RTO Insider

Your Eyes and Ears on the Organized Electric Markets

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FERC Halts PJM Capacity Auction

By Christen Smith

FERC halted PJM's plan to run its capacity auction next month in a surprise order issued Thursday, just hours after the Markets and Reliability Committee reaffirmed the RTO's decision to move forward as planned.

The commission refused to "rule prematurely" on PJM's request for clarification that if it ran the 2022/23 Base Residual Auction using the existing minimum price offer rule (MOPR) — while the revised version awaits approval — that FERC would enforce any new rates prospectively, saving the August auction from being rerun (*EL16-49*).

PJM argued that if the commission granted its request, filed in April, the "critical" confidence in auction results necessary for market participants would be preserved. (See *PJM to Hold Capacity Auction in August*.) The RTO's Board of Managers also maintained that the rejected MOPR only impacts a small number of resources, meaning an updated commission ruling on the matter wouldn't change prices too much within the current environment.

"PJM asserts that, here, refunds would not be warranted because the basis of the underlying complaint is that the relevant rates are too low, not too high, which is a required finding for re-

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CAISO Seeking to Contain PSPS Spillover

ISO Board Questions 'Neighborly' Response to Fire Danger Shutoffs

By Robert Mullin

CAISO says it will seek to protect neighboring balancing authority areas if its investor-owned utility members de-energize transmission lines because of wildfire threats — even at the expense of the ISO's own load.

But the policy of ensuring energy flows to adjoining BAAs during public safety power shutoffs (PSPS) didn't exactly earn plaudits from the ISO's own Board of Governors when it was revealed to them Wednesday.

"Not to sound un-neighborly, but why do we feel so strongly that there should not be [PSPS] impact to other IOUs or balancing areas?" Governor Ashutosh Bhagwat asked ISO officials during the board's monthly meeting.

Bhagwat's question came after CAISO CEO Steve Berberich and Director of Real Time Operations John Phipps laid out the measures the ISO would take to respond to an "extreme" PSPS event involving high-voltage transmission.

Berberich pointed out that California — which is only now heading into its peak wildfire season — has already experienced three PSPS events this year, compared with seven for all of 2018. (See *Fire Season Starts in Calif. with Power Shutoffs*.)

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NARUC Family Feud | © *RTO Insider*

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In this week's issue

Storage Week 2019

Storage Week: Hairless Cats, Rising Status and Skeptics

By Hudson Sangree

SAN FRANCISCO — Can battery storage become a significant part of the grid in the next five to 10 years?

Some who spoke at Infocast's Storage Week Plus conference last week were optimistic it could happen, while others sounded notes of caution. Some saw batteries as a way of storing excess solar and wind energy for later use, while others said batteries were best at supporting the grid in other ways.

The relative novelty of battery storage and uncertainty surrounding it makes it a "a little bit of a mutant child," said Holly Christie, associate general counsel at Invenergy.

"I have a hairless cat, and sometimes when I take the hairless cat for a walk, I get a lot of strange looks from people. They're like, 'Is it a dog? Is it a rat?' And I feel like with storage, it's like that too," Christie said. "They're like, 'Do we paper it up like a power farm?' No. 'Do we paper it up like an asset acquisition?' Not really. It's not a financial tool."

Unlike most aspects of the energy industry, there are no standardized forms to fill out or typical deal structures, so each project tends be "cool [and] very organic" but also fraught with financial and legal challenges, Christie said.

What many speakers agreed on was that interest in storage is growing among regulators, utilities and developers, pushing it forward at a surprisingly rapid pace in an industry that's generally slow to adopt new technologies.

"It's a very, very exciting time to be in the energy business," said Barry Worthington, executive director of the United States Energy Association, a D.C.-based interest group. Worthington moderated the panel on standalone storage that Christie appeared on.

"I've been in this business for 40 years, and I've never seen the rate of change that we're witnessing now ... [including] one of the most exciting parts — storage," he said.

He was on a storage panel at a conference five or six years ago, he said, "and I think there were six people in the audience at that time. And you look at the audience today ... and it's really quite remarkable."

Panelists noted how Infocast's Storage Week conferences have been attracting larger audiences, highlighting the growth of storage. | © *RTO Insider*

Movin' on Up

The audience for Storage Week Plus filled a sizable meeting room at the historic Westin St. Francis hotel on Union Square. Representatives of RTOs/ISOs, major utilities and green energy groups listened to a dozen panels on storage and renewables, project financing and opportunities for utility-scale storage, among other subjects.

"I have a hairless cat, and sometimes when I take the hairless cat for a walk, I get a lot of strange looks from people. They're like, 'Is it a dog? Is it a rat?' And I feel like with storage, it's like that too."

— Holly Christie, associate general counsel at Invenergy

The upscale venue and size of the conference signaled the emergence of storage as a viable solution for reliability challenges, some speakers said.

Neeraj Arora, a partner at law firm Morgan, Lewis & Bockius, moderated a panel on what off-takers, such as utilities and corporations, expect from storage. Five years ago, those expectations were extremely unclear, Arora said. At that time, there was less than 100 MW of installed storage in the U.S. Now there's less than 1 GW, but the figure is growing fast, and in five years, there will be 5 GW of storage, he said.

"We're going from a $1 billion market this year to something like a $5 billion market in five years ... and as many of you who have been coming to this conference know, we've gone from Oakland to the Hotel Kabuki [in San Francisco's Japantown], and now we're here at the esteemed Westin, so we can see that industry is certainly maturing." (See *Calif. Needs far more Storage to Decarbonize, Panelists Say*.)

One of his panelists, Arora noted, was James Barner, manager of long-term strategic planning at the Los Angeles Department of Water and Power. The department is seeking approval from its board to buy power at record-low prices from the nation's largest solar-plus-storage project, with 400 MW of solar and 200 MW of storage.

Storage Week 2019

Randolph Mann, esVolta; Holly Christie, Invenergy; and Barry Worthington, USEA, discussed standalone storage projects. | © *RTO Insider*

> **"If Thomas Edison were alive today, he'd recognize about 90% of what we do."**
>
> — Kevin Short, general manager of the Anza Electric Cooperative in Southern California

The deal may be an indicator of the future trajectory of storage, some speakers said.

In five or 10 years, storage will be much bigger, said Randolph Mann, founder and president of esVolta, a Southern California company that develops, owns and operates utility-scale energy storage projects.

"I think we'll have, as an industry, utility-scale storage in every state in the country," Mann said. "I think that it will be a … core piece of every utility's platform and tool kit. I think the technology will be reliable enough, the contracting structures will be reliable enough, that we'll have a lot of institutional capital participating in the industry. And I don't think we'll be able to do Storage Week conferences in a room this size."

Harnessing Expectations

Others, however expressed a degree of skepticism that battery storage, with its high costs and short run times, would be the answer to storing excess wind and solar power for later use, such as meeting peak demand.

Instead, they said batteries were most adept at providing grid support.

For instance, CAISO is nearing completion of a major stakeholder initiative on storage as a transmission asset. (See *CAISO Updates Storage as Transmission Asset Plan*.) In a pilot project under that initiative, Pacific Gas and Electric will install 7 MW of battery storage at a 70-kV substation near Dinuba. It will be the first dedicated storage transmission asset in CAISO.

The battery will be used only occasionally, including to support transmission operations during emergencies, said Nicole Efron, a PG&E principal who presented at the conference. It will not bid into CAISO's market, but the storage unit was deemed a more cost-effective solution to reliability concerns than running new conductors, she said.

Nicole Efron, PG&E | © *RTO Insider*

"This is an instance where a single-use unit could work" because alternatives were more expensive, Efron said.

Barner said pumped storage likely would be the key to longer-term storage and discharge, not batteries. Pumped hydroelectric power provides lower-cost and longer duration discharge than batteries, lasting a full day instead of a few hours, he said.

Kevin Short, the general manager of the Anza Electric Cooperative in Southern California, said storage is essential, but he questioned how fast it might be adopted in an industry that has been hesitant to adopt new tools over the last century.

"If Thomas Edison were alive today, he'd recognize about 90% of what we do," Short said.

Storage "is a piece of the puzzle we absolutely need to adopt," he said. "It's very similar to the trajectory solar took a few years ago."

Invenergy's Christie said lithium-ion batteries are prone to fires and explosions and likely will be replaced with newer battery technology.

After her remarks, USEA's Worthington asked her how she walks her hairless cat. On a leash, she said, with a harness and "little T-shirts."

"I recommend it," she said. "Once you go flesh, you'll never go back to fur."

"I don't like cats, but I'm going to have to give some consideration to having a hairless cat," Worthington said, prompting laughter. "I think the hair part is what makes me not like cats. You learn something every day." ■

Neeraj Arora, standing, moderated a panel on offtaker perspectives that included James Barner, LADWP; Tara Fowler, Xcel Energy; Kevin Short, Anza Electric Cooepartive; and Carlos Fandino, city of Vernon, Calif. | © *RTO Insider*

NARUC Summer Policy Summit

Former Commissioners Debate Tx Incentive Revamp

By Amanda Durish Cook

EEI's Philip Moeller and Virginia SCC Commissioner Judith Jagdmann | © *RTO Insider*

INDIANAPOLIS — Regulators should preserve the multiple incentives currently offered to transmission developers — and possibly consider creating new ones, two former FERC commissioners said last week.

Suedeen Kelly, Jenner & Block | © *RTO Insider*

Speaking on a panel at the National Association of Regulatory Utility Commissioners' 2019 Summer Policy Summit on July 22, former Commissioners Suedeen Kelly and Philip Moeller expressed support for incentives granted on a case-by-case basis, but they said the time may be ripe to create new categories of adders to encourage development.

Entitled "(Trans)Mission Critical? Reconsidering FERC's Electric Transmission Incentives," the panel focused on the commission's recent Notice of Inquiry into transmission rate incentives and the ensuing comments from transmission owners, load, utilities, regulators and trade groups. (See *Tx Incentives NOI Brings Calls for Broader Reforms*.)

Virginia State Corporation Commissioner Judith Jagdmann, the panel moderator, asked if regulators view the incentives as a "fist on the scale or a thumb on the scale."

Kelly, now a partner with the law firm Jenner & Block, said the incentives were designed to be a thumb. "It was clear from the beginning that you couldn't incent something where rates were no longer just and reasonable," she said of FERC's philosophy behind creating incentives.

She said there wasn't much common ground on specific, standardized incentives as she and her fellow commissioners were developing Order 697, issued in 2006.

"We agreed that incentives were necessary. We didn't agree on what certain projects should be incented and not others. We couldn't agree on the particulars. If you look at the rule, it reflects that. … We put the burden on the developer when they came to us" with an application, Kelly said.

Moeller, now executive vice president at Edison Electric Institute, said the incentive applications that started to come in after the 2006 rulemaking were generally on par with the commission's expectations.

"I actually dissented from many incentive requests, and through my dissent, I was trying to create my own incentive policy, Kelly recounted. "Some of my dissents were an inchoate wanting to know more about the challenges and the benefits."

Save the RTO Adder

RTO adders are still an important piece of encouraging transmission investment, Kelly said, especially in the West and Southeast, where participation in organized markets is less common.

"RTO membership was clearly something that the commission was trying to encourage. I think it's taken for granted now, but 15, 20 years ago, it was really something different," Moeller said.

However, the lone panelist without a regulator background argued for eventual phaseout of the RTO adder.

"We were concerned that the RTO incentive packages were too easily granted. It was becoming routine," American Public Power Association General Counsel Delia Patterson said.

She said FERC has struck more of a balance between consumers and investors since its 2012 *policy statement* on transmission incentives, which was crafted to create a more rigorous standard for requesting incentives. Still, she said RTO membership is too commonplace to warrant the incentive.

But Moeller said it remains fair, also adding that between 2006 and 2012, transmission buildout was appropriately robust.

"I thought we went too far in terms of cutting things back in 2012. But I agree that transmission investment is necessary. … It's so doggone hard to build for the most part," Moeller said.

Risky Business

Kelly agreed that transmission construction is a risky venture: "It's a very difficult decision in a public company to put up capital and make a transmission investment."

During her time on the New Mexico Public Regulation Commission, Kelly said, she agonized the most over transmission siting decisions. "Nobody wants to put a transmission line in their neighbor's farm or yard or along the edge of a national forest. It's not a pleasant job."

Asked whether they would prefer a case-by-case review or standardized incentive approval, the former commissioners still prefer the former — although Kelly thinks "slam dunk" incentives should be made into a standard.

Patterson concurred on the need for case-by-case review. "I trust my daughter, Emily, to make sure to pack a balanced lunch, but it's up to me to verify that," she said to audience laughter.

Moeller said FERC might consider additional incentives for transmission systems that are reinforced against intensifying climate change.

"What's the value of electricity when you don't have it? Many, many, many times more." ■

NARUC Summer Policy Summit

Stakeholders Best Commissioners in NARUC 'Family Feud'

NARUC President Nick Wagner hosts Family Feud. | © *RTO Insider*

INDIANAPOLIS — Commissioners were pitted against industry stakeholders in an energy-themed "Family Feud" event that lightheartedly capped off the National Association of Regulatory Utility Commissioners' Summer Policy Summit last week.

The game show Wednesday delivered a win for the "Legends" stakeholder group, who prevailed 541-483 against the "All-Stars" commissioner team.

The commissioner team consisted of Sarah Hoffman of Vermont, Judith Jagdmann of Virginia, Paul Kjellander of Idaho, Kim O'Guinn of Arkansas and Brandon Presley of Mississippi. The stakeholder team — itself heavy with ex-regulators — included Paladin Energy Strategies' Kevin Gunn, PJM's Asim Haque, Edison Electric Institute's Philip Moeller and the National Association of Water Companies' Robert Powelson.

NARUC staff polled roughly 100 NARUC attendees for answers.

"This is not the [Richard] Dawson era; I will not be kissing anyone," joked game show host Nick Wagner, NARUC president and Iowa Utilities Board member.

Questions ranged from "Name a reason a commissioner would wake up at 2 a.m." to "What are the common causes of power outages" to "What item in the house uses the most energy."

"What kind of coffeemaker do you have?" Wagner joked after Haque's answer to the last question.

"Are these planned or unplanned outages?" O'Guinn laughed as she asked for clarification.

The All-Stars team took one round of the close game when Moeller took too long to answer.

"The Sopranos!" Kjellander shouted to a buzzer sound when asked what TV show mostly resembles his office. Other answers thrown out were "Game of Thrones," "The Office" and "The Bachelorette." Both teams failed to guess the remaining answer: "The Walking Dead." ■

— Amanda Durish Cook

Time to Plan for 100% Clean Power, State Regulators Say

By Amanda Durish Cook

INDIANAPOLIS — Most state regulators think it is time to begin preparing for a 100% clean energy future, based on discussions at the National Association of Regulatory Utility Commissioners' 2019 Summer Policy Summit last week.

In real-time voting during a panel July 22, 75% of regulators and industry staffers in the audience said it was time to begin prepping for a 100% clean energy future, with 4% saying the question could wait two to five years, 10% saying not for a while and 11% deeming the preparations not a priority.

Energy consultant Debbie Lew said 100% clean energy is within reach now.

"You can do 100% clean energy today; it just depends on how expensive it will be," said Lew, who said the expense of synchronous condensers, grid-forming inverters and other power electronics quickly adds up. The effectiveness of a proliferation of four-hour batteries on resource adequacy also has a saturation point, she said.

The question remains, she continued, as to how smart and cost-conscious regulators and utilities are going to be during the transition. More accurate forecasting, price sensitive-demand response and effective curtailments can smooth the changeover, Lew said.

A 100% renewable future can be facilitated by larger regions with faster trading, a varied storage portfolio, demand-side flexibility, better forecasting and intermittent resources sometimes used for ancillary service dispatch, she said. "We tend to think of curtailment of wind or solar PV as a bad or ugly thing, but if we use that in combination with forecasting, we can use that as a reserve product. … It's a technology that's available right now."

Lew said she can't yet tell if there will be a need for regional energy markets after such a transition, but capacity markets could become more vital as seasonal, on-demand capacity becomes more necessary to cover intermittent resources.

"We're really good at running energy markets, but is there much of a place for markets with zero-marginal-cost energy?" Lew asked.

Hawaii Public Utilities Commission Chair James Griffin said regulatory changes are a vital component to reaching 100% clean energy goals.

But Xcel Energy Director of Energy and Environmental Policy Jeff Lyng said a regulatory overhaul isn't necessary to make the transition.

Sustainable FERC Project's John Moore and consultant Debbie Lew | © *RTO Insider*

"Utilities have demonstrated that they can innovate and deploy [renewables] at scale," Lyng said. He added, however, that small rule changes could be appropriate, in addition to the timely approval of pilots and generation projects and a continued focus on emissions control.

Lyng said Xcel worked with climate scientists to develop its 2050 zero-carbon *goals*, which line up with the target to keep global surface temperatures from rising beyond 2 degrees Celsius.

Griffin said the Hawaiian islands, which are especially susceptible to the risks of climate change, can't afford to wait on high-tech solutions that will facilitate 100% renewable energy.

"Every time I'm told to slow down, I remind others that the status quo is the problem," Griffin said.

Armond Cohen, Clean Air Task Force | © *RTO Insider*

Clean Air Task Force Executive Director Armond Cohen pushed back on the oft repeated *conclusion* that an 80% renewable mix is doable now, but a 100% renewable takeover remains out of reach. He said 100% clean energy is not an impossibility — it will just be expensive. Cohen also said he supports bills for 100% clean energy over bills that call for 100% renewable energy.

"I think that if we keep out options open, it's totally doable," Cohen said. "It's going to be a lot of capex run very seldomly. … It gets very expensive very fast." Cohen said an ideal, albeit wholly unrealistic solution, would be to cover the remaining 20% with zero-marginal-cost storage devices.

Multiple panelists repeated the call for federal-level carbon pricing to prompt more technology investment to facilitate renewable integration.

"Politics is going to be a big part of getting from here to there," Sustainable FERC Project Director John Moore said.

He also said if he could have his way, the entire Eastern Interconnection would be consolidated into a single RTO to pave the way for renewables; however, he admitted such a scenario is unlikely. ■

CAISO/West News

California PUC Jumps into PG&E Bankruptcy Fray

Insurers, Bondholders Offering Competing Exit Plans

By Hudson Sangree and Michael Brooks

PG&E is in the midst of Chapter 11 reorganization after being blamed for starting November's Camp Fire, the deadliest in state history. | © *RTO Insider*

The federal judge overseeing PG&E Corp.'s Chapter 11 bankruptcy granted a motion by the California Public Utilities Commission on Wednesday to hold off on deciding whether to terminate the utility's exclusivity period while it attempts to create a process for choosing among the several competing plans.

A group of unsecured bondholders on July 23 had requested that Judge Dennis Montali, of the U.S. Bankruptcy Court for the Northern District of California, terminate PG&E's exclusivity — the time it has to offer a reorganization plan without the judge having to weigh competing proposals — in light of the enactment of Assembly Bill 1054 earlier this month.

Signed by Gov. Gavin Newsom on July 12, the law includes a $21 billion fund to pay wildfire claims, with the goal of shoring up shaky utilities. (See *Calif. Wildfire Relief Bill Signed After Quick Passage*.)

"The debtors' legislative requirement was addressed on July 12," the ad hoc committee of senior unsecured noteholders told Montali in *court papers*. PG&E would have to emerge from bankruptcy by June 30, 2020, to take advantage of the measure's provisions. The unsecured bondholders — a group of 25 banks, mutual funds and others — say that makes getting PG&E out of bankruptcy more urgent. They encouraged the judge to accept their proposal, which would pay off or refinance their notes.

"With the recent inception of the 2019 wildfire season and the impending June 30, 2020, deadline, it is now time to move these cases as quickly as possible towards emergence," the bondholders' lawyers wrote. "Unfortunately, to date the debtors have almost entirely failed to do so" and instead have sought legislative help to securitize equity in the company to protect shareholders and raise capital.

But on Wednesday, Alan Kornberg, an attorney representing the California PUC, told Montali that the commission is "keenly interested" in the bondholders' plan, as well as a competing plan by insurers with more than $20 billion in unsecured claims against PG&E for payments made to wildfire victims.

Any exit plan would need to be approved by the commission, and it is "vital" that be done by the June 2020 deadline, Kornberg said. Both the commission and Newsom want a competitive process, and he acknowledged the request was an unusual one, "but we cannot permit competition to turn into chaos." He asked Montali to give the commission and PG&E two weeks to work out a process and timeline for evaluating the different plans.

The bondholders' lawyer, Michael Stamer, objected to the proposed delay, calling it "an unprecedented, undocumented road to nowhere."

"Everyone is in violent agreement that every day counts, and two weeks is a long time," Stamer said.

This did not persuade Montali, however. He noted that he had only received the bondholders' 33-page plan the morning prior and finished going through it at midnight, indicating he was not prepared to rule on the exclusivity motion that day anyway.

Montali also noted that the bondholders were not the only ones seeking to terminate exclusivity. "The one thing we don't need, more than anything, is a lot of lawyers writing a lot of briefings that don't need to be written, and one judge reading all the briefs that don't need to be read," he said.

He set Aug. 9 to hear the results of the PUC and PG&E's discussions, and Aug. 13 to rehear the bondholders' exclusivity motion. A hearing to consider the insurers' exclusivity motion was already set for Aug. 13.

Montali has wide latitude to consider the competing plans. He ended exclusivity early during PG&E's prior bankruptcy case in the early 2000s, allowing the PUC to offer its own reorganization plan.

The judge warned PG&E's lawyers in May he could revoke exclusivity if he saw fit. "This judge has never been a fan of exclusivity but is a fan of practical consequences," Montali said. He explained at the time he did not want to deal with competing reorganization plans that might be unworkable.

"The proposal would hold PG&E accountable for wildfire liability, maintain price stability for PG&E's ratepayers [and] contribute billions of dollars to California's wildfire recovery fund," the insurers said in a news release.

Their *plan* provides for payment of victims' wildfire claims through a settlement trust, with a $5 billion contribution to the state's recovery fund for future wildfire claims that was part of AB 1054.

Subrogation claimants would be paid 90% of their claims with shares in the company, "thereby reducing the amount of new money necessary for PG&E to exit Chapter 11," they said.

Like the unsecured bondholders, the unsecured insurers stand to lose in the PG&E bankruptcy because they would have to get in line behind secured creditors whose claims will be paid first.

PG&E cited billions of dollars in wildfire liability when it filed for bankruptcy in January. The company has been blamed for starting major fires in 2015, 2017 and 2018, including last November's Camp Fire, the deadliest in state history. ■

CAISO/West News

CAISO Seeking to Contain PSPS Spillover

ISO Board Questions 'Neighborly' Response to Fire Danger Shutoffs

Continued from page 1

"At least some of the utilities have indicated that they very well could de-energize high-voltage [lines] through public safety power shutoff areas. We need to anticipate that this could happen, and we want to make sure everyone knows how we're going to handle" shutoffs, Berberich told the board. "This is a very important matter. It could significantly impact people across the state."

It fell to Phipps to describe how significantly. He *presented* the board with two possible scenarios related to emergency shutoffs in Northern California, clarifying that CAISO's transmission-owning utilities — and not the ISO — decide when and where to initiate PSPS events.

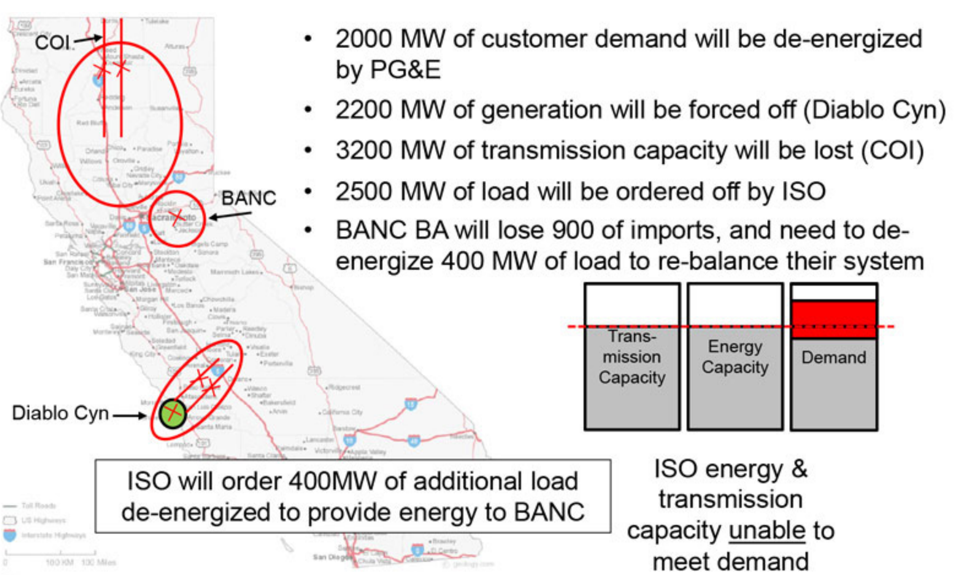
Under a first, relatively benign, scenario, a wildfire danger limited to the remote northwestern part of the state would prompt Pacific Gas and Electric to de-energize one 60-kV line and a small portion of its distribution system, curtailing 200 MW of customer demand, but having no impact on CAISO's larger grid and requiring little response from system operators.

But under a second, "extreme" scenario, Phipps said, PG&E would inform CAISO a day in advance that it would de-energize 230-kV and 500-kV circuits vital to the operation of the bulk electric system.

In that situation, PG&E would curtail high-voltage lines serving the Diablo Canyon nuclear plant on the Central Coast, taking more than 2,000 MW of generation offline. The utility would also be shutting off the portion of the California-Oregon Intertie (COI) running through the fire-prone area near Paradise, curtailing 4,000 MW of import capacity. The Sacramento Municipal Utility District (SMUD), a member of the Balancing Authority of Northern California (BANC), owns part of the COI along with PG&E and other entities.

"So, between the loss of transmission and energy capacity, we can now no longer meet the forecasted demand and reserve obligations for the next day," Phipps said. "Due to that, the ISO would need to direct approximately 2,500 MW of load reduction to be able to meet our load and reserve obligations meeting N-1 criteria."

In that scenario, BANC could expect to lose about 900 MW of imports from the Pacific Northwest, forcing it to shed about 400 MW of load, CAISO estimates.



A CAISO slide illustrates the potential impact of an "extreme" public safety power shutoff taking out multiple high-voltage lines in PG&E's territory. | *CAISO*

"In order to help BANC avoid doing that, the ISO would make decisions to shed an additional 400 MW of ISO balancing authority load and provide emergency assistance to BANC during the hours that they would be short," Phipps said.

The rationale for CAISO's sacrifice is rooted in a set of operating principles the ISO has established to guide its response to wildfire shutoffs.

First among them is to protect the integrity of the BES, "so we will analyze the impact to determine what mitigation measures would need to be taken, including possible additional load shedding to manage N-1 loading issues."

The second principle is to attempt to limit the impact of a PSPS to the territory of the utility initiating the action.

"So if one of the PTOs [participating transmission owners] is activating a PSPS and it does require the ISO to take actions to mitigate that leading up to the load shedding, we would try to confine that load shedding to that IOU and not let it propagate onto additional, adjoining IOUs," Phipps said.

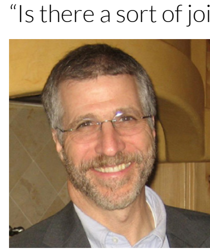
The third — and most controversial — principle: to prevent allowing the impact of an "extreme" PSPS to spill over into neighboring BAAs.

"So, in a sense, we would shed additional load so we could provide that energy to the adjacent BA so they could avoid the load shed," Phipps said.

Doing the Right Thing?

The board bristled at the last principle, questioning the reasoning behind it.

"Is there a sort of joint efficiency argument that it's just going to be harder to recover, or is this good neighborliness, and how does that interact with the fact that these IOU lines are carrying power to these other balancing authorities?" Governor Severin Borenstein asked.



Severin Borenstein, CAISO | *University of California Berkeley*

CAISO/West News

"The best I could give you is that it's a good-neighbor policy," Berberich responded. "I've consulted with the CEOs of the IOUs about this [and] they think the best public perception outcome would be to contain [PSPS impacts] to their own PTOs."

"Even if that means shutting off power to the much larger number of people in the ISO balancing authority?" board Chair David Olsen asked.

David Olsen, CAISO | *© RTO Insider*

"I don't think that's what we're talking about," Berberich replied, pointing out that CAISO would be only shedding an additional 400 MW of load in the scenario outlined by Phipps.

"I guess it's not obvious to me what's the right choice. I understand the politics, but I guess it's not clear to me the efficiency of shedding that load in the same balancing authority," Borenstein said, adding that one could make the case that the other BAs that benefit from the transmission lines every day should also bear part of the costs of de-energizing them.

"But you also have to keep in mind that they have no role in deciding to de-energize the lines either," Berberich said.

"Yeah, that may be, but somebody's got to make those hard decisions, and I'm sure the utilities are not going to decide to do it because they don't have to bear 100% of the costs. I guess this is something that is a policy choice that has to be made," Borenstein said.

Attempting to further illuminate the ISO's position, Berberich offered another scenario in which PG&E takes out a line that doesn't affect its own load, while requiring SMUD to shed 200 MW. "That doesn't sound to me like a very good outcome," he said.

"If PG&E has to shed a much larger amount of load in order to avoid that, it sounds like neither choice is good, but at some point, having an absolute rule that the PTO's control area bears unlimited costs before any cost is borne by neighboring BAs seems not the right answer either," Borenstein contended.

Berberich clarified that there would be no "hard and fast rule" for dealing with PSPS events — that each event would be addressed individually.

"There well could be cases where load has to be shed in adjacent balancing areas," he said. "Our intentionality is to try to protect them, and our intentionality is to try to keep it perched within the PTO and then within our BA. And if we can't do that, then it goes to another BA."

Phipps piped in with a ground-level perspective, speaking from the point of view of a system operator answering an alert that a transmission line is being taken down, not because of a threat to the grid, but because of a "corporate decision to manage the risk of starting a fire."

"And now I'm going to have to make a call to San Diego [to another IOU] and tell them I need you to shed 200 MW of load. I know you just spent a billion dollars upgrading your system so you wouldn't have to do this, but I need you to shed load. And now SMUD, by the way, I need you to shed some load also."

Borenstein, a University of California Berkeley energy economist, pondered whether the complications around wildfire shutoffs were rooted in the broader history of the utility system.

"Because in most other situations, if that other entity had some benefit and ownership of the line [such as the COI], they would also have some co-liability in the line," Borenstein said.

Instead, PG&E is "solely liable" for any wildfires sparked by the line within its service territory, leaving it as the sole decision-maker regarding operation of the line, despite having a contract with the joint owner that should — but apparently doesn't — include a right not to deliver energy in order to avoid the costs for wildfire liability, he said.

Borenstein speculated that CAISO's need for such an "extreme" response to a potential high-voltage shutoff — curtailing ISO load — is an "idiosyncratic outcome" of how the region's grid has been formed and "the casual relationship that has grown up among adjoining utilities" in the region with respect to risk-sharing for joint projects.

Berberich emphasized the scenario laid out in Phipps' presentation was an "extreme version" of how the ISO plans to approach wildfire shutoffs, pointing out that utilities have yet to shut down any high-voltage lines running through areas already subject to PSPS.

"Let's hope we never have to cross this bridge, but in the event we do, we wanted to make sure everybody understood how we're going to handle it." ■

ERCOT Asks PUC to Dismiss Trader's Complaint

By Tom Kleckner

ERCOT's operations center | © *RTO Insider*

ERCOT on Wednesday asked Texas regulators to dismiss a complaint by energy broker Aspire Commodities seeking to make generators repay the market an estimated $18 million as a result of a May pricing error.

The grid operator said the state's Public Utility Commission should dismiss Aspire's complaint because the broker failed to complete its alternative dispute resolution (ADR) procedure and also suffered no direct injury from the error.

ERCOT also asked the commission to deny Aspire's request for a price correction for the May 30 event because its protocols don't allow for price corrections "when a market solution is attributable to an external data error caused by an ERCOT market participant."

"Requiring ERCOT to conduct price corrections in cases of external data errors would be imprudent, as this practice would lead to frequent price corrections and result in increased price uncertainty and market instability," the grid operator *said*.

ERCOT noted that state agency *rules* require that a complaint made against it include a statement as to whether "the complainant has used the applicable ERCOT procedures for challenging or modifying the … conduct or decision."

"Aspire fails to identify any provision … to excuse its failure to use the ADR process," the grid operator said.

During a June meeting of the ERCOT Board of Directors, Vice President of Commercial Operations Kenan Ögelman said the event briefly resulted in $9,000/MWh prices when the security-constrained economic dispatch system received bad telemetry data. (See "Telemetry Data Blamed for Market Event," *ERCOT Board of Directors Briefs: June 11, 2019*.)

He said the data indicated about 5,000 MW of resources wanted to move down during an interval. When the market didn't respond quickly enough, the SCED engine used regulation-up to get the ramp it thought it needed. When energy prices hit their $9,000/MWh maximum, ERCOT operators reran SCED and corrected the data, but not before settlement prices reached as high as $1,500/MWh in some load zones for one 15-minute interval.

Ögelman said during the board meeting that staff would look into strengthening telemetry data and work with stakeholders to evaluate alternatives.

ERCOT declined to comment on staff's work, saying it would not comment beyond its filing.

In its *complaint* to the PUC, Aspire said it estimates ERCOT's "fictitious price spike" cost the market almost $18.4 million. Aspire said it wasn't a direct counterparty to the market, but it had exposure through its forward positions in the Intercontinental Exchange (*49673*).

Adam Sinn, Aspire Commodities | *Mays Business School/Texas A&M*

"We simply cannot understand how anybody associated with the market cannot argue that repricing is absolutely required for this interval," Aspire President Adam Sinn said.

"Incorrect telemetry coming from outside ERCOT is not something we run corrections for," Ögelman told the board in June.

Calpine has *admitted* one of its IT employees had caused the error, and the company said it has asked ERCOT to reprice the 15-minute interval. ■

ERCOT News

ERCOT Technical Advisory Committee Briefs

TAC Approves First Real-time Co-optimization Principles

ERCOT stakeholders last week endorsed the first batch of key principles that will lay the foundation for implementation of real-time co-optimization (RTC) in the market.

The Technical Advisory Committee on Wednesday readily endorsed five principles brought forward by the Real-Time Co-optimization Task Force (RTCTF). The principles still must be approved by the Board of Directors, which meets next on Aug. 13.

"I like to think of it as building a house," said ERCOT Compliance Director Matt Mereness, who chairs the RTCTF. "The high-level principles are the blueprint that will provide direction in [the next] phase, which is developing the protocols."

The stakeholder group, which has been meeting since April, has been charged with implementing RTC, a market tool that procures both energy and ancillary services (AS) every five minutes to find the most cost-effective solution for both requirements. ERCOT has said it can implement RTC by mid-2024, at a cost of at least $40 million.

The task force intends to bring the TAC a series of additional principles for endorsement through the end of the year using templates that "look eerily" like change request forms, as Mereness said. The RTCTF's work will likely end the committee's recent practice of canceling meetings (three so far in 2019) over a lack of voting items.

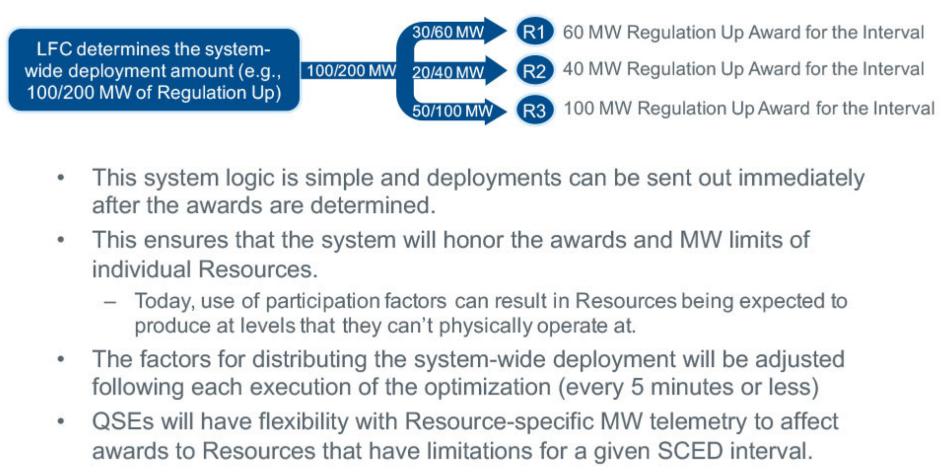
TAC members watch a presentation during July's meeting. | © *RTO Insider*

The TAC approved four key principles unanimously and with minimal discussion.

A debate erupted during discussion of the fifth — modifying AS' deployment to accommodate real-time awards — over whether to use participation factors (PFs) in ERCOT's regulation service instructions.

Staff recommended eliminating the use of PFs, which tell ERCOT how qualified scheduling entities (QSEs) plan to distribute deployment of AS across their qualified resources on a four-second basis. They proposed instead to make regulation service instructions resource-specific — ensuring that regulation awards are proportionate to deployment.

Crescent Power energy consultant Shams Siddiqi offered an alternative that would give QSEs the option of using PFs. Under his proposal, resources providing reg-up/reg-down would be expected to follow ERCOT resource-specific deployments after each RTC run, until the time the grid operator accepts new telemetered PFs. Once ERCOT accepts the entities' new telemetered factors, resources would be expected to follow PF-adjusted, resource-specific reg-up/reg-down deployments until the next RTC run.



ERCOT is proposing that regulation deployment become resource-specific with the instructions being in proportion to a resource's regulation awards. | *ERCOT*

Mereness noted ERCOT's regulation-service deployments are not economic solutions, and that keeping the PFs actually increases deployment efficiency.

ERCOT's Dave Maggio said Siddiqi's alternative proposal mixes approaches to regulation awards, using the grid operator's proposal for the first part of the five-minute interval and the optional use of PFs for the second part. Siddiqi's alternative may be technically feasible, Maggio said, but it is more complex and creates risk around telemetry management and validation.

Lower Colorado River Authority's (LCRA) John Dumas said he was also concerned about the complexity the market would be adding with the alternative proposal, but he would prefer to maintain its flexibility.

"[ERCOT's proposal] would have ERCOT making all the decisions and taking away the flexibility from the owners," he said. "We should maintain PFs as an option under real-time co-optimization."

"It would be fairly low-cost to retain participation factors," Reliant Energy Retail Services'

ERCOT News

Bill Barnes said. "This really comes down to what we think additional cost and flexibility is. We're just talking a couple of hundred megawatts [of regulation service] here. I'm not sure it's worth it."

Walter Reid, with the Advanced Power Alliance, pointed to Siddiqi's comment that energy storage will provide most regulation service in the future.

"ERCOT has done a fair job of not overly complicating this," he said. "I would certainly err on the side to give developers as much incentive as we can to enter ERCOT, because that will be much more valuable for loads as we move forward."

The TAC rejected the alternative proposal by a 21-3 vote, with five abstentions. Members then approved ERCOT's original suggestion, with Shell Energy North America abstaining.

The other four key principles (KPs) include:

- KP 1.4 addresses the necessary modifications to ERCOT systems and applications that provide inputs for the real-time market optimization engine to accommodate RTC and the real-time AS awards.
- KP 1.6 modifies the AS imbalance settlement process to award AS in real time.
- KP 3 adds to the reliability unit commitment (RUC) process by reviewing resources scheduled to be available and study moving AS among qualified resources to meet forecasted conditions and align with the real-time market. The RUC process will study whether additional commitments are needed to meet the load forecast and minimum AS requirements, and resolve transmission congestion.
- KP 4 eliminates the supplemental AS market, replacing it with an updated RUC process to resolve transmission congestion and ensure sufficient capacity is projected to be available in real time to meet the load forecast and AS plan.

The task force compromised on KP 3 by agreeing to allow RUC to use RUC AS demand curves. As originally drafted, the principle would have ruled against the use of the real-time AS demand curves.

STEC's Lange Elected Vice Chair

Committee members elected Clif Lange, South Texas Electric Cooperative's manager of wholesale marketing, as their new vice chair. Lange replaces Diana Coleman, who stepped down from the TAC when she accepted a position with San Antonio's CPS Energy.

South Texas Electric's Clif Lange joins ENGIE's Bob Helton at the TAC's head table. | © *RTO Insider*

Members also approved the 2020 meeting calendar. The TAC will once again generally meet on the fourth or fifth Wednesday of the month, as it did this year.

TAC Endorses 15 Changes

The committee passed a previously tabled Nodal Protocol revision request (*NPRR917*) that replaces load-zone energy pricing with nodal energy pricing for settlement-only distribution and transmission generators (SODGs and SOTGs). The NPRR allows SODGs and SOTGs to request ERCOT continue to provide them load-zone pricing until they opt in for nodal pricing or until Jan. 1, 2030, whichever comes sooner.

Cypress Creek Renewables withdrew earlier comments calling for a 40-year grandfathering period and asked instead for a 20-year period to cover contractual agreements with off-takers. However, the Protocol Revision Subcommittee recommended a 10-year period.

LCRA proposed the opt-out option should also be made available to entities with executed development agreements before Jan. 1, 2019, and suggested the SODG or SOTG's full capacity should be online as of June 1, 2020. LCRA's comments were amended to the motion, which passed 23-5, with one abstention.

The TAC unanimously endorsed 10 other NPRRs, a change to the Nodal Operating Guide (NOGRR), an Other Binding Document (OBDRR) and two system change requests (SCRs):

- *NPRR823*: Synchronizes the protocols' "affiliate" definition with state law to allow exemptions for portfolio affiliates (two or more publicly traded companies in the same industry with common shareholders).
- *NPRR904*: Revises the categories of ERCOT-directed actions that trigger the real-time online reliability deployment price adder (RTRDPA)'s pricing run to include DC tie-related actions to reflect current system conditions and corrects identified flaws with current RTRDPA design.
- *NPRR931*: Modifies the hub average 345-kV price calculation to reflect the use of aggregated shift factors, as opposed to simple averaging of the component hubs' prices.
- *NPRR932*: Clarifies that new load added to an existing ERCOT system zone (including load from a non-ERCOT control area) can take effect immediately without board approval.
- *NPRR935*: Requires ERCOT post values for wind and solar forecasts and include an indication of which model is being used for each forecast. Also requires ERCOT to issue a market notice and sponsor an NPRR proposing requirements for any new future forecasts.
- *NPRR940*: Removes from the protocols *NPRR664*'s grey-boxed language introducing an optional, alternative fuel index price, which has never been implemented.
- *NPRR942*: Clarifies in the protocols the timing of the final allocated transaction limit for the congestion revenue rights auction's posting (the second-round limit).
- *NPRR943*: Adds Martin Luther King Jr. Day to the list of ERCOT-observed holidays.
- *NPRR944*: Updates the day-ahead market's energy bid curve criteria language to align with current validation.
- *NPRR949*: Removes the use of standard voice telephone circuits as an option for the grid operator to retrieve ERCOT-polled settlement meter data, effective Jan. 1, 2023.
- *NOGRR187*: Aligns the NOG with *NPRR863*'s revisions to ancillary services.
- *OBDRR009*: Paired with NPRR904, the change revises the online and offline capacity reserves for out-of-market actions related to DC ties, preventing price reversal and price distortion whenever ERCOT makes out-of-market actions.
- *SCR801*: Corrects the global process ID for Texas standard electronic transaction (Texas SET) 867_03 by applying the same data lifecycle cross reference consistency for all 867_03 usage transactions.
- *SCR802*: Improves system inertia communications by showing the real-time system inertia value under the Real-Time System Conditions display on the ERCOT website. ■

— Tom Kleckner

Women Shaping New England Energy Agenda, Group Says

By Michael Kuser

BOSTON — More than 200 people — nearly all women — gathered on the sparkling new Campus Center at the University of Massachusetts Boston on Wednesday for the annual summer meeting of New England Women in Energy and the Environment (*NEWIEE*).

Katherine Newman, UMass Boston | *© RTO Insider*

"There's just so much going on here that is relevant to the work that you do in the energy and environment field," UMass Boston Chancellor Katherine Newman said as she welcomed the group's members and state officials invited from around the region.

Newman pointed to a program the university inaugurated this year to establish 20 industry clusters on the campus, companies linked together by "common labor markets" and looking for people with the "same kinds of skills."

"One of them will definitely be in energy and environment," she said.

Maura Healey, Massachusetts AG | *© RTO Insider*

Massachusetts Attorney General Maura Healey quoted the former president of Ireland, Mary Robinson, who recently *said* that "climate change is a manmade problem with a feminist solution."

"The crisis we face is, of course, existential," Healey said. "No other country is going to solve this problem for us, and even while our federal government hands control over to coal lobbyists and climate change deniers, the world does continue to look to us for global leadership. And we need to demonstrate the path that transitions our economy away from fossil fuels by transforming the way we power our communities."

Healey will host the annual meeting of the National Association of Attorneys General's Eastern Region in Boston this September and is making energy the focus of that *meeting*. "That's how important I view this topic," she said.

She recommended applying the clean energy revolution to buildings and transportation as well as to the power sector, possibly mandating efficiency retrofits on old buildings, and incentivizing the adoption of electric vehicles.

Massachusetts Attorney General Maura Healey speaks to NEWIEE meeting attendees at UMass Boston on July 24. | *© RTO Insider*

Regional Collaboration

Carol Grant, Rhode Island OER | *© RTO Insider*

"On behalf of a very small state with a strong governor [Gina Raimondo], we can collaborate to help make this region be more than the sum of its parts," said Carol Grant, commissioner of the Rhode Island Office of Energy Resources. "At the end of the day, that is the goal. Each state is going to do what each state is charged with, but how can we collaborate?"

Raimondo set a goal of developing 1,000 MW of renewable energy in the state by 2020, Grant said. "The good news is, as of the second-quarter report — not out officially — we will be over 750 MW, so we are going to make that goal."

Grant also said her office works to ensure the state's clean energy moves help those who need it most, such as by introducing electric buses into poor communities identified as most subject to public health disparities.

"Our renewable portfolio standard is set at 38.5%," Grant said. "When we set it, we were first in New England; now we're fourth. That's amazing and a compliment to Maine and to other states that have been pushing their RPSes. So everybody keep going."

Energy and climate are a focus of Maine Gov. Janet Mills, said Hannah Pingree, director of the governor's Office of Policy Innovation and the Future (OIF).

A former state legislator, Pingree recommended NEWIEE members "run for public office, in your spare time if you have to, because that's where policy gets made."

Hannah Pingree, Maine OIF | © *RTO Insider*

Maine is about two years behind Rhode Island in the push for clean energy, but it is now first in the country on RPS targets with a goal of 80% renewables by 2030, she said.

The state led the country in offshore wind in 2008 and 2009 until Mills' predecessor, Gov. Paul LePage, "shut that down in a big way," Pingree said. (In 2008, former Gov. John Baldacci established the Maine Ocean Energy Task Force, which in 2009 published a ***report*** recommending the development of 5 GW of offshore wind energy by 2030.)

LePage served two four-year terms until Mills was inaugurated in January.

"My kids are into 'Harry Potter' now, and I'm sure you're all familiar with the phenomenon of 'He Who Must Not Be Named,'" Pingree said of LePage.

The University of Maine has *received* a $40 million grant from the U.S. Department of Energy to build Maine Aqua Ventus, which they hope will be the country's first floating offshore wind platform. In addition, she said her state is working with New Hampshire and Massachusetts on a Bureau of Ocean Energy Management task force to develop offshore wind regionally. (See *New England Officials Speak on Grid Transformation*.)

New Hampshire Public Utilities Commissioner Kathryn Bailey recommended that project developers "work with local people way before they put any plan forward. They need to get buy-in from local people."

Kathryn Bailey, New Hampshire PUC | © *RTO Insider*

Bailey served on the state's Site Evaluation Committee that rejected Eversource Energy's proposed 1,090-MW Northern Pass transmission project to carry Hydro-Québec hydropower to Massachusetts. The New Hampshire Supreme Court the previous week ***upheld*** the rejection, and on Thursday, Eversource ***filed*** with the Securities and Exchange Commission its intent to drop the project.

"Not every local person has to buy in, but without it, you're going to get a lot of animosity and opposition, and it's really hard to overcome that," Bailey said. "It may cost you more, but in order to get these things sited — and cost is my main issue — you're going to have to pay a little bit more for it than people thought because you can't do it without some local support."

'Women Know What to Do'

When Healey first became attorney general in 2014 — she was re-elected last year — she brought together what had previously been separated: the office's Environmental Protection and Energy divisions.

"It was my view that unless we thought about synergies between these spaces, we weren't going to get to where we needed to be. So that's why we created, for the first time, an *Energy and Environment Bureau*, housed everybody together, and I think it's made us smarter, more strategic and hopefully ... more of a leader in this space," Healey said.

Study after study has shown that women are more likely to understand the impact that climate change will have on their lives, she said, and they're more likely to worry about what that's going to mean for future generations.

"And even more importantly, women know what to do. We know the game plan; we know the blueprint. Every day, we see cities across this country adopting their own Green New Deals. Every week we see hundreds of municipalities and businesses signing new clean power purchase agreements. Our clean tech community continues to roll out new programs and policies that are making real differences."

Ultimately, running the economy on clean energy is a win for everyone — for consumers, the climate, public health and the economy, she said.

"I explain to people that I am forced to sue Donald Trump and his administration time and time again because the actions they are taking undermine the interests of Massachusetts residents and our businesses," Healey said. "I explain that Massachusetts has over 100,000 clean energy jobs and growing right now, twice the number of coal jobs in the entire country and representing an $11 billion dollar industry."

The solar and wind industries are creating jobs 12 times faster than the rest of the economy, she said, with more Americans working in solar energy than in oil and natural gas extraction. "Think about that." ■

Avangrid Earnings Continue to Lag on Weak Wind

By Michael Kuser

Avangrid *reported* second-quarter earnings of $110 million ($0.36/share), up slightly from $107 million ($0.35/share) in the same period in 2018, though first half net income was down about 7% from the first six months of last year.

A subsidiary of Spain-based Iberdrola, Avangrid owns United Illuminating, Connecticut Natural Gas, Central Maine Power, New York State Electric and Gas, and Rochester Gas & Electric.

In an analyst *call* on Wednesday, CEO James P. Torgerson said the company was "disappointed with the continued lack of wind resource that impacted most of our fleet." (See *Avangrid Earnings Drop on Weak Wind*.)

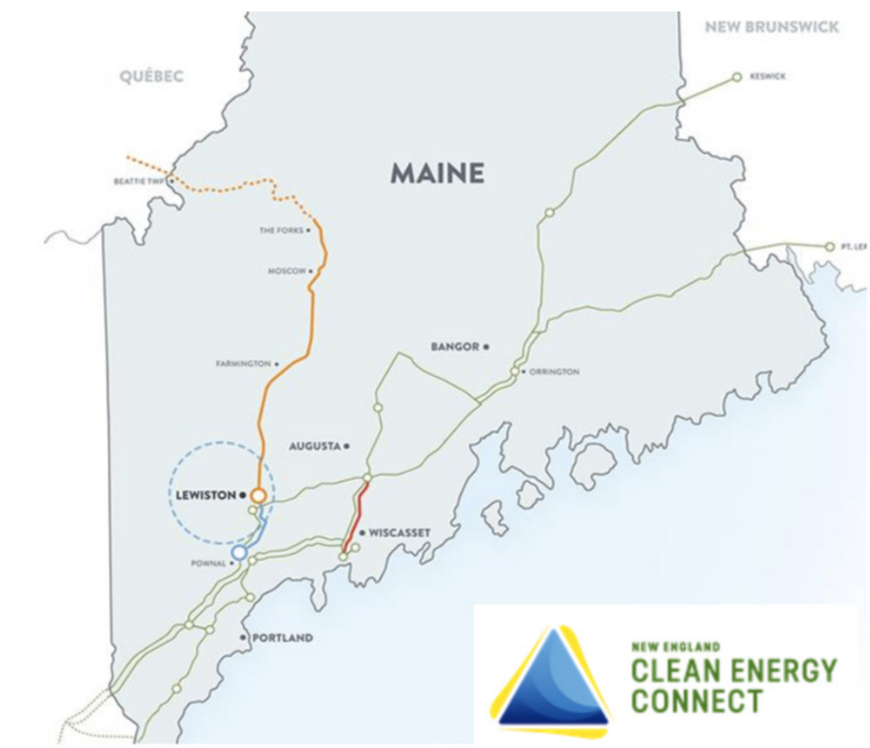
The firm's New England Clean Energy Connect transmission project is "on track," he said, adding that the Massachusetts Department of Public Utilities recently approved 20-year contracts between Hydro-Québec and utilities Eversource Energy, National Grid and Unitil.

In New York, NYSEG and RG&E filed their electric and gas rate cases in May for new rates effective in the second quarter of 2020, which includes requests for recovery of resilience investments and deferral of staging costs for storms. NYSEG was among the utilities penalized last month by the New York Public Service Commission for safety and reliability issues. (See *NYPSC Dings Utilities for 2018 Reliability, Safety*.)

Central Maine Power is currently subject to hearings by the Maine Public Utilities Commission regarding the mismanaged introduction of a new billing system last year that saw some customers' bills double or triple.

Torgerson said that the commission outsourced a forensic audit of the billing system and "concluded that it was billing things correctly." He said the high bills were in part a reflection of a very cold winter. But for some customers, the company also failed to issue bills for several months. In other cases, unpaid bills from one month got added to a second month.

"The issue really is … the fact that we didn't provide the customer service that our customers expect," he said. "Every individual has different circumstances, and we need to go through every one of those and work with the customer to make sure they understand what occurred … so that they can have confidence that actually their bill was correct."



| Avangrid

Commission staff are recommending a 75- to 100-basis-point reduction in CMP's return on equity for one year until the company demonstrates that it has improved customer service "and gotten things back on track," Torgerson said.

A Second Wind

Vineyard Wind, the company's joint venture with Copenhagen Infrastructure Partners, had a rough start to the summer when the U.S. Bureau of Ocean Energy Management in June declined to issue its final environmental impact statement (EIS) on the 1,200-MW offshore wind project. This month, the Massachusetts town of Edgartown's Conservation Commission denied a permit for the project's transmission cables to come ashore on Martha's Vineyard. (See "Land Ho is Wind Woe," *New England Officials Speak on Grid Transformation*.)

On July 23, however, the Massachusetts legislature authorized the Barnstable Town Council to grant an easement at Covell's Beach for Vineyard Wind to land its cables and build an interconnection to the New England grid.

On BOEM's delay, Torgerson said, "We are confident that the pending reviews can be concluded shortly, and the final EIS released soon after. … We're still working with them and pretty confident that we can get something done by the end of August, and that will keep us on track with our time frame.

"It would be challenging to move forward if we don't get the final EIS in the next four to six weeks," he said. "That having been said, it doesn't mean the project is dead by any stretch. It just means we're going to have to reconfigure things or do something differently."

Laura Beane, head of Avangrid Renewables, said, "Right now, we are absolutely focused on getting to resolution under the current configuration and maintaining the current schedule. If we're required to, I think we'll look at other alternatives, but really our focus remains on maintaining our current schedule and working through these issues."

In addition, the company said it had purchased the 226-MW Patriot Wind project in Texas upon commercial operation in June and that it has 763 MW of renewables assets under construction and on track to come online by the end of this year. Avangrid also secured a power purchase agreement on its 140-MW La Joya II wind farm in California. ■

MISO News

MISO Studying Projects to Cut North-South Tx Dependence

By Amanda Durish Cook

MISO is evaluating nine projects to supplement or substitute for the contract path on SPP transmission linking its Midwest and South regions.

The RTO last week said it is still analyzing project ideas submitted by stakeholders, with nine *projects* passing the initial screening phase and multiple HVDC options undergoing further analysis, before completing the first round of screening.

It received 35 project ideas to reduce dependence on the North-South transmission constraint after it opened the floor to ideas in April, Economic Studies Engineer David Severson said during a conference call with stakeholders Thursday. (See *MISO Seeking Proposals to Relieve North-South Constraint*.)

The RTO now says its analysis will continue beyond the 2019 Transmission Expansion Plan (MTEP 19) deadline in December. In spring, staff said they weren't bound to a deadline to submit any project recommendations and could take more time to conduct thorough testing of candidates.

"Given the uniqueness of some of the solutions we received … we fully expect the study to continue into 2020," Severson said.

He added that MISO might try out new "exploratory" benefit metrics on the project candidates, although those metrics would not yet be applied to official benefit-cost ratio figures. The RTO has so far suggested it might incorporate the benefits of increased capacity flowing between regions as a new metric.

MISO currently relies on three metrics in its ratios, including adjusted production costs, the value of deferred or avoided reliability transmission projects, and the value of reducing power flows on the North-South constraint.

It will provide more updates on ideas later this year. Multiple stakeholders asked RTO staff to return with maps of potential transmission routes, a suggestion Severson said he would take under advisement.

8-Project Draft from Congestion Study

MISO will work through fall on its 2019 Market Congestion Planning Study, which now contains a shortlist of eight projects.

The RTO last month reported it was *analyzing* seven projects that passed the first round of screening. Those projects focused on just three congested areas, leaving MISO to compare multiple alternatives for just two congested areas. (See "Shortlist from MCPS," *MTEP 19 Revealing High Price Tag*.) Additional projects are now in the running to solve interregional congestion.

The project *shortlist* has grown to eight after initial testing, with only one regional project focusing on a 345-kV flowgate in southern Minnesota, the $32 million Helena-Scott County 345-kV line, which stands to deliver a 4.76:1 benefit-cost ratio, MISO said. The project is now the best option out of three originally proposed to solve the Minnesota congestion.

While MISO has whittled down options on the lone regional project, the number of possible interregional solutions has grown.

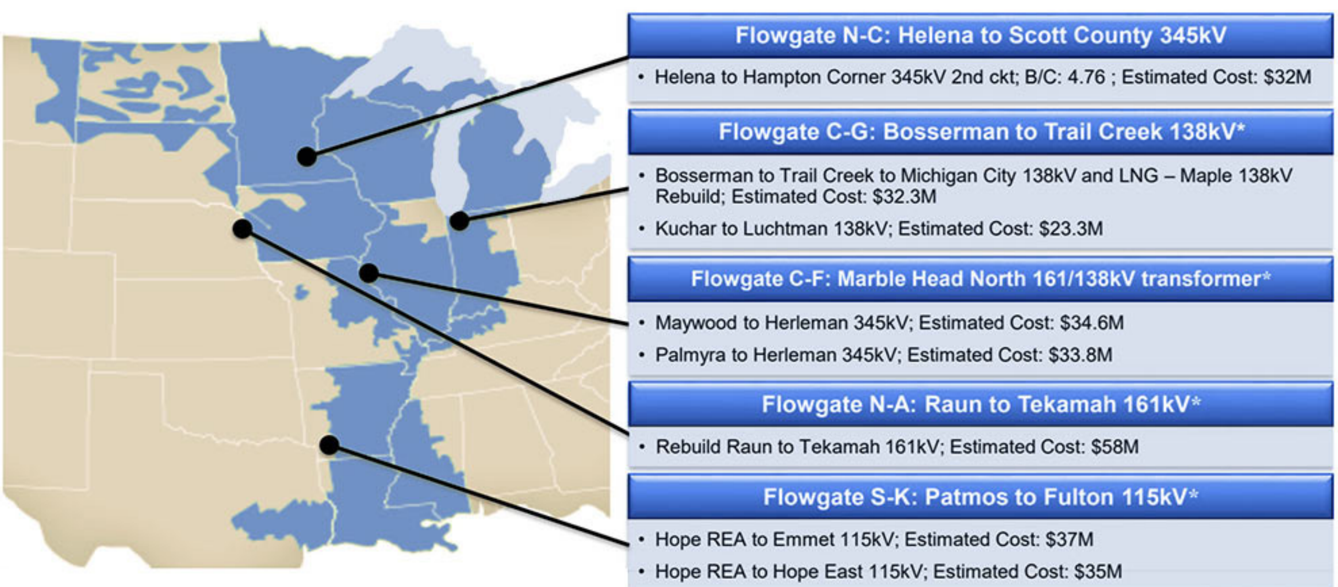
The remaining projects address interregional flowgates, with three intended to ease two MISO-SPP flowgates in southwest Arkansas and on the Iowa-Nebraska border, and four addressing two MISO-PJM flowgates in northwest Indiana and western Illinois.

Possible MISO-PJM projects range in cost from $23.3 million to $34.6 million, while costs for the potential MISO-SPP solutions range from $35 million to $58 million.

All of the projects still must undergo further testing before they are deemed viable. Economic Studies Engineer Karthik Munukutla also said MISO is coordinating with SPP and PJM to figure out if they foresee benefits from the potential interregional projects.

"We want to make sure the projects we are testing stand the test of time," Munukutla said.

He said staff will wrap up studies in August and reveal final recommendations at the Planning Advisory Committee meeting Sept. 25. "We will have all the recommendations there, both from an interregional and regional standpoint." ■



| Avangrid

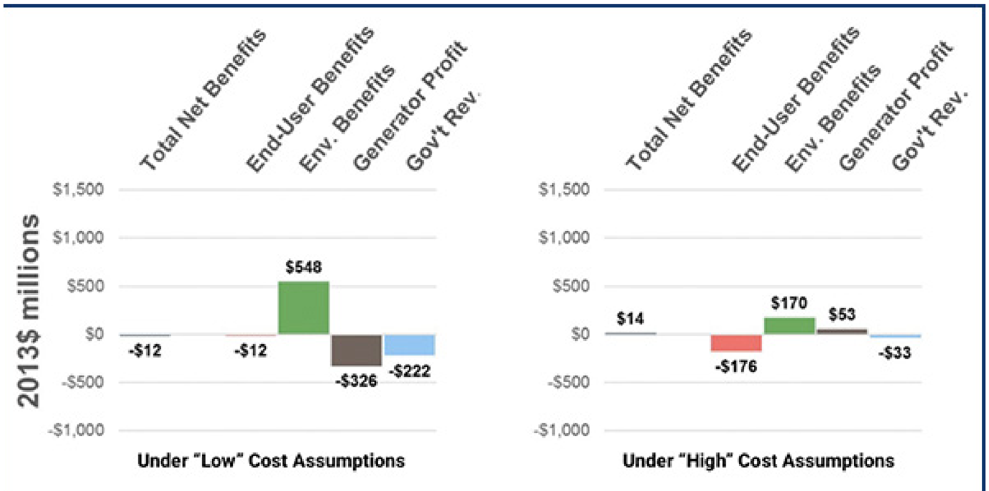
NYISO News

Study: Carbon Adder Supports NY Clean Energy Goals

By Michael Kuser

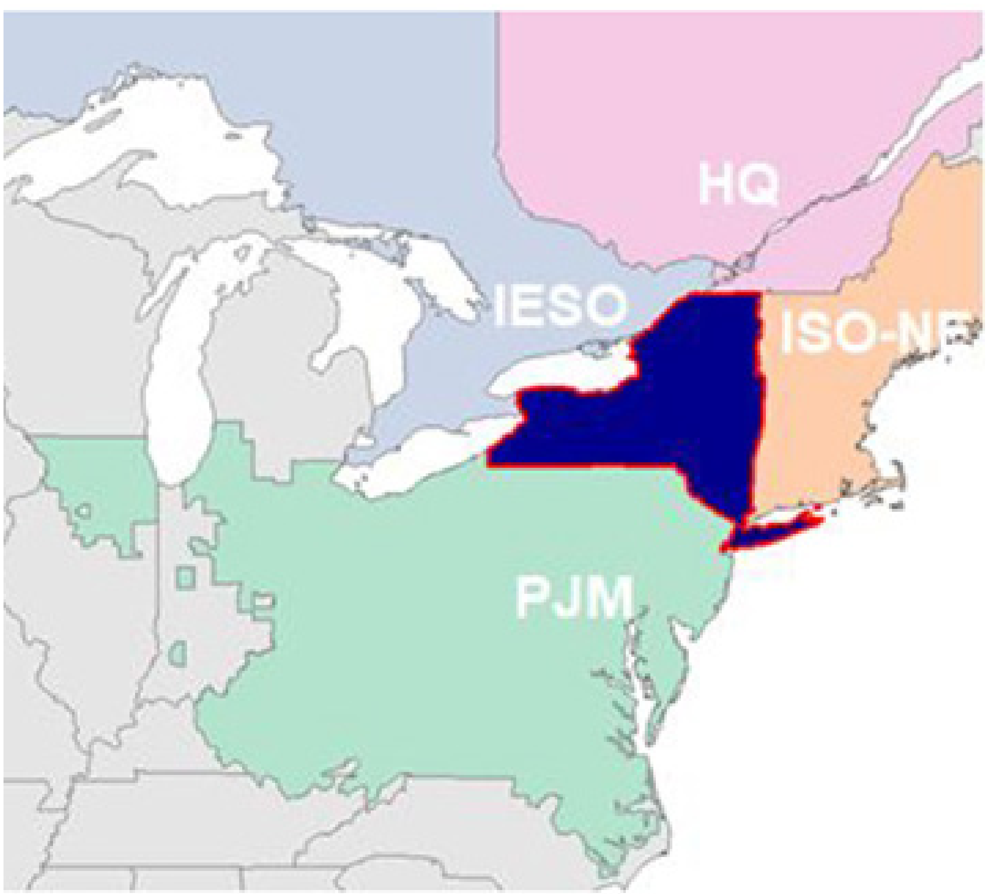
NYISO's effort to price carbon into its wholesale markets could help New York achieve its ambitious clean energy goals, but the policy would benefit from a boost in the social cost of carbon (SCC) or additional programs, according to a study released last week.

The study by the nonprofit Resources for the Future (RFF) indicates a $63/ton carbon price could drive clean energy penetration to as high as 64% of the state's resource mix by 2025, "well on the way" to the 70% requirement for 2030. The SCC is currently estimated at $40/ton.



Effects of policy on welfare originating in New York. RFF defines "End-User Benefits" as "direct pocketbook and profit effects." The environmental benefits shown here are from the reduction of New York emissions. The reduction in government revenue is primarily from reduced RGGI allowance prices (low case) and RGGI allowance sales (both cases). | *Resources for the Future*

The target of 70% renewable generation by 2030 implies an increase in the share of non-emitting generation from its current level of approximately 60% (46% not including Indian Point, which is slated to retire in 2021) to roughly 88% in 2030 (for load-serving entities under the jurisdiction of the New York Public Service Commission) and 100% by 2040, according to the study.



| *Resources for the Future*

"This analysis suggests pricing carbon within New York electricity markets could help to advance the adoption of clean energy, but a higher carbon price, additional companion policies or different policies will likely be necessary to hit the clean energy goals New York state has set for 2030."

The think tank used its own Engineering, Economic and Environmental Electricity Simulation Tool (E4ST) to model the impact of carbon pricing on emissions and prices in New York and throughout the Eastern Interconnection based on expectations for 2025.

The study, "Benefits and Costs of Power Plant Carbon Emissions Pricing in New York," was co-authored by RFF's Daniel Shawhan and incorporates key assumption changes from an earlier version of the analysis presented last September to the Integrating Public Policy Task Force, a joint effort between the ISO and the PSC. (See *'Negative Leakage' from NY Carbon Charge, Study Shows*.)

The ISO's Market Issues Working Group (MIWG) took over in January from the task force, which over nearly a year and a half had developed the carbon pricing proposal released last December.

"The most influential change was that we used what I consider to be better projections of the costs of solar and wind technology," Shawhan told *RTO Insider*.

NYISO News

"The ones we used before were from the [U.S. Energy Information Administration's] Annual Energy Outlook, and they're just simply out of date," Shawhan said. "So we used better assumptions ... the medium cost projections from the National Renewable Energy Laboratory annual technology baseline. The effect of that change was to lower the projected cost of solar and wind, and, as a result, we get considerably more emissions reductions and we get a low projected cost to electricity users, lower than some of our prior projections."

Clean Energy Legislation

NYISO market participants have been debating how the state's newly enacted Climate Leadership and Community Protection Act (*A8429*) and its mandated influx of renewables would affect the effort to price carbon. (See "New Energy Law Could Affect CO_2 Market Design," *NYISO Business Issues Committee Briefs: June 20, 2019*.)

Along with the 70-by-2030 renewables target, the new law nearly quadruples the state's offshore wind energy goal to 9 GW by 2035 and requires the economy to be carbon-neutral by 2040. It also doubles the distributed solar generation goal to 6 GW by 2025 and targets deploying 3 GW of energy storage by 2030.

Gov. Andrew Cuomo signed the bill July 18, the same day he announced the state was awarding a combined total of 1,700 MW in offshore wind contracts to Equinor's Empire Wind project and to Sunrise Wind, a joint venture of Ørsted and Eversource Energy.

In addition, the state Department of Environmental Conservation is revising its Clean Air Act *regulations* to lower allowable NO_x emissions from simple cycle and regenerative combustion turbines during the ozone season, effective May 1, 2023, with generator compliance plans due by March 2, 2020. (See *NY DEC Kicks off Peaker Emissions Limits Hearings*.)

According to the RFF simulation results, New York electricity users in in 2025 would pay the equivalent of between 0.1 and 1.1% of the retail electricity rate for the carbon adder, while the net benefit to society as of that year would be between $108 million and $691 million per year, in 2013 dollars.

The analysis found a carbon adder drives New York renewable energy credit and zero-emission credit prices to zero, incentivizing renewables investment and the maintenance of upstate nuclear generation in the energy markets. It also found the carbon policy increases zonal average wholesale electricity prices in New York by $20 to $24, but with revenue rebated to end users, and other charges reduced, the average cost to end users is 9 cents to $1.21/MWh.

In addition, the study found the Regional Greenhouse Gas Initiative's Emissions Containment Reserve, due to be introduced in 2021, will provide a mechanism for reducing the emissions cap if the RGGI allowance price falls to the reserve trigger price, resulting in lower total power sector emissions from the RGGI states taken together. ■

Assumption	This Analysis	IPPTF Presentation
Capital Costs	NREL ATB 2018 [Lower solar & wind cost than in AEO]	AEO 2017
Regional Fuel Prices/Demand Forecast	AEO 2019 (except "High" case bases NG prices on NYMEX futures)	AEO 2017 except NG price based on NYMEX futures
RPS Requirements	LBNL RPS spreadsheet (policies as of Nov. 2018)	LBNL RPS spreadsheet (policies as of July 2017)
Price Responsive Load (PRL)	Load in each hour responds to annual average retail price that reflects rebates	No PRL
NY RGGI Coverage	> 15 MW	> 25 MW
RGGI Cap for VA	~ 28 M Tons	~ 32 M Tons
Ontario Nuclear	No longer planned retirement of Bruce A/B facilities (per S&P Global)	Planned retirement of Bruce A/B facilities (per S&P Global)
E4ST Generator Placement	Ensured only generators directly serving NY are assigned to NY nodes in our model (necessary due to border flow constraints)	

Key changes in assumptions from RFF's September 2018 analysis of the proposed carbon pricing policy presented to the IPPTF | *Resources for the Future*

PJM News

Ohio Approves Nuke Subsidy

By Christen Smith

Ohio legislators last week approved a controversial bill to subsidize FirstEnergy Solutions' nuclear reactors on Lake Erie, making it the third state to provide a financial lifeline to the nuclear industry in PJM.

Davis-Besse Nuclear Power Plant

The Ohio House of Representatives on July 23 voted 51-38 in favor of the $170 million Ohio Clean Air Act (HB 6). Republican Gov. Mike DeWine quickly signed the bill later that day, officially curtailing the state's current renewable portfolio standards and tacking on monthly fees — ranging from 80 cents for residential customers to $2,400 for large industrial plants — to electricity bills for the Davis-Besse and Perry nuclear facilities. Some $20 million of the fees collected will support six solar power projects in rural areas of the state.

Ratepayers will also notice a $1.50 charge to supplement two Ohio Valley Electric Corp. (OVEC) coal plants — a House-crafted addition meant to attract support from electric distribution utilities, according to some critics. (See *Ohio Nuke Bill: A Worthwhile Tradeoff?*)

"We are very pleased that Gov. Mike DeWine signed HB 6 following its successful bipartisan passage in the General Assembly," said John W. Judge, CEO of FirstEnergy Solutions. "We're also thankful for the support and commitment by Speaker [Larry] Householder and Senate President [Larry] Obhof, who understood the importance of protecting 90% of the state's zero-emissions electricity, substantial employment and the need to provide affordable rates from a diverse portfolio of generation sources for Ohioans."

Judge confirmed that FES will rescind deactivation orders for both plants and prepare for necessary refueling in the spring.

With DeWine's signature, Ohio joins New Jersey and Illinois as the only states in PJM to subsidize nuclear generation — a policy reaction to the economic impact of cheap, natural gas-fired generation setting prices in the wholesale markets. Supporters insist the support is justified because the RTO's market structure doesn't appropriately value the reliability and carbon-free emissions provided by nuclear power. Without them, proponents say states can't achieve aggressive clean energy targets because renewables are intermittent. (See *Nuclear, Gas Seen as Crucial to PJM's Renewables Growth*.)

Gregory Wetstone, CEO of the American Council on Renewable Energy (ACORE), characterized the plan as a "bailout" — echoing the sentiments of critics in both the clean energy and natural gas sectors who argue the subsidies will distort the wholesale energy market and spike electricity prices.

"At a time when the nation is accelerating its transition to affordable, pollution-free renewable power, this legislation goes in precisely the wrong direction with a bailout of aging and uneconomic coal and nuclear plants and a weakening of the state's renewable portfolio standard," he said.

"House Bill 6 is just the latest, though maybe the worst, of the retreats from the legislature's brave stand for utility consumers through power plant competition in 1999," said Bruce Weston, counsel for the Ohio Consumers' Counsel (OCC). "Power companies have too much influence in Ohio, and that should be reformed."

AARP joined ACORE, the OCC and the Ohio Manufacturers' Association in *calling* on the governor to veto the bill, to no avail.

Todd Snitchler, CEO of the Electric Power Supply Association, said the bill "unfairly punishes competitive generators who are the largest power producers in Ohio. This bailout jeopardizes competitors' investments and risks local tax revenues and jobs in the communities hosting competitive coal and natural gas plants that generate thousands of megawatts for Ohio and the PJM region.

"Passage of yet another nuclear bailout makes it more urgent than ever for the Federal Energy Regulatory Commission to swiftly implement effective measures to protect the integrity of PJM's energy and capacity markets," he added.

The House vote came six days after the Senate approved the bill, capping off months of hearings that debated the merits of saving the plants at the expense of RPS goals. (See *Ohio Senate Clears Nuke Rescue*.) Householder (R) had reportedly worked behind the scenes to secure bipartisan support in his chamber by pushing the fees for OVEC, and slashing the RPS mandates long unpopular among state Republicans.

"We are reducing consumers' bills, repealing wasteful government mandates and keeping good-paying jobs here in Ohio," Householder said July 23. "This is legislation that makes sense for the ratepayers of Ohio."

Under the plan, the nuclear charges would sunset in 2027, and the Public Utilities Commission would audit the facilities each year between 2022 and 2026 to determine if the subsidies are still needed — an attempt to placate critics who insist the plants aren't losing money at all.

The RPS — the law determining how much electricity electric distribution utilities procure from renewable resources — will drop from 12.5% by 2027 to 8.5% until 2025, with no continuation of the mandate thereafter.

Opponents have vowed to seek a referendum opposing the bill on the November 2020 election ballot. ClearView Energy Partners said opponents have 90 days after July 23 to collect the necessary 265,774 signatures needed to get it on the ballot. The success of such a measure depends largely on the way election officials word the referendum, ClearView said. ■

PJM News

FERC Halts PJM Capacity Auction

Continued from page 1

funds under Section 206 of the Federal Power Act," FERC summarized in its ruling.

PJM delayed the BRA once already after FERC ruled in June 2018 that the RTO's MOPR was unjust and unreasonable because it didn't address price suppression arising from state subsidies for renewable and nuclear power. The RTO proposed a new rate in October and had hoped for a ruling from the commission by March 15 to no avail.

The RTO said in April it would run the auction in August after many stakeholders expressed support for doing so. Others, however, pushed for a second delay until April 2020. (See *Capacity Market Sellers Anxious over Uncertain PJM Auction Rules*.)

PJM entities including American Municipal Power, Dominion Energy, Exelon, EDP Renewables, FirstEnergy and its subsidiaries, Talen Energy and its subsidiaries, the Electric Power Supply Association, Direct Energy, the American Wind Energy Association, the Solar Council and the Illinois attorney general's office all filed in support of the RTO's decision to run the auction in August, agreeing that further delays have proved detrimental to the market and interfered with the necessary forward pricing signals that sellers need.

The entities also agreed that should FERC reject the clarification, PJM should delay the auction because running it without the guarantee from the commission would "undermine the very certainty the BRAs are designed to provide."

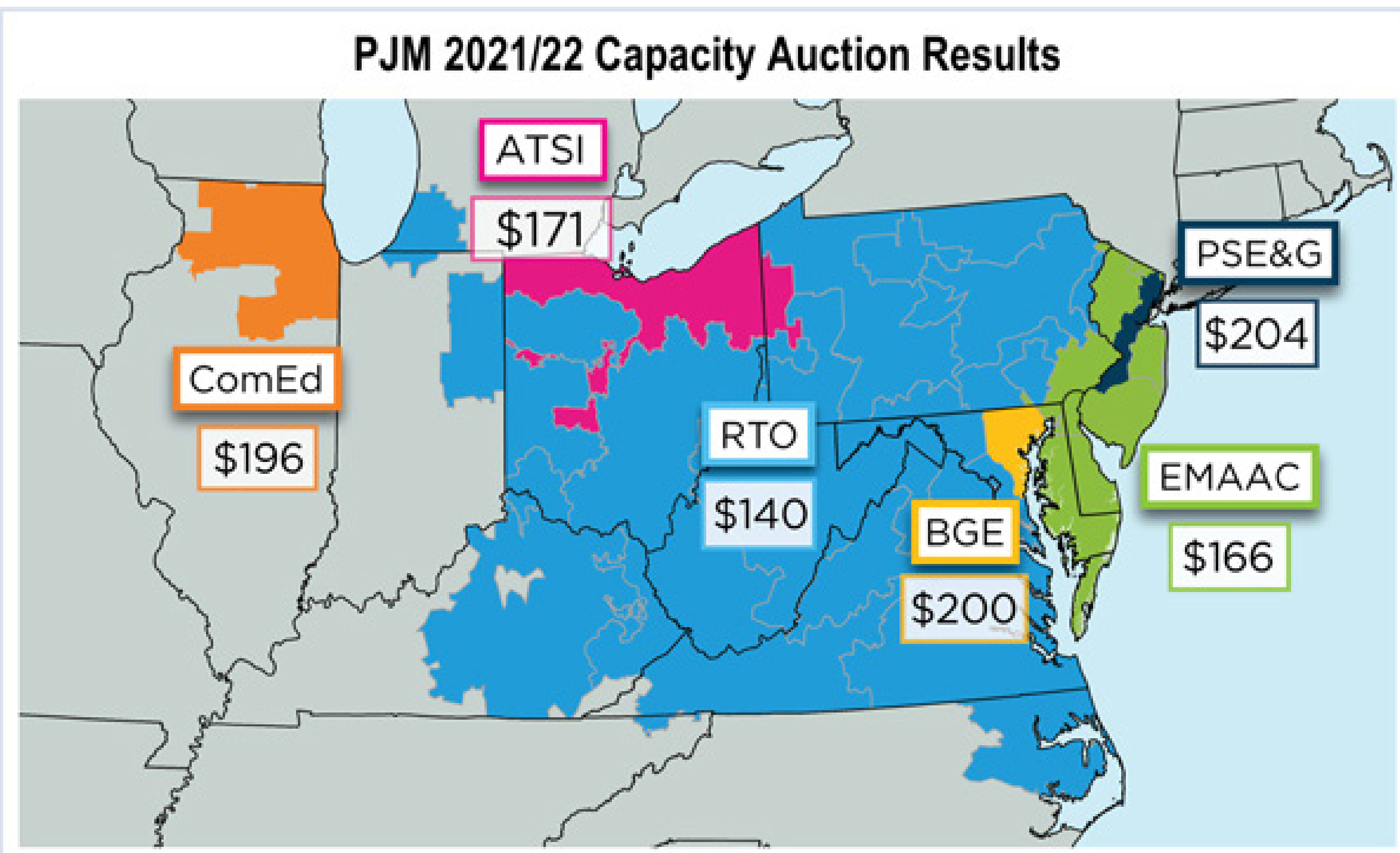
The Illinois AG's office further argued that if FERC granted the request, it should also "address flaws in the existing capacity market rules that facilitate market power abuse by requiring PJM to release generator bidding data and to replace the algorithm that PJM uses to increase clearing prices above the highest bid."

In the end, FERC advised PJM to cancel the auction until it provides a suitable replacement rate, though it's unclear when that decision may come. ClearView Energy Partners speculates that if the commission doesn't provide a ruling on the MOPR before November, PJM won't have enough time to implement Tariff changes in time to hold the 2022/23 auction in April.

"We recognize the importance of sending price signals sufficiently in advance of delivery to allow for resource investment decisions," FERC said. "However, we believe that in the circumstances presented here, on balance, delaying the auction until the commission establishes a replacement rate will provide greater certainty to the market than conducting the auction under the existing rules."

PJM spokesperson Jeff Shields said on Thursday that the RTO will follow the commission's guidance.

Continued on page 22



FERC advised PJM to cancel its August capacity auction. | *PJM*

PJM News

AEP Applauds Ohio Bill Subsidizing Coal, Nuclear

By Tom Kleckner

American Electric Power CEO Nick Akins last week praised Ohio's controversial bill creating subsidies for nuclear and coal plants, saying the Columbus-based company "sees positives from this legislation."

Akins told financial analysts during the company's second-quarter earnings call Thursday that the bill, signed into two days earlier, would provide recovery for its Ohio Valley Electric Corp. coal plants through 2030 and for existing renewable contracts, as well as the opportunity for AEP Ohio to enter into bilateral contracts with certain customers.

However, the bill also phases out Ohio's renewable energy mandate after 2026. (See related story, *Ohio Approves Nuke Subsidy*.)

AEP has portrayed itself as a renewables leader, having recently *acquired* Sempra Renewables for almost $1.1 billion, *announcing* plans to buy 1.5 GW of energy from three new Oklahoma wind farms and proposing a 400-MW solar project in Ohio.

AEP has nearly 5.3 GW of regulated and contracted renewable generation in its portfolio, the company said.

The legislation "still provides benefits for the recovery of existing renewable contracts until 2032 and provides additional support for solar projects that have already received siting approval," Akins told financial analysts during the call.

AEP *reported* earnings of $461.3 million ($0.93/share) for the quarter, a nearly 13% drop from 2018's second-quarter performance of $528.4 million ($1.07/share).

The company pointed to moderate weather in its service territory, trade tariffs and the strong U.S. dollar as slowing demand. It still reaffirmed its 2019 operating earnings guidance of $4 to $4.20/share.

OVEC's Clifty Creek power plant

"We'd be disappointed if it wasn't in the upper end of that. We're watching the economy, obviously," Akins said. Should tariff issues be resolved before the 2020 elections, he said, "We should be in really good shape."

AEP's share price, which set an all-time record of $91.99 in June, lost 64 cents after its Wednesday close. The company stock ended the week at $88.95/share. ■

FERC Halts PJM Capacity Auction

Continued from page21

"In its ruling today directing PJM Interconnection to postpone its capacity auction, the Federal Energy Regulatory Commission recognized that confidence in the auction and its results is vitally important to all of our stakeholders and the integrity of the market," Shields said in an emailed statement. "We look forward to additional guidance from FERC on the design of PJM's capacity market."

Commissioners Debate

While concurring with the order, Commissioner Richard Glick issued a scathing *indictment* of FERC's inaction on PJM's proposed changes, saying the RTO and its 65 million customers deserve better.

"One year later, Commissioner [Cheryl] LaFleur's description of the June 2018 order as 'regulatory hubris' seems more apt than ever after the commission has shown an absence of leadership that has caused us to drift rudderless into the position in which we find ourselves today," he said.

As the lone dissenter on the June 2018 order, Glick said he agrees with his colleagues that running the auction next month provides only a "short-term palliative effect ... that would be outweighed by the long-term uncertainty" of allowing capacity commitments under Tariff previsions found unjust and unreasonable, leaving PJM vulnerable to years of litigation.

But he blamed FERC for putting PJM in the situation in the first place.

"If ever the Pottery Barn Rule applied to a regulatory proceeding, it is this one," he said, referencing what Secretary of State Colin Powell told President George W. Bush in the lead-up to the War in Iraq: "You break it, you own it."

LaFleur took her previous criticisms a step further in her own *statement*.

"Given the passage of time, the uncertainty created by the commission might better be labeled an act of regulatory malpractice," she said. "The commission, whatever concerns it has with the PJM capacity market, should not have put PJM, the states and customers served by its markets, and its stakeholders in this position."

Commissioner Bernard McNamee — who joined FERC after the June 2018 order — called Glick's usage of the Pottery Barn Rule "misleading."

"To suggest the commission is the source of the problems presently facing PJM is to ignore nearly a decade of proceedings attempting to address the interaction between competitive markets and out-of-market subsidies," he *said*. "More importantly, such a statement only makes sense if one ignores the impetus behind PJM's original filing in Docket No. ER18-1314, which was PJM's desire to address issues arising from state out-of-market support for generation resources in its footprint."

Glick argued that McNamee "misses the point."

"It was the commission — not PJM — that made the finding that has prevented PJM from running its capacity auction," he said. "And it has been the commission — not any party to this proceeding — that has failed to act, even though we are now more than six months past the date promised in the June 2018 order. Meanwhile, neither the facts nor the law have changed, and the time for deliberation has long passed. The commission is now fully responsible for the damage done to date and whatever comes next."

Chairman Neil Chatterjee did not weigh in on the controversy. ■

Tensions Boil over on PJM's Supplemental Projects

By Christen Smith

Tension among PJM sectors boiled over Thursday after members once again deferred a vote on proposed manual revisions that seek to clarify the intersection of regional and supplemental transmission planning.

It's the fourth delay since LS Power returned to the Markets and Reliability Committee in April for endorsement of its proposed changes to Manual 14B that would stipulate PJM remove a supplemental project from its Regional Transmission Expansion Plan if regulators denied the proposal's certificate of public convenience and necessity.

Some stakeholders said they just want to move forward — whether that's through a vote on manual language or taking the dispute to FERC — while others suggested PJM and certain sectors were dragging their feet intentionally.


Sharon Segner, LS Power | © *RTO Insider*

"The issues that remain are obviously the toughest," said Sharon Segner, vice president of LS Power. "We are thinking through options such as declaratory motions [at FERC] and things in that light if we can't reach consensus. We want to do everything we can in terms of working through the process."


Ken Seiler, PJM | © *RTO Insider*

PJM Vice President of Transmission Planning Ken Seiler said Thursday that while staff "generally agree" that supplemental projects should not be converted to baseline RTEP projects, nor undermine the integrity of the competitive FERC Order 1000 process, there are still concerns about displacing supplementals and when to remove projects without unraveling the entire RTEP.

"What takes precedent? Baselines? Supplementals? Upgrades? What's the timing on it; what does that look like; and how do we coordinate on it, and where does the cost allocation lie?" he said. "The difficulty in all of this is … we can come up with language to mitigate 90% of the issues, but there's always the one-in-100,000 scenario that we couldn't conceive of in this group."

Supplemental projects — those PJM deems unnecessary for reliability, operational performance or economic efficiency — have tripled over the last 13 years, accounting for 62% of the submitted RTEP project costs since January 2017, according to an analysis from American Municipal Power. In 2018, AMP found, transmission owners added $5.7 billion in supplementals and just $1.5 million in baselines into the RTEP.

LS Power and other stakeholders argue PJM holds ultimate authority over supplemental projects and should approve manual language that clarifies when and how such projects get dropped from the RTEP, though RTO staff don't see it that way — even going as far as rejecting stakeholder-endorsed revisions that would have stated as much back at the January MRC. (See *PJM Rebuffs Stakeholders on Supplemental Projects*.)

PJM's unprecedented move spawned a special session of the Planning Committee that began meeting in February to piece together language that would satisfy stakeholders concerned about transparency and the possibility of supplementals displacing more cost-efficient regional transmission upgrades.

Aaron Berner, PJM's manager of transmission planning, said that while conversations over the last nine meetings have been "robust," there's still more consensus to be found — a delay that left some stakeholders exasperated.

"From my perspective, we need to come to closure," said Ed Tatum, AMP's vice president of transmission. "This has to be done in 30 days."


Ed Tatum, AMP | © *RTO Insider*

Bob O'Connell, director of regulatory affairs for Panda Power Funds, urged fellow members to consider delaying a vote until a proposal is ready, noting that he wanted to do anything to get the issue off the MRC's plate.

"I don't think we need to have this on the agenda month after month if they are not ready," he said.

'Unusual Circumstance'

Stakeholders approved the delay in a sector-weighted vote of 4.34 to 0.66, but the conversation was far from over.


Greg Poulos, CAPS | © *RTO Insider*

Greg Poulos, executive director of the Consumer Advocates of the PJM States (CAPS), later presented a first read of Operating Agreement language crafted by the D.C. Office of the People's Counsel and the Public Power Association of New Jersey to prevent PJM from unilaterally shelving endorsed rule changes without any recourse for disgruntled members.

"If stakeholders approve manual language and PJM says we cannot implement language, this OA *language* comes into play," he said. "We'd ask stakeholders to be able to go to FERC. This is an unusual circumstance."

Poulos said the language follows PJM's choice in January to reject manual language that would have stated supplemental projects "should be based on written articulable criteria, models and guidelines that are measurable and, to the extent available, quantifiable (e.g., asset replacement prioritization) so stakeholders can replicate TO planning decisions and validate their proposed solutions."

AMP, the author of the revision, cited the transparency principles in FERC Order 890, saying TOs should, to the extent available, disclose asset-specific condition assessments and the criteria and models supporting supplemental projects. LS Power's language about removing supplementals was accepted as a friendly amendment to the proposal.

PJM, however, said such revisions were an "overreach of the RTEP" and inconsistent with FERC rulings. While special PC sessions have continued to work the LS Power amendment, AMP's proposal remains "in limbo," Poulos said Thursday.

"The ideal is that this is not even necessary because we've reached consensus on the manual changes," the D.C. OPC's Erik Heinle said. "That's our preferred route."

States' Role

A second proposal from Poulos clarified states' rights in the transmission planning process, noting that PJM should "wait to see" if the relevant state regulator has even considered the supplemental project, let alone approved it, before including it in RTEP modeling.

The presentation stirred up more frustration

PJM News

among stakeholders and PJM itself, which argued the proposed OA language was out of scope, incomplete and inappropriate for a first read at the MRC.

"I don't want there to be any suggestion that this OA language is anything that PJM has worked on or approved or endorsed," said Chris O'Hara, counsel for PJM. "There's language about removing things from the base case. … There's nothing in your language about how that's done, the notice, the abandonment costs," he said. "There are so many issues in your language … some of which should be in a problem statement and issue charge."

Other sectors — including TOs, generators and load — argued they weren't consulted on the proposal and worried about the "collateral damage" that may ensue because of it. Others said the conversation belonged in a lower committee — not a special session scheduled on short notice on Friday afternoons that few can attend regularly.

"I suspect I support the proposal in principle, but I'm always worried about making an exception to how we approach something," said Marji Philips, director of RTO and federal services for Direct Energy. "I think it should have been discussed in a lower committee. My point is that you did not consult with all the stakeholders and that makes me very concerned."

David "Scarp" Scarpignato of Calpine said generators "have a big interest" in the language, but none were involved in drafting it.

"At least Calpine is in favor of more competition in transmission, but we are against accidentally harming us if this is done," he said.

Jason Barker, Exelon's director of wholesale market development, agreed it's "best practice" for such issues to undergo vetting through the lower committees "where the subject matter experts reside."

"We would support such a motion for a more holistic discussion of the issues," he said, noting that TOs weren't involved in the proposal either. "This is something we would find a lot of tension with. It seems reasonable to step back and have a discussion about this at the Planning Committee."

AMP's Tatum pushed back against the suggestion that the language was out of scope or that sectors were shortchanged of involvement.

"Can we all please stop pretending that we haven't been talking about this since January? There's been nine special meetings," he said. "This situation is such that PJM has not taken the role to develop the OA language. CAPS did. That's it."

Susan Bruce, representing the PJM Industrial Customer Coalition, said she agreed with much of what had been said, including that discussions at the special sessions have suffered from a lack of sector representation and quarreling over process versus substance.

"To Ed [Tatum]'s point, we've talked around this so much; further delays start disrespecting the legal process and we want to have more confidence in the transmission space than exists currently," she said. "I feel like we need to do something differently to move the issue forward — to feel like we've done the right thing. But it can't be something that takes a long time — that feels like customers are being prevented from bringing something up for a vote, which is where we are at."

PJM's Seiler agreed that "conceptually nothing is new" in the proposed OA language, but that "the devil is in the details."

"Whenever we get into the wordsmithing, we get into new things," he said. "A little bit more time to surgically work these issues would be helpful. Either we agree and move on and then take what we can't agree on to FERC and call it a day."

PJM will hold three additional special PC sessions before the MRC meeting in August. ■

PJM News

FERC Upholds Fuel-cost Penalties Against CPV Plant

By Christen Smith

FERC last week upheld penalties levied against a New Jersey power plant for violating its fuel-cost policy, saying the company acted in bad faith and ignored advice from PJM staff and the RTO's Independent Market Monitor (*ER19-1083*).

Competitive Power Ventures' Woodbridge Energy Center | *Competitive Power Ventures*

Competitive Power Ventures requested two waivers regarding its decision to bid its Woodbridge Energy Center, a 725-MW combined cycle plant in Middlesex County, into the energy market on Jan. 5, 2018, using its revised — but not yet approved — fuel-cost policy. The company wanted FERC to waive the rules and reverse the penalty, given what it called the rare circumstances that led to the changes, or retroactively approve its revised policy.

During a discussion one week prior to the January auction, PJM and its Monitor told CPV to submit energy offers based on its existing policy until its revisions were approved — which didn't happen until Jan. 29.

The company said it ignored the recommendation because it "does not believe it would have been selected to operate given the overall unit offers." It said it was faced with the choice of making a cost-based offer using its approved policy, which no longer reflected its true costs, or using the unapproved but more accurate policy reflecting "in some cases lower" costs.

"CPV argues the purpose of imposing a penalty for submitting an offer inconsistent with an approved fuel-cost policy is to prevent the 'deliberate misrepresentation of fuel costs,' and CPV had no intent to misrepresent its fuel costs," the company wrote. "This situation will not repeat itself because CPV's revised fuel-cost policy is now approved, and the unique circumstances are unlikely to arise again."

The Monitor argued granting either of the waivers would undermine the enforcement of fuel-cost policies, market power mitigation and customers' confidence.

"It would undermine the entire process of ensuring accurate cost-based offers and would provide precedent for requests for any participant that wanted to modify its fuel-cost policy after-the-fact," the Monitor wrote. "CPV's waiver requests represent a broad attack on the approved rules that ensure fuel cost policies are verifiable and systematic."

The commission said it rejected the waiver because CPV failed to show it had acted in good faith.

"CPV does not dispute this timeline and admits it knowingly offered pursuant to the pending revised fuel-cost policy, as opposed to its then-effective initial fuel-cost policy as required by the Operating Agreement," the commission wrote July 22, noting CPV never explained why it waited until January to revise its policy or why it took nearly a month to provide a copy of its fuel supply agreement when the Operating Agreement allows just five business days to pass. "We find that these facts do not support a finding that CPV acted in good faith, and its waiver request fails."

The amount of the penalty assessed on CPV was not disclosed.

A PJM stakeholder-crafted package pending before the Market Implementation Committee would create a "safe harbor" provision for sellers who violate their fuel-cost policies for unforeseen reasons. (See *PJM Stakeholders Still Divided on Fuel-cost Policies*.) ■

PJM MRC Briefs

Riley: Keep Market Changes, Credit Policy Reforms Separate

Interim PJM CEO Susan J. Riley told the Markets and Reliability Committee last week that the Board of Managers remains committed to an overhaul of market design in the wake of the GreenHat Energy default, but she urged stakeholders to move forward on "badly needed" credit policy reforms.

"I'm in the process of retaining independent expert policy advisers," she said. "We need to get that right. We can't have another situation like we experienced earlier with GreenHat."

Riley took over for former CEO Andy Ott this month after he retired and expects it will take about four months to find his permanent replacement. In the meantime, Riley said she's been meeting with stakeholders to better understand the shifting dynamics of members' priorities and to "strengthen relationships."

"Your needs are changing and they vary from state to state, sector to sector and company to company," she said. "The pace of change is faster than what we've seen in the past.

"We are a service organization, and I certainly don't have all the answers, but I look forward to working with you over the next few months to better understand what your needs are."

Riley concluded her remarks by saying PJM has the "highest concentration of really smart, highly ethical, highly committed people that I've ever worked with, anywhere, and I don't want to lose sight of that as we move forward in making necessary changes. I think you, as our members, are in very good hands here."

Task Force Sunsets Postponed

Dave Anders, PJM's director of stakeholder affairs, told the MRC he will postpone a vote on sunsetting both the Energy Price Formation Senior Task Force and the Energy Market Uplift Senior Task Force as staff review other dormant groups in need of closure.

"I think there are more groups out there we need to take a look at," he said. "We haven't been really very disciplined about sunsetting task forces."

The uplift group formed in 2013 and *completed* its work in 2017 with changes to the Operating Agreement to restrict the locations for up-to-congestion trades, increment offers and decrement bids. (See "Stakeholders Endorse Third Phase of PJM's Uplift Solution Despite Opposition," *PJM MRC/MC Briefs: June 22, 2017*.)

PJM filed its price formation plan with FERC in March and awaits a ruling. Some stakeholders questioned the logic of sunsetting the related task force before receiving an order from FERC, to which Anders agreed. He said staff will return to the MRC with a more comprehensive list of task forces next month.

Manuals Endorsed

PJM stakeholders unanimously endorsed the following manual revisions:

B. *Manual 13: Emergency Operations*, to provide a single location for reporting operational restrictions that impact multiday operations planning, replacing multiple forms of reporting currently employed by members. The changes, which incorporate lessons learned from 2018/19 winter operations, are intended to improve operators' situational awareness and communication regarding cross-sector interdependencies. The changes align with new Markets Gateway functionality for resource limitation reporting to be implemented on Aug. 1 and adds clarifications on which units may be placed in maximum emergency during emergency operations.

C. *Manual 18: PJM Capacity Market*, adding administrative updates, deleting outdated provisions and adding revisions to conform with FERC orders resulting from a periodic review.

D. *Manual 21: Rules & Procedures for Determination of Generating Capability*, to clarify capacity injection rights (CIR) evaluations and conform with Tariff changes. Adds more explicit explanations and some omitted testing criteria regarding CIR evaluations for combined cycle units. Reclassifies run-of-river hydro units with storage and dispatch capability.

E. *Manual 28: Operating Agreement Accounting*, resulting from the periodic review. Adds documentation of the process to be used if state estimator loss data are unavailable for calculating transmission loss deration factors. Deletes obsolete section on calculation of credits for quick-start reserves. Updates credit calculation for resources providing reactive services. Updates formula terms for consistency.

F. *Manual 39: Nuclear Plant Interface Coordination*, resulting from the periodic review with the Nuclear Generators Owners User Group. Adds language on coordination around remedial action and load shedding schemes. Adds language regarding the regulatory requirements of the deactivation and retirement process and to address the coordination between reliability coordinators. ■

— Christen Smith

SPP News

MISO, SPP Regulators Ponder Look at Interregional Planning

By Amanda Durish Cook

INDIANAPOLIS — State regulators in the MISO and SPP footprints are considering an independent analysis of the interregional planning process to supplement the seams coordination analysis already underway by the two RTOs' market monitors.

The Organization of MISO States and the SPP Regional State Committee's Seams Liaison Committee agreed unanimously at a July 21 meeting to scope an independent analysis that would examine whether the RTOs are leaving efficiencies and benefits on the table in their interregional transmission planning.

The joint committee will allot 30 days for stakeholder suggestions on how the analysis might look and what questions it will probe.

"We don't know at this juncture what the analysis will be," OMS President and Missouri Public Service Commissioner Daniel Hall told fellow regulators.

The regulators' plans reflect frustration over the inability of the RTOs to find beneficial projects across their seams.

Missouri PSC economist Adam McKinnie said recently approved improvements to the MISO-SPP interregional planning process may or may not lead to their first-ever project. He agreed with other regulators that interregional project construction is not necessarily an indicator of the health of the MISO-SPP planning process.

"If there's a good opportunity and a project, let's do it, but I don't want to add work. I don't want to dig ditches for fun," McKinnie said.

"If there are [economic] benefits and we're not capturing them with projects, then we have a problem," Arkansas Public Service Commissioner Ted Thomas added.

Earlier this month, FERC granted the RTOs permission to eliminate the joint model requirement and $5 million project cost floor from their evaluations of joint projects. The commission also approved joint operating agreement changes adding avoided costs and adjusted production cost benefits to project evaluations. (See *FERC OKs Changes to MISO-SPP Joint Study Process*.)

The RTOs completed two 18-month studies beginning in 2014 and 2016. They began another Coordinated System Plan earlier this year, skipping a 2018 start date in favor of trying to improve their interregional planning processes. However, early indications are that the newest study may not yield a project either. (See "Revised Seams Study with MISO yet to Bear Fruit," *SPP Seams Steering Committee Briefs: July 10, 2019*.) The RTOs will report conclusive CSP results at an Aug. 19 Interregional Planning Stakeholder Advisory Committee meeting.

McKinnie said the RTOs' regional economic planning models still differ on assumptions like load, fuel mix and where new resources will be sited.

FERC Commissioner Cheryl LaFleur, who attended the meeting, reminded liaison committee members that MISO and PJM's level of seams coordination was not always held up as the standard it is now.

"If there are [economic] benefits and we're not capturing them with projects, then we have a problem,"

— Arkansas Public Service Commissioner Ted Thomas

Missouri Public Service Commission economist Adam McKinnie | © *RTO Insider*

"There were six stormy years — maybe not all of them stormy — that it took to get there," she said.

LaFleur also said she was working during her short time left on the commission to get her colleagues to devote attention to MISO-SPP seams issues.

Meanwhile, work continues on the monitors' seams study. Hall said both monitors are still open to modifications to the study's work plan. (See *RSC, OMS Approve Monitors' Seams Study*.)

MISO is paying Potomac Economics $250,000 to complete the first phase of the study. SPP has an in-house Market Monitoring Unit and has not disclosed a special budget item.

"We're ready to go; we're ready to work with you; and we think it's time," Hall said of the study in remarks before the MISO Board of Directors in June.

OMS and the RSC expect the first phase of the monitors' study results to be released in September. The first phase of the study focuses on market-to-market coordination, rate pancaking and joint dispatch. A second phase of the study will concentrate on interface pricing, interchange optimization and regional directional transfer limits. ■

SPP News

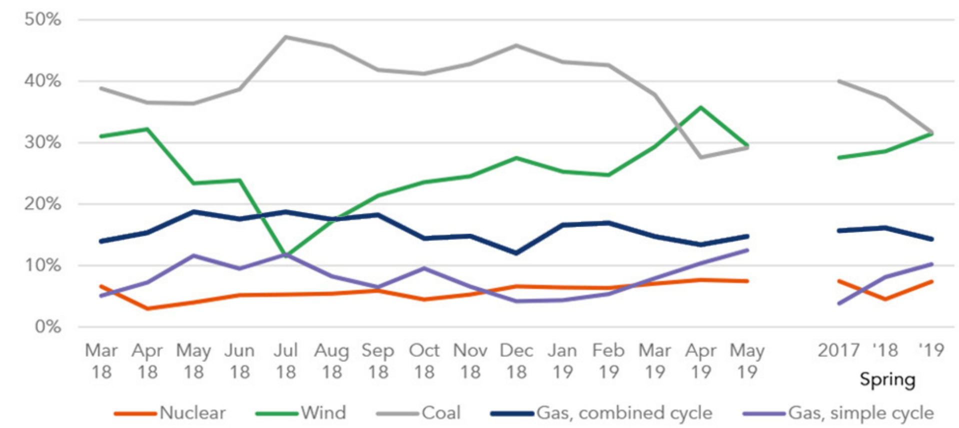
SPP MMU: Wind Generation Outpaced Coal in April

Wind generation accounted for more than a third of SPP's energy production during April, according to the latest *quarterly market report* from the RTO's Market Monitoring Unit.

The report, which covers March through May, indicates wind generation accounted for 36% of SPP's output mix in April. It was also the first time wind has outpaced coal generation, which provided 28% of generation.

Spring energy prices rose from the same period a year ago, with the average day-ahead price up 7% to $23.71/MWh and the real-time price up 10% to $22.54/MWh.

The report's "special issues" section details the results of an MMU study of the sources of day-ahead market congestion in conjunction with associated settlements over the last three transmission congestion right years. The Monitor undertook the study because it had observed "significant" variability in congestion hedging profits and losses, especially among market participants holding transmission service entitlements.



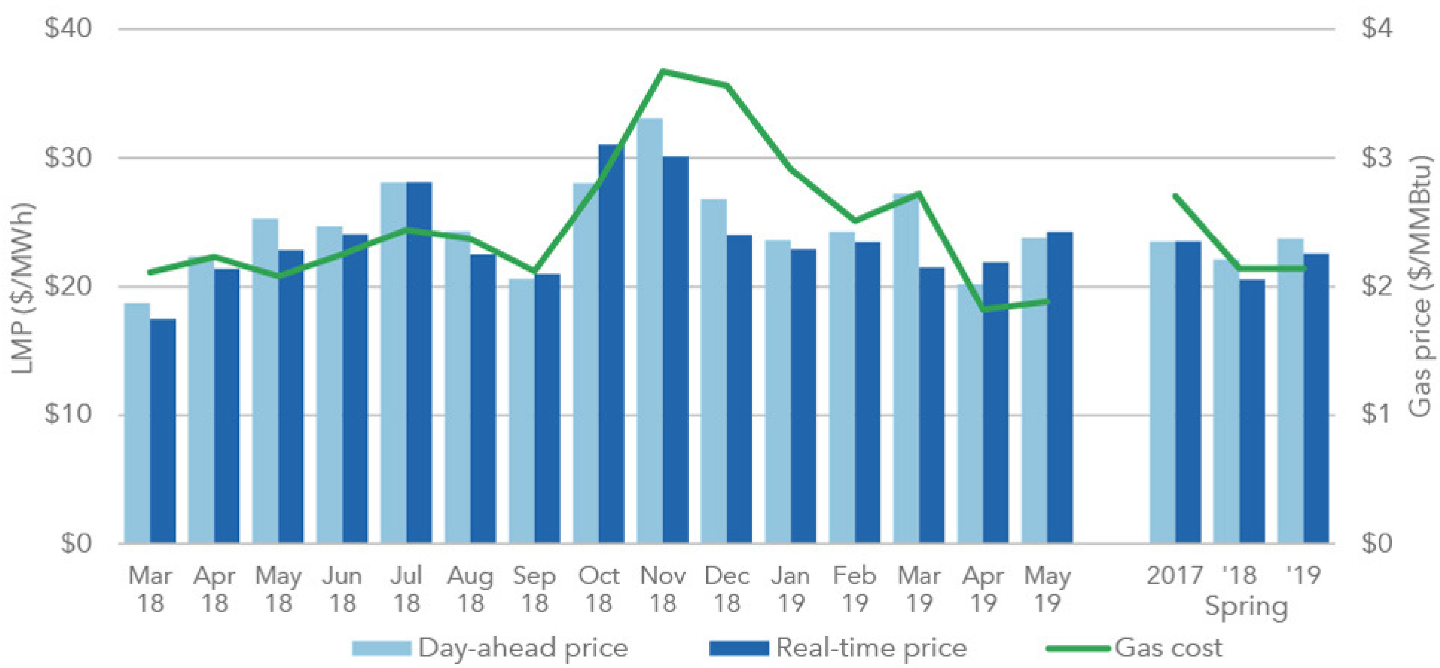
Resource mix in the real-time market | *SPP*

The study concluded that:

- Congestion-hedging profitability has been influenced more by congestion than by congestion-hedging revenues;
- Congestion associated with injection activities "materially exceeded the congestion associated with withdrawal activities";
- Self-committed generation accounted for the largest portion of the congestion cost; and
- Bilateral settlement schedules, which may be subject to out-of-market compensation, account for significant portions of the congestion cost.

The MMU has scheduled an *Aug. 6 webinar* to discuss the report. ■

— Tom Kleckner



| *SPP*

Company Briefs

NextEra Energy Shatters Expectations

NextEra Energy last week announced second-quarter earnings of more than $1.2 billion ($2.56/share), a huge boost from 2018's second quarter of $781 million ($1.61/share).

The company's performance shattered analysts' expectations of $2.28/share, according to a Zacks Investment Research survey. It was boosted by the addition of 1.9 GW in projects to its renewables development backlog during the quarter, pushing NextEra Energy Resources' backlog to a record 11.7 GW.

NextEra shares are up 20.3% since the start of the year and 25.8% over the last year.

More: *NextEra Energy*

AEP Renewables Completes Purchase of Wind Project

AEP Renewables has purchased 75% (227 MW) of the Santa Rita East Wind Project from Invenergy Renewables. Invenergy will retain 25% ownership of the project.

The purchase, along with adding 724 MW of wind and battery generation in April, increases AEP's contracted renewable generation portfolio to 1,302 MW.

More: *AEP*

PSEG to Shut Most Fossil Plants by 2046

Public Service Enterprise Group plans to shut all but three of its fossil fuel-fired power plants in an effort to cut carbon emissions by 80% by 2046 from 2005 levels, CEO Ralph Izzo said.

In addition to shutting all but three of the company's gas plants by 2046, Izzo said the company has no plans to extend the licenses of its three nuclear reactors at the Salem and Hope Creek stations beyond their current operating licenses, which expire between 2036 and 2046. To replace the missing generation, PSEG will focus on its $2.5 billion energy efficiency program and offshore wind and solar energy projects.

The three gas plants PSEG plans to keep through 2046 are in Sewaren, N.J.; Keys, Md.; and Bridgeport, Conn.

More: *Reuters*

Eversource Pulls Plug on Northern Pass After NH Supreme Court Rebuke

Eversource Energy last week filed a notice with the U.S. Securities and Exchange Commission last week, "reflecting our conclusion that Northern Pass has unfortunately been brought to an end," the company said.

The decision comes after the New Hampshire Supreme Court the week before affirmed the state Site Evaluation Committee's rejection of the project.

Eversource says it spent $318 million trying to get the controversial power line built. Its SEC filing says it is writing off about $200 million of that after taxes, equal to about 64 cents/share.

More: *New Hampshire Public Radio*

Federal Briefs

Fed to Host its 1st Conference Dedicated to Climate Change

The Federal Reserve Bank of San Francisco is said to be hosting what is believed to be the bank's first research conference specifically about climate change.

The bank published a widely circulated paper in March on climate change-related economic risks, in which it is said to be seeking submissions for research on a number of related topics, including the "implications for monetary and prudential policy of climate change and its consequences."

Climate change poses systemic risks to the country's banking system. The conference comes at a time when the Fed is facing increased pressure to follow other central banks in considering the threats that global warming poses to the economy.

More: *Axios*

Former FERC Communications Director Dies

Kevin Cadden, the former director of FERC's Office of External Affairs, died of a heart attack July 19 at his home in McLean, Va. He was 67.

Cadden was appointed head of OEA by then-Chairman Pat Wood III in 2001 after about 25 years at the Pennsylvania Public Utility Commission, where he rose to become manager of communications, a position he held when the state became one of the first in the U.S. to adopt retail electric choice. He left FERC in 2004, after a period in which the commission issued orders on the California electricity crisis and Enron scandal, organized electric markets and RTOs.

He is survived by his wife, Kimberly Nelson; daughters Kelsey and Mackenzie, of D.C.; and brother Michael, of Princeton, N.J. A memorial service will be held Aug. 17 at the Country Club of Harrisburg, Pa.

More: *The Washington Post*

FERC to Open Office in Houston, Create New LNG Division

FERC, in an action aimed at speeding up applications for U.S. LNG export projects, will open an office in Houston and create a new LNG division for its Office of Energy Projects. The commission will also recruit eight full-time staff to work in Houston, in addition to an existing 20-strong team in D.C.

"Much of the work related to these LNG projects, and the expertise it requires, is based in and around Houston, the so-called 'Energy Capital of the World,'" Chairman Neil Chatterjee said. "After careful research and evaluation, the commission has determined we should direct our newest efforts to recruiting staff in the area."

More: *Bloomberg*

US Boasts 24 GW of Wind Capacity Under Construction

The country currently boasts 24 GW of wind energy capacity under construction, according to figures from Windpower Intelligence, which is a 26% increase over last year.

However, according to records, only 1.5 GW has come online so far this year, and a "significant acceleration" in the completion of "under construction" projects will be necessary if the U.S. is to come anywhere near its recent average annual capacity addition levels for 2019.

In 2017, 7 GW of new capacity was added, followed by another 6 GW in 2018. Windpower Intelligence estimated that 6.6 GW of capacity will be brought online this year, while the Energy Information Administration predicted in January that 11 GW of new capacity would be brought online.

More: *Clean Technia*

Carbon Tax Shows New Signs of Life in Congress

Members of Congress on both sides of the aisle are introducing competing bills that aim to put a tax on carbon.

Sen. **Christopher Coons** (D-Del.), Rep. Francis Rooney (R-Fla.) and Rep. Dan Lipinski (D-Ill.) all introduced carbon tax bills on Thursday that each take a shot at cementing the long tossed-around idea of a carbon fee. Those three bills join two other bipartisan measures proposing a carbon tax introduced earlier this year in the House of Representatives and the Senate.

Coons' bill with Sen. Dianne Feinstein (D-Calif.), the Climate Action Rebate Act of 2019, would start greenhouse gas fees at $15/ ton of carbon and gradually increase the fee over time. Rooney's bill would impose a tax of $30/ton, with revenues largely paid out to individuals through payroll taxes. Lipinski's bill, titled the Raise Wages, Cut Carbon Act of 2019, would spend revenue collected from the $40/ton tax to cut payroll taxes, with a portion dealt to Social Security beneficiaries.

More: *The Hill*

House Democrats Offer Alternative to Green New Deal

An influential group of Democrats in the House of Representatives last week set an ambitious target for U.S. greenhouse gas emissions, calling for a reduction to net-zero by 2050.

The goal, intended to slow the pace of global warming, does not include either a legislative or regulatory plan. It would very likely require rigorous new curbs on fossil fuels over the coming decades and steep increases in wind, solar and other renewable sources of power.

The 2050 target is expected to be adopted in the Energy and Commerce Committee. "I think the main difference between this and the Green New Deal is the Green New Deal was the 2030 deadline, and we have 2050," committee Chair **Frank Pallone** (D-N.J.). "If we can meet an earlier deadline, great. But right now the scientific community is saying 2050 is the key year."

More: *The New York Times*

Wehrum Faces New Ethics Inquiry

EPA's inspector general will investigate allegations that **Bill Wehrum**, the agency's former air quality chief, violated ethics rules when he met with former clients from his days as a lawyer and lobbyist for the oil, gas and coal industries.

The inquiry will look into whether Wehrum's efforts at EPA to weaken climate change and air pollution standards improperly benefited those former clients, a congressional aide said.

At issue are Wehrum's ties to the Utility Air Regulatory Group, a coalition of utilities and trade groups that lobbies on behalf of coal-fired power plants, which he represented as a lawyer at his former firm, Hunton & Williams.

More: *The New York Times*

Murray to Trump: Fix 'Feckless FERC'

In an interview with E&E News, Murray Energy CEO **Robert Murray** said he again offered President Trump a list of policy suggestions and talking points to revive the dying coal industry at a private fundraiser last week in Wheeling, W.Va. Among his demands, Murray repeatedly called on Trump to fix FERC. "FERC is feckless. His FERC," Murray said. "And I told him that."

The coal executive hosted the event for Trump's 2020 campaign at an arena along the Ohio River. The event drew a crowd of several hundred spruced-up donors, many associated with the energy industry. Gov. Jim Justice (R) had welcomed Trump on the tarmac with about 100 "friends and family" fans.

Murray said he used the opportunity to push his energy demands on the president, charging that FERC has failed to push state regulators to buy coal power. Trump didn't respond, according to Murray, but the CEO expressed confidence that the president heard him.

More: *E&E News*

State Briefs

REGIONAL

Eastern US Cities Spewing 9 Times more Methane into Air than Thought

Older East Coast cities are leaking nine times as much natural gas into the air — from homes or pipes heading into houses — than the federal government had thought, a new airborne monitoring study finds.

It's probably not a safety problem because what's coming out doesn't reach explosive concentrations, but the extra methane heading into the air is a climate change issue, study co-author and University of Michigan atmospheric scientist Eric Kort said.

Scientists flew a National Oceanic and Atmospheric Administration airplane over New York City, D.C., Philadelphia, Boston, Baltimore and Providence, R.I., for 1,200 hours in 2018. The six cities spewed nearly 937,000 tons of methane, more than twice what EPA estimates, according to the study in the journal Geophysical Research Letters.

More: *The Associated Press*

MICHIGAN

Detroit to Cut GHG Emissions by 30% Under New Ordinance

The Detroit City Council last week unanimously passed an ordinance aimed at cutting greenhouse gas emissions by 30% over the next five years.

The city will base its reduction efforts on emission levels from 2012 — the last time they were measured — in which the city emitted 10.6 million tons of carbon dioxide. The ordinance sets a goal to reduce yearly emissions to 7.4 million tons by 2025.

The ordinance does not require businesses to report or reduce emissions, but Councilman Scott Benson said it aims to encourage incentives and policies, such as building codes, that would lead to emissions reduction. Emissions from city buildings in 2012 accounted for 1.18 million tons of carbon dioxide. The ordinance sets a benchmark for that number to be cut 35% by 2024; 75% by 2034; and 100% by 2050.

More: *Crain's Detroit Business*

MISSOURI

Ameren No Longer Planning to Acquire EDF Wind Project

Ameren Missouri said it has mutually agreed with EDF Renewables to terminate the development of a 157-MW wind facility in Atchison County.

Michael Moehn, president of Ameren Missouri, said, "Significant upgrades would have been required on the transmission system to accommodate this project, leading to unacceptably high costs."

Despite the termination, the company said it remains strongly committed to meeting its goal of owning at least 700 MW of new wind generation by the end of 2020. It plans to do so with a 400-MW facility in Adair and Schuyler counties, and a 300-MW facility in Atchison. Together, the facilities represent an investment of approximately $1.2 billion.

More: *Ameren*

OHIO

AEP to Install Smart Meters, Boost Internet Service in Rural Areas

AEP Ohio submitted a $700 million, 10-year grid modernization expansion plan to the Public Utilities Commission last week. If approved, the average customer would pay $1.16/month over the first five years of the plan. Customers are currently paying 92 cents/month.

This would be the third phase of the company's program. More than 900,000 smart meters were installed in the first two phases of the program. The company would also upgrade nearly 600 circuits on its distribution system to include advanced automation and control equipment meant to reduce the length of power outages.

More: *The Columbus Dispatch*

OKLAHOMA

Duke Announces 2nd Phase for Frontier Windpower

Duke Energy Renewables last week announced plans to build the 350-MW Frontier Windpower II project by the end of 2020. It will use 74 towers that will be equipped with 4.8-MW turbines supplied by the Nordex Group.

The project, officials said, will be the largest capacity project the company has operating in its 3,000-MW advanced-energy fleet of wind and solar nationwide. Together with its already operating Frontier Windpower project, the two will combine for a total capacity of 550 MW.

More: *The Oklahoman*

TEXAS

Duke Acquiring Biggest Solar Project to Date

Duke Energy Renewables is expanding its solar energy portfolio by acquiring the 200-MW Holstein project from 8minute Solar Energy. Once complete, the facility will be the largest solar project in the company's fleet. It will also represent the company's third solar generation facility in the state.

The project will contain more than 700,000 panels across 1,300 acres in the community of Wingate. Construction began earlier this year and is expected to be completed next summer.

More: *Solar Industry*