved agreement between SoCalGas and CAISO that allowed the company to increase injections into Aliso Canyon.

CAISO NEWS

CEC Approves $10 Million for Microgrids

By Jason Fordney

Sacramento, Calif. — The California Energy Commission on Wednesday approved $10 million in grants for two microgrid projects, including one that represents a new form of partnership between investor-owned utilities and a community choice aggregator.

The commission in a 4-0 vote approved $5 million apiece in grants for microgrids at California Redwood Coast-Humboldt County Airport and at Santa Rosa Junior College in Sonoma County. The CEC said the airport project enables further research into microgrids and many value streams, including demonstrating the ability for CCAs to work with utilities to maintain reliability, offsetting electricity costs, integrating microgrids into CAISO operations, generating data and producing ancillary benefits at the remote location.

The solar/storage project at the coastal airport will "represent the first multi-customer, front-of-the-meter microgrid with renewable energy generation owned by a CCA and the microgrid circuit owned by an IOU." Redwood Coast Energy will own the generation while Pacific Gas and Electric will own the distribution circuit, with Schatz Energy Research Center leading the project.

The airport facility consists of two ground-mounted solar PV arrays, one a 250-kW array configured for net energy metering service, and the other a 2-MW, 6-acre array for wholesale power sale. It also features a 2-MW/8-MWh lithium ion battery storage system and will additionally power a U.S. Coast Guard station. It will add resilience to 18 accounts on PG&E's Janes Creek 1103 distribution circuit and is seen as providing a roadmap for microgrid development, the CEC said.

The Santa Rosa project will be 136,000 square feet of rooftop solar on two existing parking structures and two 1-MW lithium-ion battery systems. Other subcontractors and vendors include the California Center for Sustainable Energy, PXiSE Energy Solutions, WorleyParsons, SunPower, STEM and nine other subcontractors to be announced.

Chairman Robert Weisenmiller on Wednesday said the CEC has been communicating with utilities and the Public Utilities Commission about making microgrids a priority in high fire-risk areas to help maintain resilience and reliability.

"It is time to move more toward the future in this area," Weisenmiller said.

Commissioner Andrew McAllister said: "I think this is absolutely a valid thing to be doing," but he called for "realism" as microgrids are developed. "Part of the challenge is to figure out and learn where they are really needed. … The goal isn't necessarily for the whole distribution grid to be a complete assembly of microgrids."

The projects were funded through the latest round of solicitations of the Electric Program Investment Charge (EPIC), a retail ratepayer surcharge. (See *California Awarding $45 Million for Microgrids*.) The program has funded hundreds of projects, approaching $500 million in awards.

The CEC also approved:

- Building energy efficiency standards for Marin County that will require all new single-family residences less than 4,000 square feet to be all electric or, if mixed fuel, to reduce energy consumption by 15%, or 20% below the 2016 standards if a PV is included. New low-rise multi-family residential will be required to be all electric or reduce energy consumption by 10%, or 15% if a PV system is included. New high-rise multifamily residential and new nonresidential construction will be required to be all electric or reduce energy consumption by 10%.
- A $1.5 million, 1% interest rate loan for energy conservation measures for the city of Weed for city-owned sites.
- A $260,000, 1% interest rate loan to San Diego County to install demand-controlled ventilation and more efficient interior and exterior lights at a nursing facility.

California Energy Commission left to right: Karen Douglas, Chairman Robert Weisenmiller, Andrew McAllister and Janea Scott. (David Hochschild is absent.) | © *RTO Insider*

Solar Inverter Problem Leads CAISO to Boost Reserves

Continued from page 1

at a Market Performance and Planning Forum. Some of the inverters began working properly after reprogramming, but others are hard-wired and still subject to tripping. Phipps said 2,700 to 2,800 MW of generation across the whole ISO system cannot be reprogrammed.

"They are not in any one regional area; they are spread out across all the plants in California," Phipps said during a presentation, adding that the issue is not affecting behind-the-meter or storage resources.

The inverters, which convert photovoltaic DC output to utility frequency AC, some-

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CAISO NEWS

Solar Inverter Problem Leads CAISO to Boost Reserves

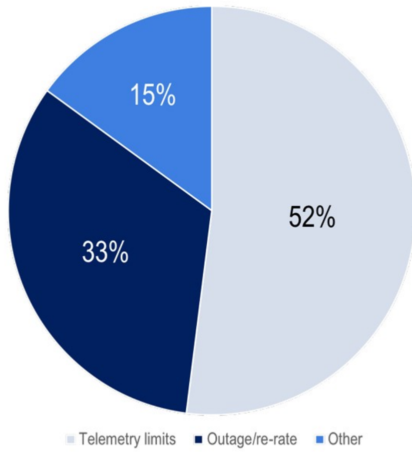
Continued from page 7

times trip offline to protect the systems during voltage fluctuations. CAISO began procuring additional reserves a year ago, after the problem occurred in August 2016 because the Blue Cut fire in Cajon Pass caused transmission line faults and disconnected 1,200 MW of solar. (See *CAISO Boosts Reserves After August Event Report*.)

CAISO CEO Steve Berberich last month cautioned the ISO's Board of Governors about the seriousness of the problem, which caused the loss of 860 MW of solar resources on April 20. (See *CAISO Board Approves Forecast Error Measures*.)

The inverter problems have so far triggered two NERC alerts, one on June 20, 2017, and the other on May 1 of this year. NERC said the problem could also affect non-bulk power systems and recommended all operators follow recommendations spelled out in the more recent alert.

"While this NERC alert focuses on solar PV, we encourage similar activities for other inverter-based resources such as, but not limited to, battery energy storage and wind resources," the agency said in the May 1 alert.



Sources of 2018 ancillary service scarcity events | *CAISO*

Ancillary Service Scarcity Increases

CAISO has seen an increase in ancillary service scarcity events in the real-time market, Director of Market Analysis and Forecasting Guillermo Bautista Alderete told the forum. He said while the number of incidents has increased, the magnitudes are small, with about 75% of the scarcities at fewer than 10 MW. The increased incidents stem from a confluence of factors and changes in the market, he said, including the solar operating reserve requirement.

Most recently, CAISO issued three notices of ancillary service scarcity events for May 3-6, May 15 and May 23-28, nearly all of which were associated with regulation up service and mostly in the SP26_EXP region in Southern California. In 2018, 46% of the scarcities happened in SP26_EXP, 35% in NP26_EXP and 19% in CAISO_EXP.

CAISO pays an ancillary services scarcity price when it is unable to procure the target quantity of one or more ancillary services in the integrated forward market or real-time market runs. About 52% of the scarcities are because of limits in generator telemetry, which is the process whereby a generator supplies the ISO with real-time data. Mismatches between telemetry and real-time needs require the ISO to procure additional capacity in the real-time market. About 33% are from generator outages and re-rates, and 15% categorized are as "other."

The ISO's Department of Market Monitoring in its 2017 State of the Market report noted that scarcity events in the real-time market "increased significantly" from 26 in 2016 to 54 in 2017.

ERCOT NEWS

Botkin Makes First Appearance on Texas Commission

Shelly Botkin enjoyed a relatively quiet debut on the Public Utility Commission of Texas last week, sitting through a 15-minute open meeting devoid of any major decisions.

Appointed to the three-person commission on June 11 by Gov. Greg Abbott and sworn in two days later, the former ERCOT communications and governmental relations director smiled often at friends in the audience and seconded motions for approval. (See *ERCOT's Botkin Named to Texas PUC*.)

"With that, your first meeting is over," PUC Chair DeAnn Walker said to Botkin as she adjourned the June 14 meeting to the room's applause.

(Left to right) Texas PUC Commissioners Shelly Botkin, Chair DeAnn Walker and Arthur D'Andrea react to the audience's applause at the end of the meeting. | *© RTO Insider*

Botkin's term expires Sept. 1, 2019. She filled the position vacated by Brandy Marty Marquez's departure in March. (See *Marquez to Depart Texas PUC*.)

The 46-year-old Botkin had been with ERCOT since 2010. She spent the previous 10 years as a senior policy analyst in the Texas Senate and House of Representatives.

The PUC has seen a complete turnover of commissioners in little more than a year. Donna Nelson and Ken Anderson, the two longest-serving commissioners, both left the agency last year. They were replaced by Chair DeAnn Walker and Arthur D'Andrea, respectively.

Walker Calls for Attention to Details During Summer

Walker opened the meeting with a plea for normalcy during the summer months, when demand will be high, ERCOT's reserve margin low and energy prices potentially poised to spike.

Already, the market has seen the collapse of Breeze Energy on May 30, the first retail electric provider (REP) to go out of business since 2014. ERCOT staff told the Board of Directors June 12 that the retailer defaulted on its collateral obligations to the ISO.

Mark Ruane, ERCOT's director of settlements, retail and credit, said that when Breeze "failed to cure that breach," the ISO began a transition of its nearly 10,000 customers to their providers of last resort: other REPs.

"While I think it went smoothly, I think it could go smoother in the future," Walker said, thanking Oncor for managing the transition. "They waived all the deposits. I think that was very helpful too."

ERCOT is holding a workshop June 21 to discuss lessons learned from the Breeze transition.

"My focus is making sure consumers get to choose who they get to take service from and do it in a timely manner," Walker said.

PUC to Intervene in FERC Dockets

Following its executive session, the PUC moved to intervene in three dockets currently before FERC:

- NextEra Energy Transmission's request to buy a 30-mile transmission line in East Texas owned by Rayburn Country Electric Cooperative. NextEra plans to transfer functional control of the line to SPP (EC18-97).
- Entergy's waiver request to allow its operating companies to reflect recent tax law changes in MISO's formula rate templates (ER18-1721).
- MISO's proposed Tariff modifications governing the treatment of generation retirements and suspensions (ER18-1636).

— Tom Kleckner

ERCOT NEWS

ERCOT Board of Directors Briefs

Staff: May Heat Doesn't Mean 'Blazing' Summer

ERCOT CEO Bill Magness assured his Board of Directors last week that the grid operator is prepared for the summer heat, despite the retirement of 4 GW of coal-fired capacity since last summer.

Magness highlighted a plethora of meetings staff have held in recent weeks with regulators, media, information officers from state utilities, pipeline and gas companies, transmission owners and other stakeholders. He also noted new demand records set in May and June, which the ISO managed without emergency alerts or conservation appeals.

ERCOT recorded new monthly demand records of 67.3 GW on May 29 and 67.9 GW on June 1. Magness told the directors May was the hottest ever recorded in the United States, and the second-hottest in Texas.

"We saw it on the system," he said. "We're just getting into summer. Here we go!"

Staff has projected a new summer peak of 72.8 GW in August. It says it has 78.2 GW of capacity available and continues to expect to have enough resources to serve load. (See *ERCOT Gains Additional Capacity to Meet Summer Demand*.)

Senior Meteorologist Chris Coleman pointed out that heat records in May don't necessarily equate to a "blazing" summer. He said Texas' hottest May in 1996 was followed by the 76th hottest summer on record. Of the 20 hottest Mays dating back to 1895, only five were followed by one of the 20 hottest summers.

"We'll be hotter than last summer, which won't take a lot," Coleman said, referring to the 50th hottest summer on record.

Coleman said the expected rains from Gulf of Mexico and Pacific storms over the next week will help tamp down temperatures in the weeks that follow.

"We'll always take more rain, but substantial rain leads to soil moisture and water in the reservoirs," he explained. "That will tone down the extreme heat this summer. That's the type of thing that prevents 2011 from happening again."

That year remains the state's hottest on record. The Dallas-Fort Worth Metroplex recorded 40 straight days of 100-degree temperatures — and 71 overall — in 2011.

Coleman is looking at 2013 and 2006 — Texas' 21st and 42nd hottest summers — as indications of what to expect this summer, and he said there is a two-in-three chance that temperatures will end up between those two years.

He also predicted less hurricane activity than last year, when Hurricane Harvey dumped 52 inches of rain on the Houston area. Coleman said without the La Nina of 2017 or an El Nino, overall activity will probably be at the lower end of the National Oceanic and Atmospheric Administration's predicted range of 10 to 16 named storms and five to nine hurricanes.

The good news with May's summer heat?

ERCOT's year-to-date net revenues have a favorable variance of $8.3 million, and a favorable year-end forecast of $12.3 million.

IMM's Garza Calls for Evaluation of Local Signals

Beth Garza, director of ERCOT's Independent Market Monitor, said the ISO should evaluate the market's ability to send local signals.

As she reviewed the Monitor's annual State of the Market report, Garza reminded the board that price signals that incent new generation are a fundamental aspect of a "sustainable, ongoing market." She said that net revenues (revenues in excess of assumed production costs) over the past six years are far less than the costs of building a new peaking unit, a result of the market's capacity surplus.

"We have a market that continues to grow and with requirements continuing to increase, which requires sufficient resources to meet those," Garza said. "But since the start of the nodal market in 2011, the net revenues have not been sufficient to pay the fixed costs of new generation."

Net revenues in the market were around $110/kW in 2011, but only broke $40/kW last year — and only in the Houston region. The Monitor has estimated the cost of new entry between $80 and $95/kW, based on the value of simple cycle gas turbines.

"I don't have a lot of precision, hence the range," Garza told the board. "We've been so far under for so long, it's hard to get focused on whether [the point of entry] should be $82/kW or $95/kW. I don't

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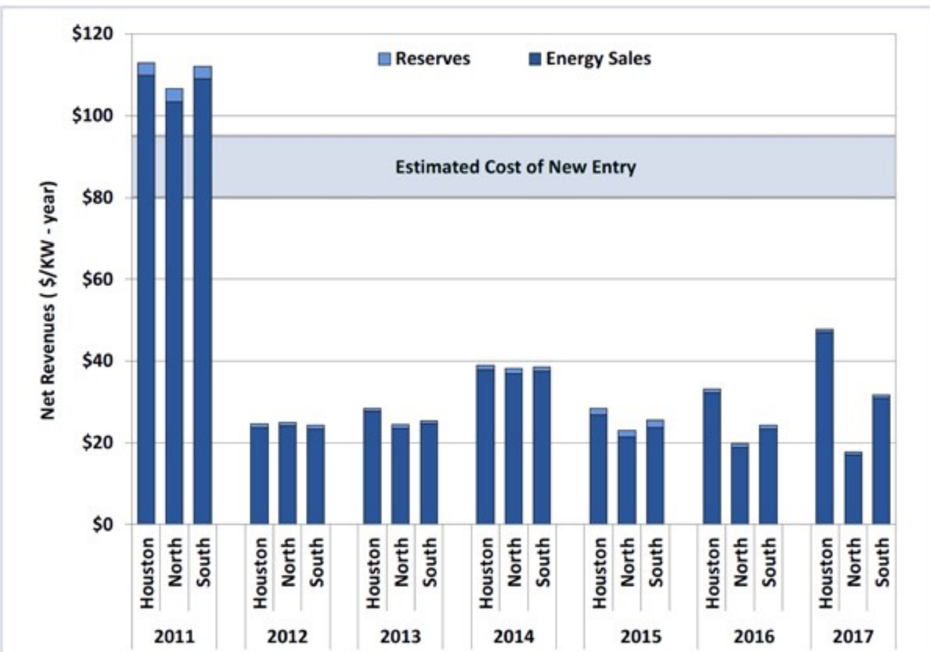

Net revenues by year and ERCOT zone | *Potomac Economics*

ERCOT News

ERCOT Board of Directors Briefs

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know what that ratio is, but we have certainly seen a half-dozen years or so of very low contributions toward net revenues."

Garza said congestion costs increased 95% to $967 million over 2016 because of wind generation exports from the Texas Panhandle, construction of the Houston Import projects and Harvey's aftermath. She expects the Panhandle congestion costs to continue to increase as more wind is built in West Texas without a commensurate addition of transmission infrastructure.

"The Panhandle … contributes to those high costs because of the large differential in generation costs on either side of that constraint," Garza said. "Wind generation in the Panhandle is at zero or below. The average cost on the ERCOT side is at 20, 30, 40 dollars. That spread is much higher than other constraints."

The Monitor again included real-time co-optimization on its annual list of market improvement recommendations. (See "Monitor Says Wholesale Market 'Performed Competitively' in 2017," *ERCOT Briefs*.)

Garza said that real-time co-optimization would make better use of the system's resources, lower costs, allow for efficient shortage pricing when the market can't satisfy any of its energy or reserve needs, and allow all supply to participate in the ancillary services markets.

$327M in Tx Projects will Meet Permian Basin's Load Growth

The board unanimously approved $327.5 million in West Texas transmission projects to address congestion from increasing oilfield load growth in the Permian Basin.

The Far West Texas Regional Planning Group Projects include new construction and upgrades of three 345-kV lines — Riverton-Sand Lake, Sand Lake-Solstice and Solstice-Bakersfield — that staff recommended be designated as critical to system reliability. The board agreed with the recommendation.

ERCOT CEO Bill Magness hands the microphone off to Senior Meteorologist Chris Coleman at the Board of Directors meeting.

Jeff Billo, ERCOT's senior manager of transmission planning, told directors the projects will allow the region to handle up to 1.7 GW of load. Staff's independent review of the two Oncor projects indicated local load projections of 880 MW and 1,013 MW for 2019 and 2022, respectively. A year ago, load projections for 2021 came in at 553 MW.

Bill said the region has added 80 rigs in the last year. "It's the hot spot of hot spots," he said.

IHS Markit, a global data firm, has predicted the Permian Basin in Texas and New Mexico will become the world's third-largest producer of oil, behind only Saudi Arabia and Russia. The firm projects production will double to almost 5.4 million barrels a day between 2017 and 2023.

Construction on the Far West Texas projects is expected to begin next year, with completion in 2023.

Board Approves 8 Change Requests

The board remanded back to the Technical Advisory Committee a nodal protocol revision request (NPRR) incorporating an intraday or same-day weighted average fuel price into the mitigated offer cap.

The City of Dallas' Nick Fehrenbach, representing the commercial consumer segment, had the change pulled off the consent agenda, saying its language was unclear. "I think at best the language is vague and confusing. At worst, it's an unenforceable clause," he said.

Fehrenbach said he was unable to come up with a solution with ERCOT staff. Market participants won't be harmed, he said, because the ISO already uses a manual workaround for exceptional fuel prices.

NPRR847, which cleared the TAC unanimously, is meant to ensure resources are capped at the appropriate cost during high fuel-price events and that LMPs reflect the true incremental cost of fuel.

The board also tabled an accompanying verifiable cost manual revision request (VCMRR021), which aligns the manual with NPRR847 by removing language providing for make-whole payments for exceptional fuel costs.

The board approved four other NPRRs, a pair of other binding document revisions (OBDRRs) and two changes to the Planning Guide (PGRRs):

- NPRR837: Updates the Regional Planning Groups' tier classification rules, among other related improvements and clarifications, to ensure the RPG and ERCOT are reviewing the most appropriate subset of transmission projects.
- NPRR851: Establishes a clearly defined disconnection process within the market rules applicable to a transmission voltage connection to the grid that uses one electrical connection for both generation and load services.
- NPRR867: Caps the amount of each counterparty's available credit limit locked for congestion revenue rights auctions at the pre-auction screening credit exposure amount.

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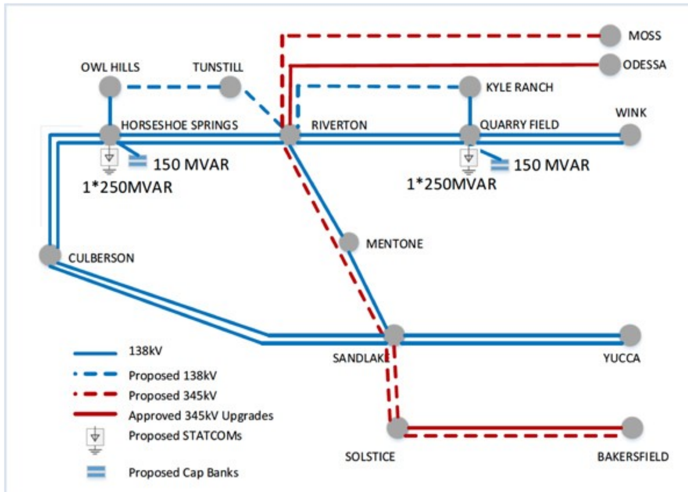
- NPRR870: Deletes the gray-boxed requirement for ERCOT to post a forward adjustment factors summary report on the Market Information System's certified area. The information in this report is already provided on each counterparty's estimated aggregate liability summary report.
- OBDRR004: Revises the risk-weighting factors available for assignment to each emergency response service (ERS) time period; describes the process for updating the ERS time period expenditure limits for any subsequent standard contract terms (if money is needed to fund) and the ERS renewal contract period; and updates a table to reflect the risk-weighting factors' proposed changes.
- OBDRR005: Revises the generic transmission constraint (GTC) shadow price cap that is used in security-constrained economic dispatch for base case constraints from $5,000/MWh to $9,251/MWh. The revision also updates the associated examples in SCED and makes an administrative edit to a protocol reference.
- PGRR059: Includes RPG-related changes intended to improve and clarify existing processes.
- PGRR060: Updates the reliability performance criteria by defining a DC tie's unavailability as a new contingency and clarifies the voltage level of transformers referred to in the reliability performance criteria.

— Tom Kleckner



ERCOT's Far West Texas projects | *ERCOT*

ISO-NE News

6 Projects for ISO-NE's 1st Clustered System Impact Study

By Michael Kuser and Rich Heidorn Jr.

MILFORD, Mass. — Only six of 32 interconnection requests studied by ISO-NE in its initial test of its new queue clustering methodology have moved on to the next stage of the process, all of them in western Maine.

The six interconnection requests, totaling 691 MW, will be included in the RTO's first cluster system impact study (SIS), Al McBride, director of transmission strategy and services, told the Planning Advisory Committee last week.

ISO-NE implemented the clustering methodology to address the queue backlog in Maine, where more than 5,800 MW of proposed resources, mostly wind, want to connect to the grid.

The process allows for two or more interconnection requests in the same area to be analyzed together and to share costs for required transmission upgrades when none of the requests can interconnect without the use of common new infrastructure rated at 115 kV AC or HVDC.

The first Maine Resource Integration Study (MRIS) concluded that the RTO could connect nine Northern Maine requests totaling 1,118 MW and 23 western Maine requests totaling 777 MW with about $1.83 billion in transmission upgrades. The upgrades included a second 345-kV Coopers Mill-Maine Yankee 392 line — which both clusters required — at a cost of $108 million.

With constraints on the system, "we found ourselves hitting a ceiling of around 1,800 MW" in interconnection requests able to be accommodated, "which is a significant addition to the Maine transmission system," McBride said.

Projects had 30 days after posting of the MRIS on March 12 to inform ISO-NE of their intention to move on to the clustered SIS process.

None of the Northern cluster projects — whose upgrades would have totaled $1.36 billion, including the second 392 line — agreed to proceed.

Seven of the 23 western Maine requesters sought to be included in the cluster SIS, but one, for 1,200 MW, was not permitted because it exceeded the capacity of the "cluster-enabling transmission upgrades." It will be studied separately.

Costs of the upgrades for the western projects, including the second 392 line, were estimated at $575.5 million. The other upgrades include a new 345-kV line from a new substation near Johnson Mountain to the existing 345-kV substation at Larrabee Road.

Second Study Planned

The RTO is planning a second MRIS to evaluate upgrades needed to accommodate an additional 22 interconnection requests, including about 1,350 MW in Somerset and Franklin counties and about 2,300 MW in Aroostook and Penobscot counties.

McBride said the study will consider new HVDC transmission connecting to the southern part of the RTO's system, connecting either radially to proposed generation or to the existing network.

The RTO asked stakeholders to email feedback on the proposed study scope to PACmatters@iso-ne.com by July 13.

It hopes to complete the study within 12 months.

"We would be very reluctant to study major transmission proposals, from $500 million to $1 billion, that provide only minimal interconnection capability," McBride said.

PAC Briefs

ICR Forecast to Rise

MILFORD, Mass. — ISO-NE forecasts a net installed capacity requirement (ICR) value of 34,000 MW for capacity commitment period 2023/24, a 275-MW increase from the 33,725 used in February's Forward Capacity Auction 12 for 2021/22, officials told the Planning Advisory Committee on Wednesday.

The net ICR is forecast to rise by 200-MW increments each period to 34,800 MW for 2027/28 with capacity margins dropping to 15% from 16.7% for 2021/22.

The forecast uses the same capacity and transmission transfer capability assumptions used to develop ICR values for FCA 12 but with the 2018–2027 Forecast Report of Capacity, Energy, Loads and Transmission (2018 CELT) load forecast. The FCA 12 values were based on the 2017 CELT, system planning engineer Manasa Kotha told the PAC. (See *ISO-NE Capacity Prices Hit 5-Year Low*.)

The RTO modeled three capacity zones for FCA 12: the Southeast New England (SENE) import-constrained capacity zone comprising Northeast Massachusetts (NEMA)/Boston, Southeast Massachusetts (SEMA) and Rhode Island; the Northern New England (NNE) export-constrained capacity zone comprising Maine, New Hampshire and Vermont; and the Rest-of-Pool capacity zone comprising Connecticut and Western/Central Massachusetts.

Comparisons of the 2018 and 2017 CELT load forecasts show that while overall New England load decreased, load in the SENE sub-areas has increased, as it did last year, Kotha said.

Status	CCP	2018 CELT Forecast 50/50 Peak (MW)	Actual and Representative Future NICR (MW)	Actual Resulting Reserves
Actual Values	2018 - 2019	28,427	33,247	17.0%
Actual Values	2019 - 2020	28,577	33,407	16.9%
Actual Values	2020 -2021	28,714	33,660	17.2%
Actual Values	2021 - 2022	28,893	33,725	16.7%
	2022 - 2023		TBD	
Representative Values	2023 - 2024	29,300	34,000	16.0%
Representative Values	2024 - 2025	29,506	34,200	15.9%
Representative Values	2025 - 2026	29,712	34,400	15.8%
Representative Values	2026 - 2027	29,926	34,600	15.6%
Representative Values	2027 - 2018	30,141	34,800	15.5%

Net ICRs | *ISO-NE*

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ISO-NE NEWS

CPV: Subsidies — not Gas Shortages — Challenge for New Plants

By Michael Brooks

Competitive Power Ventures, which last week celebrated the opening of its new 805-MW combined cycle gas-fired power plant in Oxford, Conn., would like to build more gas plants. But it said it is wary of subsidized competitors.

CPV Towantic Energy Center in early May, with construction nearly complete. | *Competitive Power Ventures*

The company announced Thursday that is has begun selling power in ISO-NE from its Towantic Energy Center, which uses two GE Power 7HA.01 combined cycle, dual-fuel turbines, one of the most efficient designs in the world, with up to 64% efficiency.

The plant represents the 26th HA unit to go online, GE said. The HA series is air-cooled, which CPV says "saves as much as 90% of the water used by similar" steam-cooled designs. Poor sales of its previous steam-cooled H-class turbines prompted GE to switch to condensed air, which allows for a simpler configuration that is not only more efficient but more economic to construct as well, the company says.

The turbines' efficiency will give Towantic an advantage in ISO-NE's energy market, said Tom Rumsey, CPV senior vice president of external and regulatory affairs. With no load growth in New England, new plants must be more efficient to be profitable, he said.

The plant officially began generating power May 21, just in time for the June 1 start of the 2018/19 capacity commitment period. CPV sold 750 MW of capacity into ISO-NE's ninth Forward Capacity Auction in 2015.

It gets its fuel primarily from the Algonquin Gas Transmission pipeline and interconnects to the grid through Eversource Energy's 115-kV Baldwin Junction-Beacon Falls circuit.

Rumsey said the company expects the plant to be a baseload resource, and it isn't worried about there being gas shortages for the plant because it can also burn ultra-low-sulfur diesel fuel. In the 2014 polar vortex and this year's bomb cyclone events, "it wasn't that you couldn't get gas. It was that gas was so expensive," he said.

CPV is concerned, however, about state-subsidized resources disrupting the markets, Rumsey said. The company is looking to build more gas plants in New York, Illinois and New Jersey, all of which have enacted zero-emission credit programs for at-risk nuclear plants. They "represent the biggest challenge to the competitive markets since they began," Rumsey said.

He cited the brief FERC and the Justice Department filed with the 7th U.S. Circuit Court of Appeals in the challenge over Illinois' program, which argued that it was not pre-empted by the Federal Power Act under the Constitution's Supremacy Clause. (See *Analyst: FERC Asserts Role in Handling Nuke Subsidies*.)

CPV also opposed PJM's capacity market repricing proposals to address subsidies, instead joining Calpine and Eastern Generation to propose a "clean" minimum offer price rule applicable to all subsidized resources. (See *Gas Gens Ask FERC for 'Clean MOPR' in PJM*.)

"Accommodating these resources is the wrong way to go," Rumsey said.

Combined with the Department of Energy's latest plan to bail out uneconomic coal and nuclear plants, "it's all coming to a head at FERC this year."

PAC Briefs

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The increase is attributable to the Massachusetts economy continuing to grow faster relative to the other New England states, she said.

As part of its review of ICR assumptions for Operating Procedure No. 4 conditions (action during a capacity deficiency), the RTO has proposed using 700 MW of minimum operating reserves in the ICR model, an increase of 500 MW over the long-term assumption of 200 MW previously used. The new 700-MW assumption will be used in FCA 13 ICR calculations, Kotha said.

Future Locational Reserve Needs

ISO-NE foresees reserve needs in NEMA/Boston to be in the range of 250 to 700 MW for summer 2019 and 250 to 400 MW for winter 2019, Fei Zeng, technical manager for resource adequacy, told the PAC.

The RTO developed future representative operating reserve needs for the current reserve zones in NEMA/Boston, Southwest Connecticut (SWCT) and Greater Connecticut for summer and winter for study period 2018-2022. The actual requirements reported for 2018 are based on historical data of the last two years.

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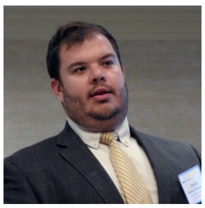
ISO-NE NEWS

Overheard at ISO-NE Consumer Liaison Group Meeting

WESTBOROUGH, Mass. — Offshore wind development, energy efficiency and engaging electricity users were the topics at ISO-NE's Consumer Liaison Group meeting on Thursday. Here's some highlights.

Accommodating Wind and Fishing in New Bedford



"Offshore wind is happening a lot faster than people thought it would," observed **Edward Anthes-Washburn**, executive director of the New Bedford Port Authority. Within the past month, Connecticut, Massachusetts and Rhode Island selected a combined 1,400 MW of offshore wind contracts, New York is set to procure 800 MW later this year, and New Jersey set a target of 3,500 MW by 2030.

Massachusetts officials hope to develop supply chains for the nascent offshore wind industry in New Bedford because of "the existence of trained welders, mechanics, etc., since workforce training is a big expense in starting a new industry," Anthes-Washburn said.

But the new ocean development must coexist with the Atlantic fishing industry that preceded it, Anthes-Washburn said. The port supports about 13,000 jobs and generates nearly $10 billion in economic activity each year.

"Since we are the No. 1 fishing port in the U.S., I look at [OSW development] through the lens of the commercial fishing industry because that is by far my No. 1 stakeholder," he said. "We really want to make sure that as the offshore wind industry develops, it does so in a way that integrates with the commercial fishing industry. It's really critical that we do that now, with the first project." (See *Competition, Cooperation and Costs the Talk at OSW Conference*.)

Between the shipping transit lanes, the fishing grounds and the wind energy areas, "there is a lot going on on the continental shelf," Anthes-Washburn said. "The sooner we can de-conflict a certain area and understand who's going to be impacted by offshore wind, the faster we can start having a conversation with the commercial fishing industry, with the recreational boaters, with the commercial marine operators."

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PAC Briefs

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The forecasts did not consider the impacts of Footprint Power's new 674-MW combined cycle power plant in Salem, Mass., "which when it goes into service by the end of the year is expected to have an impact on the following year's calculations," Zeng said.

Together with upgrades in the greater Boston area, the new Salem Harbor Station will help eliminate the local reserve needs for the study period, Zeng said.

In SWCT, the grid operator expects Competitive Power Ventures' Towantic Energy Center, which began generating last month, to help reduce local reserve needs to a minimum level for summer 2019. With the assumed addition of Bridgeport Harbor 5, and the SWCT transmission upgrades, forward reserve requirements are expected to be zero for the remainder of the study period. (See related story, *CPV: Subsidies — not Gas Shortages — Challenge for New Plants*, p.14.)

CEII Presentations Describe Aging Infrastructure

The PAC heard five presentations on regional transmission infrastructure, which collectively described the rust in New England's rustbelt. All five presentations were classified as containing critical energy/electric infrastructure information (CEII).

However, one stakeholder pointed out that much of what the classified material detailed would be visible to any interested commuter in the region. The needed replacements range from vintage control room equipment to brown glass insulators to replacing rusting towers.

Pradip Vijayan, ISO-NE senior engineer for transmission planning, updated the PAC on results from the SWCT 2027 needs assessment, as well as one project related to an older needs assessment for Greater Hartford/Central Connecticut.

Christopher Malone, Avangrid manager for Connecticut transmission planning, presented railroad corridor transmission line asset conditions. Maintenance of century-old catenary structures over the railroad is complicated by railroad control of 22-kV feeder/signal conductors.

Eversource Energy system planning manager Shaun Moran presented on challenges with the infrastructure in Eastern Massachusetts that carries much of the load for Cape Cod.

Kelly Csizmesia presented on behalf of National Grid's New England Power unit, which operates transmission facilities in every regional state except Connecticut.

Transmission Projects and Asset Condition Update

Jon Breard, ISO-NE associate engineer for transmission planning, presented an update on the Regional System Plan regarding transmission projects and asset conditions, noting that seven new transmission projects totaling $146.8 million have been placed in service since the last update in March.

The RTO estimates about $1.74 billion in active reliability projects are underway now, compared to $1.9 billion in March.

Regarding asset conditions, the RTO reported one new project (the $6.3 million replacement of the Montville 16X transformer in Connecticut), and three projects placed in service since the last update in March, including: the installation of two 40-MVAR reactors on the Scobie 115-kV bus in New Hampshire ($4.7 million); replacement of the Salem Harbor Substation 115-kV oil circuit breaker ($4.6 million); and the 1231/1242 structure replacement project in Massachusetts ($8 million).

— Michael Kuser

ISO-NE NEWS

Overheard at ISO-NE Consumer Liaison Group Meeting

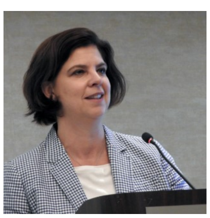
Continued from page 15

Because of New Bedford's outsized role in the fishing industry, the Port Authority's Fisheries Advisory Committee on Offshore Wind represents about 30% of all U.S. commercial fishing, he said.

States are vying to get the early-entrant advantage in establishing supply chain centers for the industry.

Last week, the Department of Energy awarded a $18.5 million grant to the New York State Energy Research and Development Authority to lead a nationwide research and development consortium for the offshore wind industry.

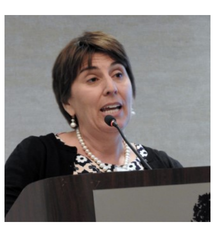
Mike Jacobs from the Union of Concerned Scientists noted that ISO-NE "has a fuel security analysis circulating, and they're basing their policies on the idea that there's not an offshore wind industry coming along … so this [presentation] is a helpful thing for educating ISO New England." (See *Report: Fuel Security Key Risk for New England Grid*.)



However, **Anne George**, ISO-NE vice president for external affairs, said one scenario in the fuel security analysis assumed 2,000 MW of offshore wind. "We wanted to show the range so that we could have this conversation," she said.

Emphasizing the Consumer

The CLG holds quarterly meetings around the region to provide a chance for residents, state officials and energy experts to learn more about the grid operator.



CLG Chair **Rebecca Tepper**, chief of the energy and telecommunications division in the Massachusetts attorney general's office, emphasized the "consumer" in the name of the group. CLG Steering Committee member Bob Espindola echoed Tepper's remarks.

"Our primary focus is to think about what you can do as an end user to impact your own electric and gas bills, and knowing what's coming in the future, to be in a better position to do that," said Espindola, energy systems program manager at Acushnet, the maker of Titleist golf balls.

Energy Efficiency's Value

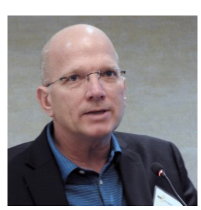
Sue Coakley, executive director of Northeast Energy Efficiency Partnerships, spoke of energy efficiency's affordability, reliability and contribution to reducing carbon emissions. "Just in the last three years, the current portfolio of efficiency programs in Massachusetts is saving $4 billion for consumers," she said. "That's just a tremendous resource."

Wendy O'Malley, manager of the Property Assessed Clean Energy (PACE) program at MassDevelopment, explained how her organization uses tax assessments to enable property owners to obtain low-cost, long-term financing for EE projects and more.

"End users have all these solutions, but if they don't have a way to finance them, or buy a new technology, they're really left with no solution," O'Malley said.

PACE assessments are similar to those used to collect the cost of public infrastructure that benefit specific properties such as sidewalks or sewers. The program finances EE projects at up to 100% and for terms of 20 years or more. Property owners pay for the improvements as part of their property tax payments, and the local government remits the PACE portion to the lenders.

Digitizing the Electron



Andy Haun, microgrid chief technology officer at Schneider Electric, said the rapid increase in the digitization of electricity "is usually an IT solution, and it's not really helping us directly."

"What is helping us is we're also digitizing the control of that electron, so the devices — the actual appliances that use the electricity, the appliances that produce the electricity — these are under very smart control systems, which by themselves and aggregated are able to then act on the energy equation," Haun said.

"This Internet of Things-enabled data infrastructure is allowing new ways for us to do more effective use of our energy and, in particular, electrical energy," he said, adding that decarbonizing the grid and decentralizing it "go hand in hand."

New Trends

Brett Feldman, research analyst with Navigant Research, spoke about engaging customers through demand-side management.

The old way of obtaining customers was going door to door, but the "new way is to lasso the entire customer base and give them the chance to opt out of the savings opportunities rather than having to sign up people one by one," Feldman said.

Another new trend is utility/vendor marketplaces, especially for millennials, who increasingly make their purchases online, he said.

Edward Woll Jr., a partner with Sullivan & Worcester, asked whether microgrids could help both shave the peak load for New England and be "cheaper than the power that you get from the grid."

Haun responded that "in most all cases — except when someone put the microgrid in specifically for resilience needs — you'd be doing it because it's going to save you cost from the tariff rate."

"The distributed energy resources reduce costs because they're being packaged, they're being manufactured in locations that enable them to be very easily deployed," Haun said. "These systems are going to put pressure on the cost of the energy against what you wouldn't be buying from the grid, absolutely."

— Michael Kuser

Raab Associates' 158th New England Electricity Restructuring Roundtable

Driving Carbon off the Road in New England

By Michael Kuser

BOSTON — Private car ownership in cities will be a rarity in five years, but it may take 30 years to get all the gas-guzzling pickup trucks and SUVs off the road.

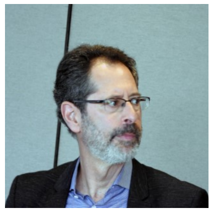
Those were two extremes of visions for decarbonizing the transportation sector presented Friday at Raab Associates' 158th New England Electricity Restructuring Roundtable.

Two big challenges in decarbonizing passenger vehicles are geography and scale, said Massachusetts Transportation Secretary **Stephanie Pollack**.

"Lyft has pledged that its company alone will provide 1 billion autonomous, electrified rides annually by 2035, which would be far more important if we didn't make 411 billion trips a year in the United States, meaning that the 1 billion trip goal represents less than one day's travel — and that's one day's travel in 2015, not 2035," Pollack said.

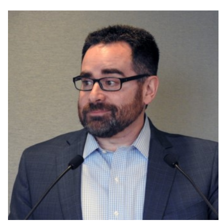
"That, my friends, is the problem of scale in transportation," she said. "Sometimes I refer to it as the 'denominator' problem. We talk about the numerator — we're going to have 300,000 electric cars, we're going to have a billion trips — and we forget the denominators, and in transportation they're enormous."

Inundating Innovation



"As we sit here today in this low-lying seaport/innovation district — someone in the audience said 'inundation district' — the announcement yesterday that Antarctic annual ice loss has tripled in the last decade, and now stands at 219 billion tons of ice per year, should continue to instill a sense of urgency in these matters for all of us," said moderator **Jonathan Raab**.

"Although this is our Electricity Restructuring Roundtable — and the electrification of cars is often viewed as the panacea for reducing carbon in the transportation sector — we should not forget the critical importance of strategies to reduce VMT, or vehicle miles traveled in personal vehicles, through mass transit, shared mobility, biking, walking, telecommuting and other strategies, as well as making transportation more efficient generally," Raab said.



Robert Klee, commissioner of the Connecticut Department of Energy and Environmental Protection, boasted that his state, though small, is keeping up with its neighbors in offshore wind procurements and even moving ahead in setting interim goals for greenhouse gas reduction, highlighting the passage earlier this month of Public Act 18-82 (Senate Bill 7).

The department had announced Wednesday that the state will purchase 200 MW of output from Deepwater Wind's Revolution Wind project, adding to Rhode Island's 400-MW procurement. (See <u>*Conn. Awards 200-MW OSW, 50-MW Fuel Cell Deals*</u>.)

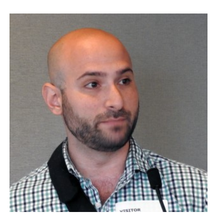
"As Massachusetts is thinking about their interim goals, we've actually put them into law, so for 2030, there are 45% reductions in greenhouse gas," Klee said. "We took where we are today, and where we have to go by statute — 80% by 2050 from 2001 levels — drew basically a straight line, that's 45% by 2030. That is actually the most ambitious target in the country right now."

Transportation represents 36% of the state's GHG emissions, "and that means we have to do a whole lot on deployment of zero-emission vehicles, and transit, and it's an all-of-the-above strategy for Connecticut," Klee said.

The state is also pushing against federal rollbacks by working with other states, such as through the U.S. Climate Alliance, he said. It also joined the Transportation and Climate Initiative with eight other states in the Northeast to consider a cap-and-trade system for transportation similar to the Regional Greenhouse Gas Initiative in place for the power sector.

| © RTO Insider

Ridesharing Fix



Corey Ershow, Lyft's transportation policy manager for the Eastern U.S., wants to help tackle Pollack's denominator problem through ridesharing, which cuts total VMT by increasing the number of passengers in a vehicle.

"About three-quarters of commuters not only drive to work every day, but they're doing so alone, which shouldn't be all that surprising, but it does cause significant problems — $160 billion a year in congestion costs, and 40,000 American fatalities

Continued on page 18

Raab Associates' 158th New England Electricity Restructuring Roundtable

Driving Carbon off the Road in New England

Continued from page 17

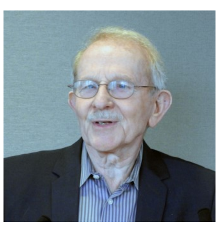
last year," Ershow said.

Historically, we haven't given people a lot of options, he said. "Either you take mass transit, which is great if you live right along an existing route, and it's operating at high capacity, but that's not the case everywhere," Ershow said. "As a result, car ownership looks pretty appealing."

In the vast majority of use cases, a private vehicle is going to be the fastest way to get from point A to point B in an era in which we are placing an increasing price premium on time, he said.

"But ridesharing has proven demand for an alternative," Ershow said. "This is going to become that much more ubiquitous as we move into autonomous vehicles," which when shared on a platform like Lyft could mean dramatic reductions in VMT numbers in the U.S.

The company projects that within five years, fully autonomous vehicles will provide the majority of Lyft rides across the country, and by 2025, private car ownership will all but end in major U.S. cities, he said.



Mechanical engineering professor **John Heywood** of the Massachusetts Institute of Technology said that huge swaths of the country are outside urban areas, and drivers who live in rural areas are more prone to be concerned about the range of an EV.

"Long recharging times are also an issue, because if you up the power, you fry the battery," Heywood said. "Most EVs must recharge at home, and they do 90% of their recharging at home, and 90% of EV buyers buy a home recharger. But how many homes have that potential? Our current estimate is about a third of the 110 million homes in the U.S. So that's a constraint that we haven't yet found a way around."

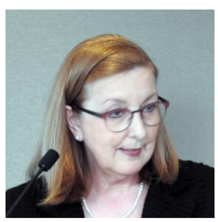
Efficiency and EVs

Ben Haley, cofounder of Evolved Energy Research, posited three pillars supporting a deep decarbonization strategy for the transportation sector — electrification, energy efficiency and electricity decarbonization.

Reducing carbon emissions to 80% below 1990 levels by 2050, Haley said, would require a threefold increase in the share of energy from electricity, coupled with efficiency gains to reduce per capita energy use by 40%. But even that is not enough, he said.

"Even with energy efficiency, electrification increases load precipitously, but as we are doing that we're also needing to bring on renewable resources or other decarbonized resources to lower the emissions intensity about 90%," Haley said.

"These are sobering numbers, undoubtedly," he said. "Per capita energy use needs to drop, which can be through a combination of electrification, fuel efficiency, a reduction in service demand through conservation or reimagining of service demand through mobility — all of those can reduce energy. Every unit of energy we don't demand means we don't have to build a system to support that."



Evangeline Levesque, executive director of sustainable transport and electrification policies for the Quebec Ministry of Transportation, said her province is in the middle of a five-year, $420 million plan to electrify its transportation.

"Quebec has a lot of clean, renewable energy," Levesque said, referring to the province's vast hydropower resources. "As it is, we have a lot of it. As it is not too expensive, it was the obvious treatment."

The difference between Quebec and New England is that it funds its decarbonization programs through an active carbon market, being part of the Western Climate Initiative with Ontario and California. The province set a target of $500 million of investment and 5,000 jobs in the EV industry by 2020, by when it aims to have 100,000 EVs registered.

Monumental Shift

Terence Sobolewski, chief customer officer for National Grid, acknowledged the barriers mentioned by other speakers, such as consumer awareness, high cost and EV model availability. But he said that building charging infrastructure was the most important step now, in the early stages of the industry.

To achieve 80% GHG reductions by 2050, "we need to have half of our light duty fleet be electric by the year 2030, [for which] you actually need to have 100% of sales [be] electric at least two or three years before that to effect that transition," Sobolewski said.

"That means that in less than 10 years, every car and light duty truck sold in the Northeast would have to be electric," he said. "That's a monumental consumer shift we're talking about achieving."

Robert Klee and Stephanie Pollack | © *RTO Insider*

MISO News

MISO to Lower SPP Interregional Project Thresholds

By Amanda Durish Cook

MISO last week said it will revise its regional cost-sharing practices for interregional projects with SPP to match its process for PJM seams projects, lowering the voltage threshold to 100 kV and eliminating a minimum cost requirement.

The move is part of MISO's broader plan to revise cost allocation for market efficiency projects (MEPs) as Entergy's five-year transition period — which limits cost sharing in MISO South — expires at the end of the year. The plan still includes Tariff changes to eliminate a footprint-wide postage stamp rate for MEPs in favor of more detailed benefit metrics, and to lower the voltage threshold for cost allocation eligibility of internal MEPs from 345 kV to 230 kV.

Unlike interregional MEPs, internal MEPs will still have to meet a $5 million minimum cost threshold, although both project types will still be subject to a 1.25:1 benefit-to-cost requirement. None of the changes extends to MISO's multi-value project category. (See *MISO Recommends Cost-Sharing for Sub-345 kV Tx*.)

MISO's current regional cost-sharing rules for SPP interregional projects require at least a 345-kV voltage rating and a $5 million price tag. The new rules will mirror regional rules that FERC ordered for MISO-PJM interregional projects in 2016.

Narrowing the Cost Allocation Gap

MISO Director of Strategy Jesse Moser said that ensuring consistency along the RTO seams was the deciding factor in standardizing the treatment of SPP and PJM projects.


Jesse Moser | © *RTO Insider*

The current proposal will "best align who pays with who benefits," Moser told *RTO Insider*.

"Our goal is to get as close to that as we can," he said. "We've long had a concern about what we call the cost allocation gap on our seams."

Having differing rules for separate RTO neighbors "leaves the door open for uncertainty," Moser said. "We prefer a clear rule set for any beneficial project that comes out of the" interregional process.

MISO will spend the next two months preparing its overall cost allocation proposal for a FERC filing by the end of September. The RTO is open to holding a summer conference call that would invite stakeholders to offer minor suggestions for clarity, but it does not intend to open the proposal to any substantive change, Moser said.

MISO staff have spoken to SPP officials about the changes, which will not require a revision to the RTOs' joint operating agreement because they only involve MISO's regional cost sharing, Moser said. Meanwhile, the RTOs will work this summer on a proposal to similarly relax interregional project criteria in the JOA, which still mandates 345-kV and $5 million minimums. (See *MISO, SPP Look to Ease Interregional Project Criteria*.)

Moser said there was a "possibility" that FERC could have ordered MISO to lower the SPP thresholds as it did with PJM projects, if the commission had received a complaint.

"Looking at the direction we've seen so far, on the PJM seam, that seems like something FERC would support," Moser said. "We have a pretty firm belief that if this issue was not addressed, it would get put in front of FERC."

But Moser reiterated that consistency, not the threat of a FERC complaint, drove MISO's decision.

Transmission Owners: Equal Treatment Unnecessary

But some stakeholders continue to question what would be a discrepancy between the voltage thresholds for MISO MEP projects and interregional projects with SPP. (See *MISO Cost Allocation Plan Hits Interregional Differences*.)

More than 20 MISO transmission owners joined in written opposition to the 100-kV threshold on interregional projects with SPP. They contend that there are differences between the PJM and SPP seams and that the two "should not receive equal treatment."

MISO's seam with SPP is longer and has lower load density than that with PJM, meaning generation can be situated far from load, the TOs have pointed out. Higher-voltage interregional projects are a

Continued on page 20

MISO Intervenes in IPL Storage Appeal

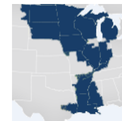
MISO this week filed to intervene in Indianapolis Power & Light's appeals challenging FERC decisions on energy storage compensation and dispatch within the RTO.

In a June 11 filing, MISO said it had "direct, substantial and legally protectable interest that would be subject to impairment" by IPL's litigation. The RTO also said its independence from its members ensures "no other party can adequately represent" its interest in the case that could force changes to its Tariff (18-2104).

The case is pending before the 7th U.S. Circuit Court of Appeals after IPL filed a petition for review in mid-May, challenging FERC orders stemming from the company's 2016 complaint that MISO's Tariff unreasonably limited energy storage participation. (See *MISO Ordered to Change Storage Rules Following IPL Complaint*.) While the commission last year directed MISO to draft rules to open its markets to storage, it did not order compensation for automatic frequency control or find that the RTO's current dispatch rules could harm storage battery life, even after IPL sought rehearing on the two issues. (See "No Rehearing for IPL," *FERC OKs MISO Plan to Expand Storage*.)

In its petition for review, IPL pointed out that FERC's original order on its complaint in early 2017 was issued two days before the commission lost its quorum and was reduced to just two commissioners.

— Amanda Durish Cook



MISO Seeking SPP Tx Penalty Compromise

By Amanda Durish Cook

CARMEL, Ind. — MISO says it will seek to alter SPP's practice of levying unreserved transmission use penalties on MISO load-serving entities when the charges pose a deterrent to building interregional projects.

Eric Thoms | *© RTO Insider*

Eric Thoms, MISO manager of interregional planning and coordination, last week said the RTO's other contract path sharing agreements with PJM and Ontario's Independent Electricity System Operator allow for use of transmission service when a normal feed is open and joint contract path capacity is used to serve load.

It likewise does not charge for transmission service when non-MISO LSEs use its transmission under contract path sharing.

But SPP does not acknowledge contract path sharing, instead issuing MISO LSEs bills for transmission service and unreserved usage penalties. Thoms said MISO is concerned those charges could extend to future interregional projects cost-shared between the two RTOs.

Thoms likened SPP's charges to the early days of cellphone contracts before shared plans, when bandwidth could be exceeded only with bill increases.

"Should MISO and SPP approve an interregional project, under certain qualifying conditions, MISO members could be expected to acquire transmission service or be subject to unreserved usage penalties in addition to MISO's cost of an interregional project," Thoms said during a June 13 Planning Advisory Committee meeting. He recommended that the RTOs seek a compromise in the JOA that exempts MISO members from SPP's additional transmission service or unreserved usage penalties for any future interregional projects.

"We got a shadow of evidence that this could be an issue in the last [coordinated system plan] study," Thoms said, saying that considerable MISO load on one proposed interregional project could have seen SPP charging transmission fees on MISO LSEs.

MISO and SPP have never approved an interregional project, despite conducting two coordinated system plan studies. Thoms said stakeholders attending the PAC have suggested that SPP's current practices "may be an impediment to interregional projects with SPP." Some MISO stakeholders in public meetings have said a first-ever interregional project will continue to be elusive until RTOs have comparable transmission usage charges.

Thoms said some stakeholders have suggested MISO "reciprocate" and use SPP's interpretation of transmission charges, but he discouraged the idea.

"That would also have broader implications on how contract paths are interpreted," Thoms said. "This is in the spirit of trying to remove impediments to mutually beneficial interregional projects."

Thoms said MISO staff will next approach the MISO-SPP Joint Planning Committee to seek a negotiation of the unreserved use charge practice with respect to interregional projects.

David Kelley, SPP director of seams and market design, said his RTO's Seams Steering Committee is aware of MISO's position on the "potential unreserved use charges under SPP's Tariff and their perceived impact to future SPP-MISO interregional

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MISO to Lower SPP Interregional Project Thresholds

Continued from page 19

better fit for those conditions, unlike the MISO-PJM seam where population density makes smaller transmission projects more worthwhile, they argue.

The TOs also note that MISO and PJM have been coordinating along their seam for about 18 years while the relationship with SPP is "less mature," evolving as SPP integrated the Western Area Power Administration and Basin Electric Power Cooperative transmission systems in late 2015 and MISO integrated its MISO South region in 2013. "Congestion patterns along that seam are not well understood and are subject to change," the TOs said.

But while acknowledging that the proposal wasn't "universally liked," Moser contends that MISO collected sufficient stakeholder feedback on regional cost allocation to move ahead with the plan.

"This has been a fairly long process. We've been working on this since 2015. We're looking at what the new needs might be given our new footprint. ... We think we're putting together a package of reforms that best meets the needs of our footprint," Moser said.

MISO also plans to conduct a general review of its overall cost allocation design three years after implementation, Moser said. The RTO will examine whether projects built under the new rules have benefits commensurate with cost allocation and examine any past proposed projects that appeared highly beneficial but still couldn't qualify for cost allocation.

"There's an understanding that needs will continue to change," Moser said.

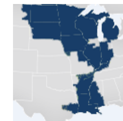
New Local Economic Project Type

MISO last week announced another new wrinkle for its cost allocation plan: a new project type that will be ineligible for regional cost sharing for the sake of clarity.

Moser said the new category, "Local Economic Projects," is meant for projects that demonstrate at least a 1.25:1 economic benefit but are below 230 kV. Such projects would have their costs allocated 100% to their local transmission pricing zone. Currently, these projects fall under an "other" category.

Moser said the category is needed to distinguish small economic transmission projects from small reliability-driven transmission projects. Today, most of MISO's "other" category of projects are reliability-driven, with few small projects being built for economic reasons, he said.

MISO NEWS



MISO Nixes LSE Load Forecast Plan

By Amanda Durish Cook

CARMEL, Ind. — MISO has called off a proposal to rely on data from its load-serving entities to compile its own long-term load forecast, stakeholders learned last week.

The RTO will instead continue to use independent load forecasts (ILFs) prepared by Purdue University's State Utility Forecasting Group but with a twist: It will now order four versions of the forecast, each tailored to one of the futures used to inform MISO's annual Transmission Expansion Plan.

"After careful consideration of the comments and proposals by stakeholders, MISO will begin to use the independent load forecasts to develop futures-specific load and energy forecasts for MTEP 20 and beyond," John Lawhorn, MISO senior director of policy and economic studies, told stakeholders at a June 13 Planning Advisory Committee meeting.

Lawhorn said "consistency and clarity, not necessarily increased precision," prompted the decision, and he stressed that MISO will continue to use LSE forecasts to plan for resource adequacy.

The expanded independent forecast is "for transmission planning purposes only," Lawhorn said.

"I know we've been talking about the ILF for the past five years, with more discussion in the past eight months," he said.

The change to an LSE-based forecast would have required MISO's 140-plus LSEs to annually assemble four different 20-year load forecasts to fit with each of the MTEP futures, an unpopular proposition with many stakeholders. (See Advisory Committee Steps up Criticism of MISO Forecast Plan.)

The LSEs themselves were mixed over whether they would be able produce their own 20-year forecasts. An April survey generating responses from one-third of LSEs representing about two-thirds of load showed that LSEs estimated the costs of putting together forecasts would be anywhere from "minimal" to a few hundred thousand dollars, Lawhorn said.

"Costs were all over the map from that perspective, whether they already had a load forecasting group or not," Lawhorn said in April.

Stakeholders at last week's meeting asked whether MISO has a plan to monitor its ILFs and compare them with actual loads after the fact.

Lawhorn said although it's difficult for MISO to line up all variables to compare forecasted load to actual load, Purdue's own analysis has shown its forecasts "trend well" with actual load in the long term.

Other stakeholders expressed concerns that MISO had no specific plan to hold the ILF to a standard of accuracy.

WPPI Energy's Steve Leovy said he would have liked MISO to hold more discussion with stakeholders before deciding on the ILF, adding that a single survey of LSEs was inadequate to collect opinions. Organization of MISO States Executive Director Tanya Paslawski said she was likewise concerned about MISO's short comment period and scant communication about its decision. She noted she would take her concerns to her Board of Directors.

'Post-capacity' Planning

MISO said it makes sense for the ILF to be tailored to MTEP futures because energy usage is increasingly driving transmission planning, shifting away from capacity-based planning that relies on an annual system peak. The RTO says it will increasingly experience peaks that can occur during any hour of the year.

"It's a shift that we're seeing from a capacity-planning paradigm to an energy-planning paradigm … as we move to more facilities that are small and local. Energy delivery is becoming the driver of a robust transmission system. Moving energy around the system becomes more important as the resource mix changes," Lawhorn said, pointing to MISO's 93-GW interconnection queue, which includes 80 GW of potential renewable sources. "This is portending to be a major shift in our system."

MISO Seeking SPP Tx Penalty Compromise

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projects."

"SPP looks forward to further discussions with SPP and MISO stakeholders during future [Interregional Planning Stakeholder Advisory Committee] meetings as we continue to look for ways to remove barriers to developing mutually beneficial transmission projects," Kelley told *RTO Insider*.

MISO-SPP Interregional Changes

Meanwhile, MISO is still committed to making its interregional project process with SPP more scalable by removing the $5 million cost threshold and the RTOs' joint model requirement, while adding an avoided cost benefit metric in addition to the adjusted production cost savings for interregional projects. (See MISO, SPP Look to Ease Interregional Project Criteria.)

"It's a herculean effort to build a joint model. It takes several months, and it's essentially another screen," Thoms said, adding that MISO hopes to file a JOA change with FERC by the end of the year.

MISO and SPP said the 15 stakeholders that provided feedback to a spring survey were divided over whether to eliminate the joint model.

"Several stakeholders believed removing the joint model would eliminate barriers and streamline the process. Others expressed concern about equitable cost allocation, lack of joint collaboration and study timelines," MISO said.

MISO also noted a majority of the stakeholders responding to the survey support removing the $5 million cost threshold.

MISO and SPP stakeholders will have a chance to discuss the proposed JOA changes at a July IPSAC meeting, for which no date has been set.

MISO News

PAC Briefs

MISO Softens Site Control Requirements in Queue Streamline

CARMEL, Ind. — MISO is moving ahead with a plan to address delays in its interconnection queue by reducing the number of project studies and making generation owners more accountable for site control.

The RTO in May proposed to remove its transient-stability, short-circuit and affected-system studies from the first phase of the definitive planning phase (DPP) of the queue and require customers to demonstrate ownership, lease interest or land rights on a project's site before entering the queue. (See *MISO Proposal Aims to Speed Up Queue Process*.)

MISO is now proposing to eliminate its proposed requirement that a developer have 100% site control upon entering the queue. A revised plan would instead increase the deposit due when entering the queue from \$100,000 to anywhere between \$500,000 and \$2 million in cash, depending on the megawatt size of the project. The larger deposit would only become refundable if the proposed project makes it to the generator interconnection agreement step.

Under the plan, a project owner would have to demonstrate full site control by the second decision point of the interconnection queue, MISO Planning Manager Neil Shah said during a June 13 Planning Advisory Committee meeting. Any owner unable to provide proof of site control by then must forfeit the larger deposit and withdraw their interconnection application, he said, adding that MISO plans to hire consultants to validate site control demonstrations.

Stakeholders — particularly renewable developers — said the proposed site control requirements were still too high.

But Shah noted that in April alone, an additional 40 GW entered the interconnection queue, with around 75% of project owners electing to pay the current \$100,000 refundable deposit instead of securing site control.

"The bar is too low for entering the queue," Shah explained. "The intent is to raise the bar, so we have reasonably high requirements that do not harm ready projects because of the entry of the non-ready projects."

| © RTO Insider

Shah said MISO intends to file Tariff changes with FERC sometime in July.

5 Focus Areas in Market Congestion Planning Study

MISO has slimmed 116 new project ideas down to five areas of focus in this year's footprint-wide market congestion planning study.

The Market Congestion Planning Study (MCPS) has so far identified four project candidates in four separate locations in MISO Midwest, and five projects to remedy one area of concern in MISO South.

In MISO South, five projects ranging from \$8 million to \$40 million with estimated benefit-cost ratios ranging from 1.10:1 to 3.27:1 are contenders to alleviate congestion on the 115-kV Natchez line at the Mississippi-Louisiana border.

In MISO Midwest, two projects focus on upgrading 138-kV facilities while two others are 161-kV solutions:

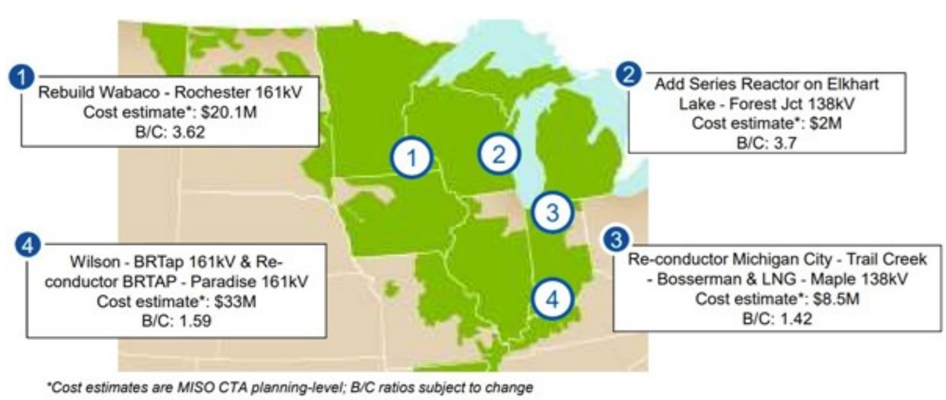
- A rebuild of the Wabaco-Rochester 161-kV line in southern Minnesota at an estimated \$20.1 million, yielding a 3.62:1 benefit-cost ratio.
- A project to add a series reactor on the Forest Junction-Elkhart Lake 138-kV line in eastern Wisconsin for \$2 million, resulting in a 3.7:1 benefit;
- A reconductor project on the Michigan City-Trail Creek-Bosserman and LNG-Maple 138-kV lines in northern Indiana for an estimated \$8.5 million, with a 1.42:1 benefit.
- A new 161-kV line with a reconductor of an existing 161-kV line near the towns of Paradise and Wilson in southern Indiana for \$33 million with a 1.59:1 benefit.

MISO Manager of Economic Studies Zheng Zhou said all cost estimates are planning-level estimates and are subject to change.

MISO's MCPS study seeks to identify both near-term congestion-relieving transmission projects and long-term economic projects. Last year's MCPS focused exclusively on MISO South and did not produce a single project recommendation.

Zhou said MISO will present final project recommendations from the MCPS at the September Planning Advisory Committee meeting.

— Amanda Durish Cook



Midwest candidates for the MCPS | *MISO*

Planning Subcommittee Briefs

Transmission Outages in Economic Modeling

CARMEL, Ind. — MISO is seeking stakeholder input as it develops a conceptual study to determine how to incorporate the impact of transmission outages into its economic planning models.

MISO said transmission and generation outages are "a major contributing factor of market price volatility." While the RTO includes concurrent generation outages in its economic model, it does not model concurrent transmission outages, though it said a 2014 exploratory study showed that transmission outages could increase system congestion by about 66%.

"Transmission outages, planned or forced, can cause redispatch of the generation. They have economic consequences," it said.

Speaking at a June 12 Planning Subcommittee meeting, MISO adviser Ling Hua said the RTO is gathering information to create modeling options for transmission outages and evaluate their trade-offs. Its study examines transmission outage modeling based on either: historical outages; a Monte Carlo-style simulation based on statistics gathered from historical outage data; a systemwide transmission facility derate of 5 or 10%; or use of still undefined research to establish an adjusted production cost adder in the model.

Using 2016 data on 2,000 planned and forced transmission outage events on 115-kV or above facilities lasting longer than five days, MISO said it could conservatively model about 1,460 transmission outage events in one 2017 Transmission Expansion Plan future model based on a historical outage modeling method.

Hua also said that while both the derate and adjusted production cost adder can capture the systemwide average impact from transmission outages, they fail to account for locations of transmission outages. The historical and Monte Carlo options are more labor-intensive to put together, he said.

American Transmission Co.'s Chris Hagman thanked MISO for investigating the four approaches for stakeholders and said it was important for the RTO to plan for the impact of transmission outages.

MISO Transmission Planning Engineer Amit Rao asked stakeholders to provide their reactions to the four approaches and additional modeling suggestions by July 9.

New Benefit Metrics

MISO is continuing a discussion on which benefits metrics it should account for regarding new transmission projects, as it prepares a plan to prioritize projects that avoid costly investment or reduce settlement costs on its contract path with SPP. (See *Stakeholders Debate MISO Cost Allocation Plan*.)

MISO is proposing that new market efficiency projects (MEPs) that would eliminate the need for proposed MTEP reliability projects to include the value of those reliability projects in their estimated costs. The avoided cost benefit — and cost allocation — would then be spread among pricing zones where the reliability projects would have been built. The RTO plans to review all avoided projects with transmission owners.

But Customized Energy Solutions' Ginger Hodge said she was worried about transmission owners under- or overstating the planning-level cost estimates that inform the benefit metric. She asked MISO to conduct a historical analysis comparing TO cost estimates at the MTEP planning phase to actual costs to better determine the average variance between estimates and actuals. Hua said MISO could look into the possibility.

MISO also plans to value MEPs based on their ability to reduce annual payments to SPP for flows above the contract path capacity between MISO Midwest and South, but Hua said eligible MEPs eligible would have to physically connect the two regions. For every megawatt that an MEP increases the MISO contract path, the payment structure in the MISO-SPP agreement will be reduced by $667/MW-month, Hua said. She said the benefit would be calculated as an annuity from the in-service date over a 20-year asset life.

The benefits would be distributed to local resource zones using the load-ratio share cost allocation approach already outlined in the settlement agreement for market settlement costs, Hua said.

Hua asked for stakeholder feedback on the two proposed benefit metrics through July 2. She said MISO would finalize the new benefit metrics for a Tariff filing in August.

Matching Modeling with Proposed Retirement Process

MISO is working to update its modeling to comply with a new generator retirement process recently filed with FERC.

The new retirement process filed last month proposes to place all generation owners submitting an Attachment Y retirement notice into a catch-all three-year suspension period (ER18-1636). Suspended units would maintain their interconnection rights for the full three years unless they formally decide to retire. After three years without a return to service, the units are presumed retired and MISO dissolves their interconnection rights. (See *MISO Readies Retirement Change*.)


Patrick Jehring | *© RTO Insider*

MISO will update its dispatch assumptions to match the new process by modeling a suspended unit as initially offline for the first three years, but assumed to be participating in dispatch after three years, unless the unit is retired. Patrick Jehring, of the RTO's expansion planning group, said more than half of generation owners submitting an Attachment Y notice decide to immediately retire.

Jehring said MISO modeling is in "limbo" for those three suspension years, but modeling must assume that suspended units will return to service, based on the Tariff.

He noted that the RTO doesn't foresee granting conflicting interconnection rights — a concern voiced by some stakeholders in prior meetings — because its interconnection process requires that it conduct a deliverability analysis for proposed generation projects, which would flag any issues.

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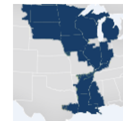
MISO NEWS



MISO, PJM Downplay M2M Error Impacts

MISO Monitor Disagrees with RTOs' Assessment

By Amanda Durish Cook

MISO and PJM last week challenged the contention by MISO's Independent Market Monitor that PJM's two long-term market-to-market errors have cost MISO millions, calling the financial impacts "minimal."

In a document circulated this week, the RTOs said their analysis found the potential joint operating agreement settlement impacts associated with the flowgates amounted to less than $100,000, and that they considered the two issues resolved.

For more than a decade, PJM had been overstating its own transmission loading relief (TLR) because of a calculation error and since 2009 had failed to order mandated tests required to define M2M constraints between the two RTOs.

David Patton in March | *© RTO Insider*

Late last year, MISO Monitor David Patton said that PJM had knowingly violated the JOA, likely costing MISO millions of dollars. (See *MISO Board, Monitor Seek Response to PJM M2M Missteps*.)

But the RTOs said a joint investigation of the errors found "there was minimal and/or undeterminable impact," although PJM admitted that the TLR error did constitute a JOA violation.

Only 2 Flowgates

Based on after-the-fact analysis, the RTOs said "only two potential flowgates requested by MISO for testing" may have qualified for the neglected tests to define M2M constraints.

However, the RTOs acknowledged — as did the MISO Monitor late last year — that the actual impacts of the missed tests are difficult to quantify.

"System conditions that represent the two potential flowgates cannot be fully duplicated and, therefore, the actual impacts, if any, of these two flowgates cannot be confirmed. However, the estimated PJM impact was minimal. … Because of the minimal impact, PJM and MISO consider this investigation closed at this time," the RTOs said.

PJM added that it does not believe that it committed any JOA violations by overlooking the test.

But Patton said PJM did not study a long enough period to accurately estimate impacts stemming from the neglected test.

"Whether the impacts are large or small is an empirical question," Patton said in a statement to *RTO Insider*. "PJM studied only a little more than a year even though they had not performed [the test] ever since the JOA with MISO was implemented. The impacts may well have been small in the period PJM studied but could have been larger in other periods."

Patton also said he and his staff continue to be "confident" that the failure to perform the test was a known violation of both PJM's Tariff and the JOA.

"Regardless of the effects of the violation, this raises questions regarding the culture of compliance at PJM," Patton said.

FERC Report over TLR Issue

PJM said that "an incorrect line of code" was to blame for its underreporting of available market flow during certain TLR events. In that case, PJM acknowledged that it violated the congestion management agreement section of the JOA. PJM said it self-reported to FERC over the issue.

"PJM is also conducting an internal apparent cause analysis for the event in order to determine root causes, develop recommendations and implement process updates designed to help avoid a reoccurrence," the RTOs said.

Similar to the test error, PJM and MISO said the overstatement of TLR "cannot be retroactively determined" and that the JOA does not provide guidance on resettlement opportunities related to TLR activities.

"Importantly, system operations aligned with prices," the RTOs said.

During a May 30 Joint and Common Markets meeting, executives from both RTOs said they considered the matter closed because of their minimal impacts.

"We've made sure the issues are corrected going forward," said Ron Arness, MISO seams management expert.

But Patton again said MISO and PJM could not determine the size of the impacts with any certainty.

"We believe the second issue likely had sizable adverse effects over almost a decade on MISO, its customers, and others obligated to respond to TLRs. PJM does not suggest that these effects are small, just that they are indeterminable," Patton said.

He added that it was "unfortunate" for those affected by the longstanding error that the JOA does not provide a remedy for such situations.

Planning Subcommittee Briefs

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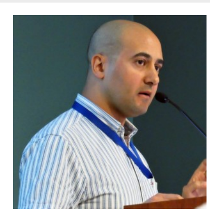
Generators Miss 1st Pass in Under-frequency Study

MISO will complete a NERC-required under-frequency load shedding study by fall, and, at first blush, a few generators have more work ahead to comply with one frequency requirement.

The study is required once every five years, and MISO last conducted one for MISO Midwest in 2013. The RTO is studying seven under-frequency load-shedding islands in the region.



Anton Salib | *© RTO Insider*

Anton Salib of MISO's expansion planning group said the frequency performance of the seven islands meets most requirements of NERC Standard PRC-006-3, although a few generators might need to take steps to ensure they don't exceed 1.18

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V/Hz per unit for more than two seconds and 1.1 V/Hz per unit for more than 45 seconds at each generator bus.

An initial examination showed that four of the seven islands' frequency performance exceeded the NERC requirement: Michigan's Lower Peninsula; "Gateway" in parts of Illinois and Missouri; ATC-A in Wisconsin and part of Michigan's Upper Peninsula; and Local Resource Zone 1 in the Dakotas, Minnesota, Wisconsin and a small portion of Montana.

Salib said MISO will finish the study and present results in time to meet the October deadline.

Examining 7 Transfers for MTEP 18

MISO has begun a transfer analysis as part of its MTEP 18, due to be revealed in early December.

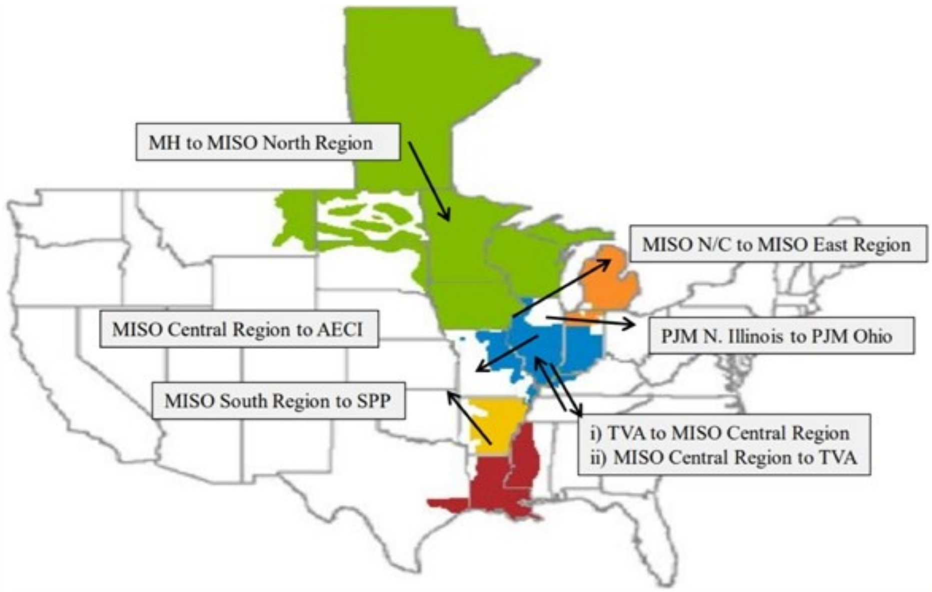
The analysis examines whether the RTO can reliably transfer energy and identifies potential future system weaknesses or limiting transmission facilities under NERC standard FAC-013-2.

MISO this year will study seven transfers:

- Manitoba Hydro to MISO's northern region;
- MISO South to SPP;
- MISO's Central Region to the Associated Electric Cooperative Inc. territory;
- MISO's North and Central regions to MISO East in Michigan;
- PJM North Illinois to PJM Ohio; and
- A two-way transfer to and from MISO's Central Region to the Tennessee Valley Authority.

Senior Expansion Planning Engineer Scott Goodwin said MISO will post the final report of its analysis by Nov. 1.

— Amanda Durish Cook



MISO selected transfers for MTEP 18 | *MISO*

NYISO NEWS

Management Committee Briefs

FERC Keeping Eye on NY Carbon Pricing Effort

COOPERSTOWN, N.Y. — As it wrestles with the increasing penetration of distributed energy resources and growing efforts to decarbonize the grid, FERC is closely watching New York's efforts to price carbon into its wholesale electricity market.

"New York is working on carbon pricing, which is an attempt to reflect and achieve and reconcile state policy goals in the market, through the market, rather than just accommodate them as in New England and PJM," Becky Robinson, deputy director of FERC's Division of Economic and Technical Analysis, told NYISO's Management Committee last week. "So the commission is watching very closely." (See *NYISO Favors Cost Levelizing on Carbon Charge*.)

Staff from FERC's Office of Energy Policy and Innovation also attended the meeting June 12 and answered questions from stakeholders.

ISO-NE's Competitive Auctions with Sponsored Policy Resources construct "is what we term more of an accommodate approach, where the goals are to allow state-supported resources to participate in the capacity market, but put a structure in place that maintains competitive markets," Robinson said. (See *Split FERC Approves ISO-NE CASPR Plan*.)

PJM has also filed two competing proposals dealing with state-sponsored resources that the commission must rule on by June 29, she said.

"The first PJM proposal, capacity repricing, is a different type of accommodate solution, and the second is what they call MOPR-Ex, which expands" PJM's existing minimum offer price rule to bar subsidized resources from receiving a capacity commitment, Robinson explained. (See *PJM Urges FERC to Act on 'Jump Ball' Despite Criticism*.)

DERs Feedback

Speaking about the commission's April 10-11 technical conference on distributed energy resources, Robinson said "one key takeaway is that states want flexibility. You still need to flesh out what is the role of the distributing utility relative to that of the aggregator." (See *Ready to Act on DERs, FERC Tells Congress*.)

Asked about the key areas the commission is examining in market rules for DERs, Robinson said, "Coordination is a big one ... and double-counting is an issue. We think there are ways — there are tools you can use — to avoid that. And jurisdiction, that has been contentious in the docket: Who does what and where?"

Couch White attorney Kevin Lang, representing New York City, said opinions differ on how to look at FERC Order 841. (See *FERC Rules to Boost Storage Role in Markets*.)

"Some people think it means we should be creating rules to recognize the differences in those technologies from more traditional types of generation resources, and other folks have assumed that we should be trying to create the same rules as much as possible between new technologies and traditional resources," Lang said.

He asked whether an energy storage project should have to meet the same market rules as a 500-MW combined cycle unit.

"I think we tried to indicate some flexibility on that," Robinson said. "Commission staff look for ways to rationalize the participation model. ... On the DER space, I don't think we proposed a participation model for DER aggregation."

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NYISO NEWS

Management Committee Briefs

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Adequate Summer Capacity Forecast

NYISO Vice President of Operations Wes Yeomans told the committee the ISO is prepared to meet peak demand this summer, with a total of 42,169 MW of resources available to cover an expected peak of 32,904 MW, which is 2.9% above the long-term average.

Yeomans said his report was identical to that presented to the Operations Committee and the press on May 30, except for a note explaining that that the Market Monitoring Analysis Group (MMA) had visited 22 generator sites to check their reliability readiness. (See *NYISO Ready to Meet Summer Demand*.)

The MMA reviewed planned maintenance outages and practices in order to reduce forced outages, and also checked that generators had adequate supplies of backup fuel storage.

2018 Master Plan Focuses on Grid Evolution

NYISO is this year preparing a Master Plan with three key themes: resource flexibility, grid resilience and price formation.

Michael DeSocio, the ISO's senior manager for market design, told the committee that ISO staff are working on a comprehensive five-year plan to prepare for anticipated changes to the bulk power system, with a focus on projects that help prepare for the evolution of the grid.

"The addition of renewable resources expected as a result of the [state's] Clean Energy Standard will create a more dynamic grid, where supply is heavily influenced by the weather," the draft plan said. "This necessitates a look at the incentives for flexible resources that will be needed to balance intermittent renewables, as well as alternative market designs that preserve revenue adequacy for generators needed for reliability."

"Some grid operators are concerned about fuel security, but we feel pretty comfortable about fuel energy security," DeSocio said.

Nonetheless, future changes to New York's fuel supply mix, as well as increased demands for natural gas, may stress the grid, and the ISO recommends that it conduct a 10-year fuel security study in 2019 and, if necessary, implement market design changes in 2021.

"On carbon pricing, we got a lot of feedback," DeSocio said, noting that stakeholders have commented that the ISO should accelerate the proposed timeline for implementing carbon pricing.

The ISO is also thinking about how to implement the market design, which they expect to have complete by Q2 2019, DeSocio said.

The revised Master Plan timeline accommodates carbon pricing implementation in 2021, which could be advanced to 2020 if stakeholders want to make it their top priority, he said.

Mark Younger of Hudson Energy Economics said he supported pricing carbon as quickly as possible, but shared the Market Monitoring Unit's concerns about why so many of the other initiatives in the plan are listed as taking four years.

For example, transmission clearance prices: "It's unclear why that should be hard to implement," Younger said.

The deadline for stakeholders to submit replies to a Master Plan project prioritization survey is June 26.

— Michael Kuser

NYISO NEWS

New York Public Service Commission Briefs

DPS Notes Uptick in Severe Weather Events

Electric reliability in New York state declined last year compared to 2016 because of a severe wind storm in March, Department of Public Service staff told the Public Service Commission on Thursday.

Excluding weather-related outages, overall interruption frequency — the main metric DPS staff use — improved slightly, according to their annual report on reliability. However, some service areas saw longer interruptions, and others saw an uptick in tree-related outages compared to other causes (18-E-0153).

But while it led to record wind generation in NYISO, the March storm, with gusts up to 70 mph, easily downed distribution lines in upstate New York. (See "NYISO Sets Wind Energy Record in March," *NYISO Management Committee Briefs*.)

The three upstate utilities — National Grid, Rochester Gas & Electric and New York State Electric and Gas — collectively reported about 284,000 outages in their service territories as a result of the storm. A DPS investigation found that RG&E and NYSEG did not follow their emergency response plans, leading to longer outage times, and the utilities have filed a joint proposal with the PSC to settle staff's alleged violations for $3.9 million.

Staff expect reliability to only worsen because of severe weather. "The weather events dominating the headlines recently indicate weather patterns are producing more frequent and powerful events," they said. "As a result, this reliability category is expected to decline given the number of significant weather events that have occurred in 2018."

New York has already experienced several unusually powerful storms this year, including January's bomb cyclone, a series of March nor'easters, a spate of severe thunderstorms on May 15 and a tornado on May 3.

Pipeline Safety Efforts Improve

Meanwhile, pipeline safety improved overall last year, as local distribution companies improved their damage prevention, emergency response and leak management efforts (18-G-0260). The number of reported damages to natural gas pipelines in the state decreased slightly, from 1,565 to 1,562.

The DPS measures LDCs' damage prevention by tallying up damages resulting from certain actions, such as mismarking areas or contractors failing to notify LDCs of excavation activities. By this standard, damage prevention improved by 22.5%.

The LDCs' ability to respond to emergencies within 30, 60 and 90 minutes all improved, staff said. Additionally, the utilities reduced their backlog of leaks by 2,354, or 13.4%.

Staff also presented reports on electricity safety (18-E-0279) and customer service (18-M-0267).

Separately, as part of its consent agenda, the PSC approved a $1.98 million settlement by National Grid for a 2015 pipeline explosion on Long Island that destroyed a house and severely injured two people inside (15-G-0298). A staff investigation found the company failed to disconnect gas service to the house after a resident request.

A severe wind storm in early March 2017 downed distribution lines in Rochester, N.Y. | *New York PSC*

Central Hudson Rate Increase Lowered; Burman Dissents

The PSC voted 3-1 to approve a $36.4 million electric and gas rate increase for Central Hudson Gas & Electric, 57% below what the utility initially requested (17-E-0459, 17-G-0460).

Under a joint proposal with DPS staff, Central Hudson agreed to increase its rates over three years, instead of all at once. Eligible low-income customers will also see a 65% rate decrease under the plan.

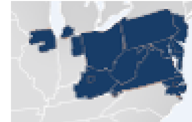
"The progressive plan that was adopted — endorsed with complete stakeholder support by environmental groups, large business customers and the largest municipality in the region — includes a nation-leading affordability policy that substantially lowers bills for most low-income customers," Chair John B. Rhodes said in a statement.

Commissioner Diane Burman spoke for more than half an hour explaining the many reasons for her "clear 'no' vote." But she said the single issue that tipped the scales for her was a $264 credit to customers who install geothermal HVAC systems, which the commission says are more energy efficient and emit less carbon.

"We always say that we're fuel-neutral [and] technology-neutral … here, we would not be," Burman said. "And there's no explanation to me why except that it was agreed to in the joint proposal."

— Michael Brooks

PJM NEWS



FirstEnergy Calls out FERC 'Failure' to Act on Resilience

By Rory D. Sweeney

FirstEnergy Solutions is looking to recent developments in New England to bolster its renewed argument that FERC take emergency action to financially support "fuel-secure" resources to promote resilience of the nation's electricity grid.

ISO-NE's request to prop up Exelon's Mystic gas-fired plant shows FERC's "failure … to ensure the continued operation of critical nuclear and coal-fired generators while a long-term solution is developed" when it declined to implement the emergency price supports envisioned by the Department of Energy's Notice of Proposed Rulemaking earlier this year, FES argued in comments filed on Friday in the commission's resilience docket (AD18-7).

"On multiple occasions in the past several years, the commission was asked to undertake decisive action to preserve grid resilience but failed to do so," FES wrote, calling on FERC to implement "the same relief requested by ISO-NE but applied at a level sufficient to protect the resilience of the nation's electric grid."

"If the commission acts now to preserve nuclear and coal-fired generators, it will have more options to address resilience problems in the future," the company said. "These options will not exist if the commission waits years or even months to act."

'Things to Come'

FES argued that ISO-NE's Tariff waiver request to keep Mystic running despite Exelon's plans to retire the facility (ER18-1509) "foreshadows things to come if the commission does not undertake swift and decisive action to preserve fuel-secure generating resources" and "is the consequence of commission inaction and, particularly, its failure to ensure that RTO/ISO markets contain just and reasonable rules that provide adequate compensation for needed generation."

ISO-NE's request inspired a Section 206 complaint from the New England Power Generators Association on the issue (EL18-154), along with dissent from other stakeholders. (See *Mystic Waiver Request Spurs Strong Opposition*.)

Mystic Generating Station

Such individual reliability-must-run agreements "are merely Band-Aids," and without action "at once and on a national level … the commission soon will face a flood of similar requests … that do nothing to address the underlying problems that necessitate such requests," FES said.

FES filed for bankruptcy on March 31, just a day after announcing the closure of its three nuclear plants and two days after asking Energy Secretary Rick Perry to issue an emergency order under Section 202c of the Federal Power Act directing PJM to compensate coal-fired and nuclear power plants that have 25 days of on-site fuel. Parent company FirstEnergy has since developed a plan to extricate itself from the woes of its merchant subsidiaries. (See *FirstEnergy Announces Mixed Earnings, Plan for FES Bankruptcy*.)

FES' pleas to Perry came less than 90 days after FERC rejected his call for cost-of-service payments to coal and nuclear generators (RM18-1) and opened a new docket (AD18-7) to consider grid resilience. (See *DOE NOPR Rejected, 'Resilience' Debate Turns to RTOs, States*.)

The company's comments were filed in the new docket — along with the Mystic RMR and NEPGA complaint dockets — calling on FERC to reconsider the company's proposal in the docket initiated by Perry's request.

FES frames the current resilience docket as a chance for FERC to rectify past mistakes, laying out what it believes are previous opportunities to address issues the commission missed. They include Maryland's attempt to subsidize construction of a gas-fired generator in 2009, Ohio's requests for power purchase agreements in 2016, DOE's NOPR in 2017 and its 202c emergency relief request.

No Real Markets

The filing also takes on repeated claims by RTOs/ISOs that they have the situation under control.

"ISO-NE's request represents a breach in the dam. Without immediate and meaningful action on a broad scale, the commission will soon be faced with a flood of requests for waivers. Even that may not even be enough to address the threat to the grid's resilience if RTOs and ISOs continue to 'hear no evil, see no evil, speak no evil,'" the company said. "The record also makes clear that the commission can no longer rely on assurances from RTOs and ISOs that 'all is well' and that they have the problem in hand."

The company argues two views that radically diverge from sentiment in much of the industry.

First, even though most electricity outages are caused by disruptions at transmission and distribution facilities, resilience isn't resolved by adding more redundancy on those networks because "threats to the electric grid's resilience stem first and foremost from problems with the nation's fuel supply mix," the company said. However,

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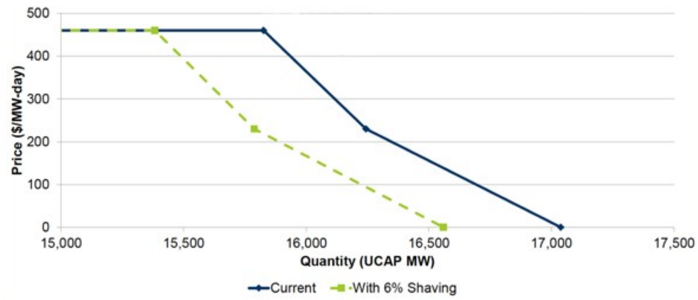
PJM NEWS

Plan Would Reduce PJM Capacity Curve Through Peak Shaving

By Rory D. Sweeney

PJM hopes to reduce its capacity market demand curve by including peak shaving among the variables used to develop its load forecast.



An example of the potential impact to the VRR curve in ATSI's transmission zone. | *PJM*

Andrew Gledhill, senior analyst of resource adequacy planning, explained the proposal at a meeting last week of the Summer Only Demand Response Senior Task Force (SODRSTF). It has the potential to reduce reliability requirements — and subsequently the variable resource requirement demand curve — by hundreds of megawatts.

PJM would start by adjusting historical loads back to 1998 through a formula that assumes perfect previous curtailment compliance. The program would be assumed to have been enacted every time a predetermined temperature-humidity index (THI) threshold was reached. THI has a strong correlation with loss-of-load expectation, the RTO said.

Each event would have been six hours from 1 to 7 p.m. on a non-holiday weekday. The events would have occurred any time between May and October, but "we don't have a lot of high-THI events that occur in May, September and October, so … these are most likely to occur in June, July and August," which account for the six highest load hours in the RTO, Gledhill said.

Adjusting the Model

The current method identifies the gross load for a delivery year and regresses for the forecast based on variables, including economic, weather and end-use changes.

"But there's no variable in there for peak shaving," Gledhill explained, so it would have been included only by reducing the gross load.

Some stakeholders voiced concerns that requiring commitments to last six hours was a high bar that would reduce offerings into capacity auctions, but others urged them to take a holistic view.

"We have to look at what PJM's need is, not simply what the easiest program or the most customer-friendly program would be," GT Power Group's Dave Pratzon said.

Staff said the six-hour time frame is intentional because it mitigates peak shifting. They noted that the curtailments have already been factored into forecasts. PJM would only be looking for compliance, but these would not be RTO programs.

"The load forecast has already reflected the benefit of reduction of load when THI trigger is hit," PJM's Tom Falin said. "The intent of this is to improve the load forecast. … We've already assumed a certain amount of behavior, so it has to continue in the future, so the forecast can remain consistent."

Impact

PJM's analysis showed that only a percentage of the cumulative peak shaving would impact the load forecast because of the peak simply shifting to another hour. For most transmission zones, the impact shrinks as the amount of shaving increases, staff found. For example, 100% of the megawatts in a 2% shave would impact the forecast in the Penelec zone, but less than 40% of the megawatts in a 10% shave would impact the forecast in East Kentucky Power Cooperative's zone.

It would have even less of an impact on the reliability requirement, though it would still be significant. PJM found that, given a 6% peak shave, the reliability requirement would be reduced by anywhere from 30 to 85% of the shaved megawatts.

FirstEnergy Calls out FERC 'Failure' to Act on Resilience

Continued from page 29

the filing doesn't define the threats.

Second, the company argues that providing supports to nuclear and coal-fired units won't "blow up" markets because they don't really exist. The idea "that we have truly efficient markets today, where competition among suppliers actually sets prices" is "fundamentally flawed."

The company included in its filing a 20-page report done by D.C. law firm Wilkinson Barker Knauer in May that FES said "demonstrates that continued deification of these so-called markets is misplaced." The paper argues competitive energy markets are "in tatters," having been "trampled" by out-of-market payments to generators, such as renewable energy credits or RMR contracts.

"An overreliance on natural gas in New England has produced a loss of fuel security and diversity so extreme that the retirement of a single natural gas-fired station that does not rely on pipeline gas will expose ISO-NE's electric grid to rolling blackouts in the coming years," FES said, noting that CAISO has recently had to confer RMR contracts on three gas-fired plants. (See FERC Approves CAISO-Calpine RMR Settlements.)

PJM NEWS

Duke, ODEC Rebuffed on Polar Vortex Gas Refunds

By Rory D. Sweeney

Duke Energy and Old Dominion Electric Cooperative have likely struck out on trying to recoup millions of dollars in "stranded" gas costs they say PJM forced them to incur during the 2014 polar vortex.

The D.C. Circuit Court of Appeals on Friday ruled that FERC was justified when it denied the companies' reimbursement requests in 2015, rejecting separate petitions for review (16-1133, 16-1111). (See *Duke, ODEC Denied 'Stranded' Gas Compensation*.)

Duke and ODEC had argued to FERC that they were owed compensation when PJM ordered them to be ready to run even as the cold snap sent gas prices soaring. Duke purchased $12.5 million worth of natural gas for its Lee plant in Illinois, only to have it not called on in real time. The company was able to resell some of its gas and sought $9.8 million in restitution.

ODEC complained that it was due nearly $15 million because PJM canceled multiple dispatches that left gas it had purchased for its plants unused. It also said its plants' operating costs on Jan. 23, 2014, exceeded what it could recover in the day-ahead market because of the $1,000/MWh offer cap at the time. The co-op asked the commission to extend to Jan. 23 the waiver FERC granted PJM on Jan. 24, which allowed capacity resources to receive make-whole payments if their costs exceeded the offer cap.

FERC denied the request, saying PJM's Tariff didn't allow it and that ODEC's ratepayers lacked sufficient notice that the approved rate was subject to change. The court upheld FERC's decision, dismissing ODEC's arguments that it could charge a market-variable formula rate and that customers received sufficient notice from an announcement PJM posted that it would seek commission approval for certain generators to exceed the rate cap.

"Close, but no cigar," the court said of the formula rate argument. ODEC failed to identify Tariff provisions specifying such a rate or an instance in which utilities refunded overbillings back to customers, a bidirectional condition that would exist under formula rates. Additionally, "to toss that [$1,000/MWh rate] cap aside after the fact just because it did exactly what a cap is supposed to do — serve as a firm ceiling on market prices — would retroactively rewrite the terms of the filed rate," the court said.

ODEC's argument that PJM's announcement qualified as sufficient notice "fails at every step," the court said, noting that it wasn't filed at FERC as required for rate changes.

The court also sided with FERC on Duke's request, in which the commission concluded that PJM's conversations with the company did not constitute an order to purchase expensive gas.

FERC determined that PJM operators told the generators "to do whatever needed to be done to fulfill its Tariff obligation" but "said nothing about when to purchase natural gas, at what price to purchase the gas, how to bid into the market or to take any action beyond that which Duke is otherwise obligated to take under the Tariff: to purchase natural gas to be prepared to run its units."

The court conceded that "the record may well be subject to other interpretations," including those preferred by Duke.

"But our task is not to assess whether Duke's interpretation of the record is fair," the court said. "Just the opposite: We must accept FERC's interpretation unless unsupported by substantial evidence. And Duke has given us no basis for believing that a 'reasonable mind' would not find the evidence here 'adequate to support [FERC's] conclusion.'"

DC Circuit Upholds FERC Order on PJM FTRs

By Rory D. Sweeney

FERC sufficiently justified its decision to revise how PJM allocates revenues from transmission congestion and its subsequent move to reject requests to rehear the issue, the D.C. Circuit Court of Appeals ruled last week (17-1101).

Several PJM stakeholders had petitioned the court to overturn FERC's January 2017 order that upheld a September 2016 ruling that modeling assumptions the RTO adopted to address financial transmission rights revenue inadequacy had resulted in unwarranted cost shifts between auction revenue rights holders and FTR holders.

FERC had also accepted PJM's compliance filing in response to a requirement that it develop a method for allocating ARRs that doesn't consider extinct generators (EL16-6). (See *FERC Accepts PJM's FTR Plan, Rejects Rehearing Requests*.)

The petitioners included Old Dominion Electric Cooperative, American Municipal Power, PJM's Independent Market Monitor, the New Jersey Board of Public Utilities and the Delaware Public Service Commission. PJM and several stakeholders involved in its FTR markets intervened, including Exelon, Elliott Bay Energy Trading, several Public Service Enterprise Group companies, Appian Way Energy Partners, NRG Power Marketing, DC Energy, Boston Energy Trading and Marketing, Vitol and J. Aron & Co.

The court noted in its decision that between 2010 and 2014, PJM could only fund between 69 and 85% of the prevailing-flow FTRs, so FTR payments were reduced pro rata. That, in turn, reduced the value of ARRs because FTRs were worth less at auction.

PJM's stakeholders were unable to find consensus on how to address the issue, so the RTO asked FERC to settle it by declaring the current market design unjust and unreasonable. FERC held a technical conference in 2016 and granted PJM's request, ordering several design modifications. After FERC rejected a request for rehearing, the petitioners appealed the decision to the D.C. Circuit.

The court sided with FERC on all three of the petitioner's challenges. It ruled that excluding balancing congestion from the funding formula for FTRs was reasonable because including it "reduces the efficacy of

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PJM NEWS

PJM: Stakeholders Safe from Defaulting Member

By Rory D. Sweeney

PJM said Wednesday that it has terminated electricity supplier AMERIgreen Energy's membership, assuring stakeholders they won't be exposed to the company's financial woes.

But the RTO's actions might be the least of AMERIgreen's concerns.

PJM announced June 12 that the company was in default for failing to pay its May month-to-date weekly invoice, which severed its access to the RTO's markets, rights to transmission service and ability to participate in committee meetings. But that won't matter much as the company has crumbled seemingly overnight amid a cloud of fraud accusations and the mysterious disappearance of its CEO.

AMERIgreen provided electricity service to commercial and residential customers as an subsidiary of Worley & Obetz, a fuel supplier based in Lancaster County, Pa. The parent company's issues became public on May 31 when it announced via Facebook two rounds of layoffs, the "disappearance" of CEO Jeff Lyons and a law enforcement investigation into "potentially fraudulent activity."

On the same day, three regional banking companies alerted the Securities and Exchange Commission that they will likely lose more than $60 million combined on loans to an unnamed company, according to local media reports. One of the banks accidentally implied the defaulting company was Worley & Obetz, and another one confirmed it several days later as the saga wore on. In that time, a fourth bank disclosed additional likely losses to the SEC, saying they "resulted from fraudulent activities believed to be perpetrated by one or more executives employed by the borrower and its related entities."

Worley & Obetz building | *Worley & Obetz*

Two weeks earlier, the Pennsylvania State Police announced they were looking for Lyons because he was reported missing by his family. The CEO, a 22-year veteran at the company, had left home without his wallet or credit cards and turned off his cellphone. He missed a meeting with the company's vice chairman and a large commercial customer, where he was expected to discuss financial records he had previously been reluctant to disclose. He was terminated for cause later that day.

Police announced two days later that he had been located but that, because he wasn't in danger, they couldn't provide more information. According to media reports, a family member announced on Facebook that he was found in Minnesota.

The company then attempted to secure credit for restructuring, but the banks refused the plan. The company announced it was shutting its doors June 4 and has since filed for bankruptcy as "a direct result of the fraudulent actions of Jeffrey B. Lyons."

AMERIgreen's nosedive was abrupt. On Wednesday, it was still offering electricity contracts serviced through Texas-based TriEagle Energy, but it has since ceased.

In announcing the membership cancellation, PJM assured market participants that they won't be liable for the default.

"PJM projects it holds sufficient financial security from AMERIgreen to cover both its outstanding charges and any anticipated remaining charges related to their default," PJM said. "Therefore, PJM does not anticipate there will be a default allocation assessment to PJM members resulting from AMERIgreen's default."

PJM spokesperson Jeff Shields said the RTO's credit requirements are designed for this issue.

"All members are required to provide credit based on their recent historical invoice activity, so more members buying more energy would be required to provide more collateral. Some members also engage in market activities that are screened, such as [financial transmission rights] and virtual transactions, and those other market activities have additional requirements," he said via email. "PJM allows a limited amount of unsecured credit for investment-grade members; all activity exceeding that level must be collateralized."

The company's load is being transitioned to applicable electric distribution companies. The terms of service for such customers is set by state regulators, Shields said.

DC Circuit Upholds FERC Order on PJM FTRs

Continued from page 31

FTRs as a hedge." FERC was also reasonable in requiring the entire market, rather than FTR holders, to bear the costs of the congestion because "FTR holders do not cause and cannot predict the level of balancing congestion" and "are not the sole beneficiaries of balancing congestion," the court said.

Additionally, the court decided petitioners provided no support for their view that FERC's actions might endanger FTRs' exemption at the Commodity Futures Trading Commission.

FERC's rationale for continuing to net prevailing-flow and counterflow FTRs was also sufficient, the court said. The commission had doubted that "the elimination of netting would improve FTR funding" because that would simply "reallocate FTR revenue inadequacy among various market participants without actually addressing the fundamental issues associated with FTR revenue inadequacy." The commission also reasoned that netting is "the functional equivalent of applying the same payout ratio to both prevailing-flow and counterflow FTRs," so all FTRs are treated equally.

Finally, the court rejected the argument that FERC should not have eliminated outdated transmission paths from the formula used to allocate ARRs. While petitioners instead wanted FERC to artificially increase growth forecasts, the commission "adequately explained why it preferred to rectify the root cause of the problem rather than pursue a remedy that could distort the planning process, such that transmission planning is not based on expected system conditions," the court said.

PJM News

MRC/MC Preview

Below is a summary of the issues scheduled to be brought to a vote at the Markets and Reliability and Members committees on Thursday. Each item is listed by agenda number, description and projected time of discussion, followed by a summary of the issue and links to prior coverage in *RTO Insider*.

RTO Insider will be in Wilmington, Del., covering the discussions and votes. See next Tuesday's newsletter for a full report.

Markets and Reliability Committee

2. PJM Manuals (9:10-9:30)

Members will be asked to endorse the following proposed manual changes:

A. Manual 11: Energy & Ancillary Services Market Operations. Revisions developed to modify how the RTO estimates the synchronized reserve maximums for Tier 1 units in response to stakeholder concerns about significant overestimations. (See "Synch Reserve Changes," *PJM Operating Committee Briefs: May 1, 2018*.)

B. Manual 20: PJM Resource Adequacy Analysis. Revisions developed to modify how winter peak weeks are calculated to address concerns that the current "theoretical" approach used in PJM's PRISM modeling software to estimate RTO-wide generator outage levels during the winter peak does not reflect historical outage levels. (See "Winter Modeling Changes," *PJM PC/TEAC Briefs: May 3, 2018*.)

3. Governing Document Enhancement & Clarifications Subcommittee (GDECS) Updates (9:30-9:45)

Members will be asked to endorse proposed revisions to the Tariff, Operating Agreement and Reliability Assurance Agreement to clarify cross references.

4. FTR Nodal Remapping (9:45-10:00)

Members will be asked to endorse proposed changes to Manual 6 to address replacing terminated nodes that are part of financial transmission right paths. (See "Modeling Node Changes," *PJM Market Implementation Committee Briefs: May 2, 2018*.)

5. Long-term FTR Auction (10:00-10:30)

Members will be asked to endorse proposed changes to the long-term FTR auction construct to correct current processes that allow participants to obtain the rights to congestion on transmission paths before the owners of the underlying auction revenue rights. (See "Long-term FTRs Undercut Annual FTRs," *PJM Market Implementation Committee Briefs: June 6, 2018*.)

6. VOM Packages (10:30-11:10)

Members will be asked to endorse proposed changes to allow including maintenance costs in cost-based energy offers as part of variable operations and maintenance (VOM); however, stakeholders will also likely discuss a proposal from the Independent Market Monitor that would eliminate those costs from such energy offers. (See "Accounting for Maintenance Costs in Cost-Based Offers," *PJM Market Implementation Committee Briefs: June 6, 2018*.)

Members Committee

Consent Agenda (1:05-1:10)

Members will be asked to approve:

B. Revisions to the confidentiality provisions of the OA to specify that PJM may share member confidential information with reliability entities in addition to NERC. (See "Stakeholders Approve Changes to Manuals, Operations," *PJM Markets and Reliability Committee Briefs: May 24, 2018*.)

1. Planning Committee Cost Containment Proposals (1:10-2:10)

Members will be asked to endorse proposed OA revisions related to Order 1000 competitive transmission project cost containment provisions. The revisions were developed collaboratively by LS Power, several state consumer advocates and the Monitor, and were resoundingly endorsed at last month's MRC, despite strong opposition from transmission owners. PJM CEO Andy Ott will address members on the issue prior to the vote. (See *Cost Containment Coming to PJM Transmission Bids*.)

2. GDECS Updates (2:10-2:20)

Members will be asked to endorse proposed revisions to the Tariff, OA and RAA to clarify cross references. (See MRC item 3 above).

3. Long-term FTR Auction (2:20-2:40)

Members will be asked to endorse proposed changes to the long-term FTR auction construct to correct current processes that allow participants to obtain the rights to congestion on transmission paths before the owners of the underlying ARRs. (See MRC item 5 above).

— Rory D. Sweeney

SPP News

WAPA Formally Requests SPP's RC Services

By Tom Kleckner

The Western Area Power Administration said Wednesday it has submitted a formal request to SPP for reliability coordinator (RC) services on behalf of its Upper Great Plains West and Western Area Colorado Missouri balancing authorities.

WAPA said the two BAs are considering taking SPP's RC services in early 2020, contingent on the RTO gaining certification and meeting other conditions. The BAs encompass WAPA's Pick-Sloan Missouri Basin Program in the Western Interconnection, Loveland Area Projects and part of its Colorado River Storage Project Management Center territory.

"We are excited about this opportunity and look forward to more detailed negotiations with SPP," WAPA CEO Mark Gabriel said in an announcement.

SPP said the request was the first of what it hopes will be many since it announced June 5 that it intends to provide RC services in the Western Interconnection by late 2019. (See *Westward Ho: SPP Plans to Become RC in West*.)

The RTO said it has received 28 letters of intent from utilities expressing interest in the service but noted that WAPA's letter was special.

"Our agreement with WAPA is distinct in that it's the first — of many, we anticipate — to go a step further and commit to the preparation of an actual service agreement," COO Carl Monroe said in an emailed statement to *RTO Insider*.

Monroe said the letters of intent "have established partnerships in which SPP will assist each of them in evaluations of the costs and benefits of our provision of reliability coordination service."

Peak Reliability current provides WAPA's RC services, but the agency said in February it had sent withdrawal notices to Peak, effective Sept. 2, 2019. WAPA is considering both SPP and CAISO, which also plans to become an RC. The Alberta Electric System Operator already provides reliability coordination in the West.

The Western Electricity Coordinating Council has asked its BAs and transmission operators to confirm which RC they will be using by Sept. 4.

"We continue to engage with neighboring utilities and Mountain West Transmission Group participants on the future of energy markets and RC services in the West," Gabriel said.

A WAPA spokesperson said the agency has asked SPP to submit a proposal for terms and conditions under which its BAs would receive RC services.

WAPA is one of four power marketing administrations within the Department of Energy. It encompasses a 15-state region of the central and western U.S. and has a 17,000-mile system that carries electricity from 56 federal hydropower plants.

Company Briefs

New England Clean Energy Connect Companies Sign Contracts

Hydro-Quebec and Avangrid's Central Maine Power subsidiary said June 14 they have signed contracts with the three electric distribution companies that would buy the power annually transmitted by their New England Clean Energy Connect project.

The distribution companies — Eversource Energy, National Grid and Unitil — will file the contracts with the Massachusetts Department of Public Utilities for its approval.

The New England Clean Energy Connect project would bring 9.45 TW of hydropower annually generated in Canada to Massachusetts via a transmission line through Maine. Massachusetts chose it to replace the Northern Pass transmission project in a clean energy solicitation after Northern Pass' developers were unable to get permission to build their project in New Hampshire. (See *Mass. Picks Avangrid Project as Northern Pass Backup*.)

More: *New England Clean Energy Connect*

Consumers Energy Closing 2 Coal Units as Part of IRP

Consumers Energy said June 13 that the integrated resource plan it filed with the Michigan Public Service Commission calls for it to close two coal-fired units at the Karn Generating Complex near Bay City in 2023 as part of its plan to eliminate the use of coal in its generation mix by 2040.

The company also said it intends to boost the amount of renewable energy in its generation mix from 11% today to 37% by 2030 and 43% by 2040. To help it do that, it said it will add 5,000 MW of solar energy through the 2020s.

Consumers also said it intends to use demand response, energy efficiency and grid modernization to help customers save money on their energy bills and reduce energy demand 22% by 2040.

More: *Consumers Energy*

Entergy Approved Talking Points Voiced by Actors Supporting Plant

Entergy New Orleans was directly involved with approving the talking points given to paid actors who spoke to the New Orleans City Council in support of a gas-fired power plant the company wants to build, according to documents released June 13.

The documents, which were released as part of the council's investigation into the use of the actors, contain dozens of conversations about how to shape a perception of support for the power plant that Entergy officials appeared concerned didn't actually exist.

Entergy has said it didn't know about the use of the actors, and that Hawthorn Group, which it hired to do public relations work, hired Crowds on Demand, the company that provided them. In the documents, Hawthorn Group and Crowds on Demand don't directly discuss paying people to support the power plant, but they do discuss how to answer questions about whether the supporters are paid.

More: *The Times-Picayune*

Viridity Breaks Ground on 2 New Jersey Storage Projects

Viridity Energy Solutions on June 4 broke ground on two 20-MW/20-MWh stand-alone utility-connected battery energy storage projects it will own and operate in New Jersey.

The Ormat Technologies subsidiary said the storage systems will be connected to Jersey Central Power & Light's transmission grid and will provide real-time frequency regulation and other ancillary services to PJM.

Viridity said it expects to begin operating both systems in late 2018.

More: *Viridity Energy*

FERC OKs Atlantic Coast Pipeline Work in West Virginia

FERC on June 13 approved a request from Dominion Energy to do work on the Atlantic Coast Pipeline and supply header projects in some West Virginia waterways before warm-water fish spawning season ends July 1.

Dominion's request indicated that it and the pipeline's other developers, Duke Energy and Southern Co., already had secured fish spawning season restriction waivers for the work from the West Virginia Division of Natural Resources.

The approval came a day after three environmental groups asked FERC to halt construction of the pipeline and hold a new hearing on whether the project can proceed. The groups allege that work on the pipeline in West Virginia, which FERC authorized last month, violates the federal Endangered Species Act because of a court ruling that invalidated part of a required approval from the U.S. Fish and Wildlife Service.

More: *WVNews*; *Charlotte Business Journal*

NRG, Cypress Creek Team to Offer Businesses Solar Power

NRG Energy and Cypress Creek Renewables on June 12 announced a partnership to provide solar power to businesses in the Houston area.

Under their agreement, Cypress Creek will develop 25 MW of solar generation for NRG to market to its business customers. NRG already has one customer for the solar power — food-service company Sysco.

NRG said it expects the partnership will be fully operational by next year.

More: *Houston Public Radio*

Montana PSC Approves Hydro One's Acquisition of Avista

The Montana Public Service Commission approved Hydro One's acquisition of Avista 4-1 on June 12.

Avista owns 15% of generation Units 3 and 4 at the coal-fired power plant in Colstrip, Mont., and the commission's approval included conditions designed to ensure their continued operation.

Commissioner Tony O'Donnell (R), whose district includes Colstrip, cast the dissenting vote. "I didn't hear enough assurance that the Canadian government can't interfere to shorten the length of Colstrip power plant's operational life," he said. The government of Ontario owns a minority stake in Hydro One.

More: *Montana Public Service Commission*

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COMPANY BRIEFS

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Activist Investors Disclose Stake in Sempra

Activist investors Elliott Management and Bluescape Resources disclosed on June 11 that they have taken a combined stake of 4.9% in Sempra Energy and called the company highly undervalued, saying it could be worth from $139 to $158/share, which would amount to an additional $11 billion to $16 billion.

In a letter and presentation, the investors recommended that six new directors be added to Sempra's board and presented a plan for Sempra to pursue asset sales of its international business lines and split into two companies — one focused on utilities and the other on natural gas infrastructure.

Sempra said it was reviewing the letter and presentation.

More: *Reuters*

Foley Hoag Adds Carol Holahan To Energy & Cleantech Practice

Carol Holahan has joined Foley Hoag as counsel in its Energy & Cleantech practice, the law firm said June 4.

Holahan

Holahan, who will work out of the firm's Boston office, will focus on advising regional generators and other participants in the wholesale and retail competitive power markets on regional policy initiatives, changing environmental regulations, decommissioning and sale of plants, and matters pending before FERC.

In addition to fossil fuel generation, her practice will include renewable energy resources.

More: *Foley Hoag*

Historic Preservation Groups Appeal Ruling in Tx Lawsuit

Preservation Virginia said June 11 it and the National Trust for Historic Preservation have filed a notice of appeal with the D.C. Circuit Court of Appeals to seek a review of a ruling that allows Dominion Energy to proceed with the Skiffes Creek Transmission Line Project.

The two groups last July sued the U.S. Army Corps of Engineers for violating the National Environmental Policy Act and the National Historic Preservation Act when it issued a permit for the project to Dominion. D.C. District Court Judge Royce Lamberth ruled that the corps had complied with both acts.

More: *WYDaily*

Eversource Submitting New Proposal for Pipeline Capacity

Eversource Energy on June 10 notified the New Hampshire Public Utilities Commission that it will submit an updated proposal to replace its agreement to purchase capacity on the proposed Access Northeast natural gas pipeline expansion.

The company decided to go ahead with the notification after the New Hampshire Supreme Court in May reversed the PUC's October 2016 ruling that electric customers can't pay for pipeline capacity on behalf of power generators.

Enbridge, which had proposed the pipeline expansion, suspended development of it as a result of the New Hampshire court's ruling and a similar ruling by the Massachusetts Supreme Court. Eversource said it would work with Enbridge and National Grid to propose a new pipeline expansion project.

More: *Reuters*

FEDERAL BRIEFS

White House Nominates Renewables Critic to DOE Renewables Post

The White House said June 14 it is nominating Dan Simmons to be the assistant secretary of the Department of Energy's Office of Energy Efficiency and Renewable Energy, where he has been acting head since May 2017.

Simmons previously served in leading roles at the Institute for Energy Research and the American Legislative Exchange Council. Both organizations are conservative groups that generally oppose policies such as tax credits and grants aimed at boosting renewable energy.

He also said in a 2013 Heartland Institute podcast that boosting renewable energy would hurt consumers.

More: *The Hill*

Power Marketers Taking Retail Electricity Sales from IOUs

Competitive power marketers provided 21% of the retail electricity sold in the U.S. in 2016, up from 11% in 2005, the Energy Information Administration said June 12.

Over the same period of time, the share of retail power supplied by investor-owned utilities fell to 52% from 62%.

EIA said the changes were driven by the Energy Policy Act of 2005, which repealed the Public Utility Holding Company Act of 1935.

More: *Energy Information Administration*

2 Courts Say EPA Must Enforce Clean Air Act Provisions

U.S. District Courts in New York and Maryland have ruled separately that EPA must enforce Clean Air Act requirements that states implement plans to restrict emissions within their borders that could cross into neighboring states.

The New York court ruled June 12 that EPA failed to meet an August 2017 deadline to begin the process of enforcing the CAA throughout states. The court ruled that the agency must take the necessary steps to limit the smog that blows into New York and Connecticut from five upwind states — Illinois, Pennsylvania, West Virginia, Michigan and Virginia — and set a Dec. 8 deadline for compliance.

The Maryland court made a similar ruling on June 13, saying EPA must take a final action by Sept. 15.

More: *The Hill*

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Federal Briefs

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DOE to Provide University of Utah With Geothermal R&D Funding

The Department of Energy said June 14 that it will provide the University of Utah with up to $140 million over the next five years for geothermal research and development.

The department has selected a site outside Milford, Utah, to be the location of the Frontier Observatory for Research in Geothermal Energy field laboratory, which will do research on enhanced geothermal systems.

More: *Department of Energy*

US Solar Capacity Grew 2.5 GW in Q1

Solar capacity grew 2.5 GW in the U.S. in the first quarter, according to a report released June 11 by GTM Research and the Solar Energy Industries Association.

The report, "U.S. Solar Market Insight," said the growth amounts to an annual rate of 13%.

Solar comprised 55% of all capacity added in the quarter, according to the report.

More: *Greentech Media*

Russian Companies, Executives Sanctioned for Cyberattacks on Grid

The Treasury Department on June 11 imposed sanctions on five Russian firms and three executives from one of them under legislation passed last year and an executive order meant to punish efforts to hack into U.S. computer systems.

The department said the sanctions were a response to a number of cyberattacks, including last year's NotPetya attack and intrusions into the U.S. energy grid. It also said Russia had been tracking undersea cables carrying the bulk of the world's telecommunications data.

The sanctioned companies are Digital Security and its subsidiaries, ERPScan and Embedi; the Kvant Scientific Research Institute; and Divetechnoservices. The sanctioned men, all of whom work for Divetechnoservices, are Aleksandr Lvovich Tribun, Oleg Sergeyevich Chirikov and Vladimir Yakovlevich Kaganskiy.

More: *CNBC*

State Briefs

ARIZONA

ACC Postpones Decision on New Rooftop Solar Rates

The Corporation Commission on June 12 postponed making a final decision on new rates for Tucson Electric Power and UNS Electric customers with rooftop solar generation systems after Commissioner Andy Tobin said he needed more time.

Tobin had introduced an amendment to an administrative law judge's proposed recommendation but withdrew it after about two hours of testimony.

After deciding in late 2016 to end net metering in the state, the commission is considering the rates at which TEP and UNS customers with solar panels would be credited for their excess power production, along with new rate plans with new fees on solar customers.

More: *Arizona Daily Star*

KANSAS

KCC Votes to Ask AG About Appealing Court Ruling

The Corporation Commission voted 3-0 June 14 to ask Attorney General Derek Schmidt the value of appealing a February ruling by the D.C. Circuit Court of Appeals that the commission has no standing to challenge a FERC decision involving rates charged by two interstate electric transmission companies.

The ruling involved an effort by Transource Energy and Kanstar to get preapproval from FERC of the rates that two subsidiaries they intended to set up in the state wanted to charge for a transmission project. The KCC objected, saying FERC had no authority to approve rates for subsidiaries that hadn't been formed. FERC rejected the KCC's arguments in 2016.

More: *Lawrence Journal-Review*

MAINE

PUC Votes to Review Term Sheet of Offshore Wind Project

The Public Utilities Commission voted 3-0 on June 12 to review the term sheet for the Maine Aqua Ventus offshore wind project, citing changes that have occurred since it originally approved the term sheet in February 2014.

Aqua Ventus supporters had said that altering the term sheet could jeopardize the project, a test of a patented technology for wind farms that can float in deep waters. After the vote, however, Habib Dagher, the University of Maine professor leading the project, said he and others involved with it could answer the PUC's questions about it and keep it moving forward.

The term sheet calls for Central Maine Power to purchase power from the project for 20 years at a cost of more than $200 million to its ratepayers. Commissioners said the changes that have occurred since they approved the term sheet include decreases in energy market price projections of as much as 80%.

More: *Public Utilities Commission*; *Portland Press Herald*

MASSACHUSETTS

Energy Agency Wired Nearly $94,000 To Cybercriminal, Audit Finds

A state audit released June 11 found that a Massachusetts Clean Energy Center employee inadvertently wired $93,670 in public funds to an account controlled by a scammer in January 2017 and was able to recover only $25,261 of it.

The audit said the quasi-public agency could have recovered more of the money had it filed a criminal complaint, something it never did. The audit also said that although the agency detected the theft a few

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STATE BRIEFS

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weeks after it happened, it didn't notify its board of directors about it until September 2017.

The agency said it implemented new information technology security policies immediately after detecting the theft and pledged to notify its board and law enforcement of possible cybercrimes more quickly in the future.

More: Boston Business Journal

NEW YORK

NYSERDA Gets DOE Grant to Establish National Wind Consortium

The New York State Energy Research and Development Authority was awarded a four-year, $18.5 million matching grant by the U.S. Department of Energy to establish the National Offshore Wind Research and Development Consortium, Gov. Andrew Cuomo announced June 15.

The consortium will be supported by a public-private partnership that includes the offshore wind industry, utilities, research laboratories, and other states, all of which will work to make the consortium financially self-sufficient so it can continue after the DOE grant ends.

More: Gov. Andrew Cuomo

OKLAHOMA

Gov. Fallin Signs Bill Protecting Military Airspace from Wind Farms

Gov. Mary Fallin on June 12 signed a bill meant to protect military airspace from wind turbine encroachment.

The bill, which was passed by the Legislature in April, addresses concerns over wind farm development encroaching on military training routes, drop zones and runway approaches by requiring agreement from the military or an approved mitigation plan from the U.S. Defense Department Siting Clearinghouse for a wind energy facility to be constructed or expanded.

More: Enid News & Eagle

OG&E Agrees to Cut Annual Rates by $64 Million

Oklahoma Gas and Electric has reached an agreement with Attorney General Mike Hunter's office, the Corporation Commission's Public Utility Division and consumer groups to cut its annual rates by $64 million, parties to the agreement said June 13.

If approved by the commission, the agreement would enable OG&E to recoup the nearly $400 million it spent to upgrade its Mustang Energy Center, where it replaced 1950s-era generation with seven natural gas turbines with a total capacity of 462 MW. The agreement also takes into account OG&E's savings from the Tax Cut and Jobs Act.

A commission administrative law judge is scheduled to begin considering the agreement on June 15.

More: The Oklahoman; Oklahoma Gas and Electric

PENNSYLVANIA

Gov. Wolf Signs Bill Creating C-PACE Financing Program

Gov. Tom Wolf on June 12 signed a bill with bipartisan support that creates a Commercial Property Assessed Clean Energy (C-PACE) financing program to help commercial property owners finance the costs of installing renewable energy, water conservation, and energy efficiency upgrades.

The bill enables municipal governments to set up energy improvement districts. Owners of agricultural, commercial or industrial buildings in those districts can finance energy efficiency and clean energy technology upgrades to the buildings through loans from private lenders that are repaid through tax payments that remain attached to the buildings even if the buildings get sold. Examples of such upgrades include the installation of insulation, water pumps and solar panels.

More: StateImpact Pennsylvania

PUC Allows Mariner 1 Ops, Halts Mariner 2 Construction

The Public Utility Commission on June 14 allowed Sunoco Pipeline to resume operating its Mariner East 1 natural gas liquids pipeline but kept the Energy Transfer Partners subsidiary's construction of Mariner East 2 halted.

By a 3-2 vote, the PUC approved a motion by Chair Gladys Brown modifying an administrative law judge's order that stopped work on Mariner East 2 and operation of Mariner East 1 in Chester County until the PUC could assure that the pipelines are safe. The order was a response to an emergency petition by state Sen. Andy Dinniman (D) calling for the construction and operation of the pipelines to be stopped in West Whiteland Township.

The PUC's ruling came a day after a nonprofit called Public Accountability Initiative released a report that says the four commissioners other than Brown have ties to the fossil fuel industry. On June 12, Delaware Riverkeeper Network filed a complaint in U.S. District Court for the Eastern District of Pennsylvania saying that Sunoco needs a wastewater discharge permit to construct Mariner East 2 because it has violated state water standards.

More: StateImpact Pennsylvania; Food & Water Watch; StateImpact Pennsylvania

WASHINGTON

Air Regulator Fines TransAlta For Violations at Coal Plant

The Southwest Clean Air Agency has fined TransAlta more than $331,000 for alleged air pollution violations at its coal-fired power plant in Centralia.

The agency said the power plant exceeded federal standards for mercury emissions and did not fully operate equipment that controls emissions of nitrogen oxides.

TransAlta said June 14 it disagrees with the penalties and will appeal the agency's decision.

More: The Associated Press

WEST VIRGINIA

Rover Agrees to Pay $430,000 For Water Pollution Violations

Rover Pipeline agreed to pay the Department of Environmental Protection $430,000 for violations of the Water Pollution Control Act as part of a consent order signed May 15 and made public June 12.

The order is in response to 18 notices of violation and two cease-and-desist orders issued by the DEP to the natural gas pipeline developer since April 2017. The public comment period for the order ends July 13.

More: Charleston Gazette-Mail

Conn. Awards 200-MW OSW, 50-MW Fuel Cell Deals

Continued from page 1

shipbuilders to invest in American jobs, factories and infrastructure," said Nancy Sopko, director of offshore wind for the American Wind Energy Association.

The Connecticut Department of Energy and Environmental Protection also announced awards for 52 MW of fuel cells and a 1.6-MW anaerobic digestion project Wednesday.

Maxed out on Offshore Wind

The 200 MW in offshore wind is equal to 3% of Connecticut's load, the maximum officials were permitted to procure under state law. Combined, the renewable energy procurements are equal to 4.7% of Connecticut's load.

The selected projects will seek to reach agreements on 20-year contracts with the state's electric distribution utilities, Eversource Energy and United Illuminating. The contracts will be subject to approval by the Public Utilities Regulatory Authority.

The Revolution project will be in federal waters about halfway between Montauk, N.Y., and Martha's Vineyard, Mass. Deepwater, majority owned by The D.E. Shaw Group, also is the owner of the 30-MW Block Island Wind Farm, the first U.S. offshore wind project. The company also is pursuing a project off New Jersey in a partnership with Public Service Enterprise Group.

As part of the Connecticut procurement, Deepwater agreed to economic development commitments in New London, including the investment of at least $15 million in the New London State Pier to allow "substantial" portions of the project to be constructed and assembled in the city. It also agreed to contract with a Connecticut-based boat builder to construct one of the project's crew transfer vessels in the state. This project is expected to spur more than 1,400 direct, indirect and induced jobs, officials said.

Vineyard Wind, which had also bid into the Connecticut procurement, said it will continue work on its Massachusetts project, with construction projected for 2019 and full operations in 2021. "We also will continue to develop the remainder of our commercial lease site with the goal of providing New England states with additional wind energy solutions in the near future," the company said in a statement.

Fuel Cells

Wednesday's announcement will double the installed capacity of fuel cells in Connecticut to about 100 MW. State officials said the addition will put the state in the forefront of fuel cell adoption, along with California (210 MW installed capacity) and New York (20 MW).

The largest fuel cell (19.98 MW) selected was Doosan Fuel Cell America's for the Energy and Innovation Park in New Britain. The project, the first phase of an economic development project, will use combined heat and power for heating and cooling businesses, including a Stanley Black & Decker manufacturing plant.

Others selected were Bloom Energy (a 10-MW project in Colchester) and FuelCell Energy (a 7.4-MW project in Hartford and a 14.8-MW project in Derby).

DEEP noted the average price in the fuel cell procurements was 11.6 cents/kWh, down from 15.6 cents/kWh in its 2011/12 procurement.

The Turning Earth Anaerobic Digestion Project in Southington will convert 54,000 tons of food waste and 15,000 tons of yard and woody waste into 90,000 cubic yards of compost and mulch annually.

FERC: No Emergency on Grid

Continued from page 1

McIntyre also agreed under questioning from Sen. Joe Manchin (D-W.Va.) that Energy Secretary Rick Perry has the authority to issue emergency orders under the Federal Power Act and Defense Production Act of 1950. "There's no question that the secretary does," McIntyre said.

The two-and-a-half-hour hearing — the first Senate oversight hearing involving all the FERC commissioners in a decade, according to Chair Lisa Murkowski (R-Alaska) — also touched on LNG and pipeline project licensing and the Public Utility Regulatory Policies Act.

But President Trump's June 1 directive that Perry prevent additional coal and nuclear plant retirements dominated the discussions. (See *Trump Orders Coal, Nuke Bailout, Citing National Security*.)

Most Democrats, led by ranking member Maria Cantwell (D-Wash.), blasted the proposal. LaFleur and Commissioners Richard Glick and Rob Powelson were the most outspoken in their opposition to the subsidies.

Commissioner Neil Chatterjee was somewhat more sympathetic, saying some critics had been too quick to dismiss the Department of Energy's draft memo, which seeks to justify capacity and energy payments to prevent plant retirements.

"There are a number of points in the memo that are thoroughly well cited and researched," he said. "I think we can have disagreements about what the remedy may be, but I think they raise a real issue … that we need to look at."

While acknowledging the vast majority of outages are the result of distribution and transmission failures rather than losses of generation, Chatterjee added, "We shouldn't assume that that good fortune will continue."

'Policy Vacuum'

Murkowski acknowledged, "I have my concerns with the steps the Department of Energy is reported to be considering." But she said DOE was trying to fill a "policy vacuum" created by FERC's failure to act more quickly on resilience concerns.

"In my view, FERC should be pointing the way on policy improvements that address grid vulnerabilities, while reaffirming our commitment to competition in wholesale power markets. Frankly, as one who has been concerned about this issue for years now, I find it unfortunate that prior commissions did not lead more effectively," she said. "We must increase the light and lower the heat in policy debates about price formation, state resource preferences and subsidies."

LaFleur, the commission's longest-serving member, defended its work in navigating the shift to more gas and renewable generation.

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FERC: No Emergency on Grid

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"We work to ensure resilience by overseeing market changes to increase compensation to resources that are online in times of system stress and extreme weather, including baseload resources. In the energy market, we [have] worked on a number of steps since 2014 to improve price formation to make sure the markets send the correct price signals," she said.

LaFleur said the commission should continue to craft "tailored regional solutions" to address tensions between wholesale markets and state policy favoring certain generators.

"Indeed, I believe the resource turnover we're experiencing is an expected consequence of markets and technological change, and the lower prices that result from well-functioning markets are a benefit to consumers — not a problem to be solved, unless reliability is compromised," she said.

"We cannot try to stop the natural evolution of this industry by claims there's a national security emergency unless there is evidence to suggest an emergency actually exists," said Glick. "We need to keep on being vigilant and keep monitoring the situation. But we also need to be wary of people using the situation — or the potential situation — as an excuse to achieve market changes they haven't been able to achieve otherwise."

Cantwell said the administration's "radical" plan could cost consumers billions, telling the commissioners that maintaining "'just and reasonable' [rates is] your job. … That is why we have a FERC."

But Manchin dismissed concerns that the subsidies would raise prices. He noted that the draft DOE memo envisioned subsidies for two years while the agency studies grid risks. "You're acting like it's going to be forever," he told the commissioners.

When he pressed the commissioners to identify any generation sources other than coal and nuclear that can provide 24/7 "baseload" power, Glick mentioned "some hydropower," while Powelson volunteered natural gas.

'Human Impact'

Sen. Shelley Moore Capito (R-W.Va.) complained that renewable subsidies and environmental regulations had "led to a failure that has been punishing" coal generation and the communities that depend on them.

Glick and Chatterjee expressed sympathy for those who have lost their jobs because of coal and nuclear plant closures. But they said providing relief to such workers is the job of Congress and state legislators, not FERC.

Chatterjee said he understood the "human impact" of plant closures because of his visits to West Virginia coal country with Capito and the Colstrip coal plant with Sen. Steve Daines (R-Mont.).

"That is not something that we factor into our record. We will look at plants like Colstrip and make a determination based on … whether there would be threats to reliability in the event the plants shut down," he told Daines. "But that's certainly something that's well within your purview."

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