# RTO Insider

Your Eyes and Ears on the Organized Electric Markets

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

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## House Panel OKs Bill Expanding FERC Hydro Authority

*By Michael Kuser*

A proposed law that would give FERC authority over the licensing of all hydropower projects has advanced to the House Energy and Commerce Committee along with four related bills — but only after a hearing that revealed a partisan divide on much of the legislation.

The Energy Subcommittee on Thursday sent the Hydropower Policy Modernization Act of 2017 — and four other energy infrastructure-related bills dealing with natural gas

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## NY Bill Orders Storage Targets

*By Michael Kuser*

ALBANY, N.Y. — New York lawmakers last week unanimously passed a measure requiring the state's Public Service Commission to set targets to increase the adoption of energy storage in the state through 2030.

The new law requires the commission to work with the New York State Energy and Research Development Agency (NYSERDA)

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*EOS Energy Storage*

# After 10 Years, Time to Prune Reliability Standards, FERC Told

*By Michael Brooks*

WASHINGTON — A decade of mandatory standards has improved the grid's reliability, but it's time for regulators to prune unnecessary rules, speakers told FERC on Thursday.

At its annual technical conference on reliability, the commission delved into the weeds on compliance enforcement, gas-electric coordination and cybersecurity (AD17-8).

NERC received accolades from many who spoke at the conference for its continual improvement of the grid's reliability; its transparency and coordination with other stakeholders; and its Reliability Assurance Initiative, a risk-based approach to compliance enforcement approved in 2015 that allows facilities to self-log minor violations — and NERC to focus on the most serious issues. The initiative also included the creation of Inherent Risk Assessment (IRA) profiles for facilities, which help NERC decide what standards to focus on.

FERC's conference came days after the 10th anniversary of the first mandatory reliability standards under FERC Order 693 and a week after NERC released its State of Relia-

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## Honorable Says Goodbyes


*By Michael Brooks and Tom Kleckner*

In their closing remarks at Thursday's annual technical conference on reliability, acting FERC Chair Cheryl LaFleur and Commissioner Colette Honorable talked as if the event would be Honorable's last public appearance as a commissioner.

It was indeed.

"Parting is such sweet sorrow! My last day as a FERC commissioner will be this Friday. It has been an honor. Thank you!" Honorable tweeted late Monday night.

"When we sat in this [commission meeting] room last month, I said, 'I hope this won't be the last time we're in this room together,'" LaFleur began.

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## Also in this issue:





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# IN THIS WEEK'S ISSUE



**Note: We will be sending next week's newsletter on Monday, July 3, and not sending a daily email on July 4 or 5 in honor of Independence Day. Have a terrific holiday!**

# Stakeholder Soapbox

## DER: A Threat to the Grid?

*By Terry Brinker*

Brinker

Recently, I attended a solar power event hosted by Solar Energy Industry Associates (SEIA) and Smart Electric Power Alliance (SEPA). The event was well attended by industry thought leaders, manufacturers, solar companies and even legislators. Of course, being a solar event, most of the speakers lauded the benefits of solar: how it's better for the environment, how the price of solar continues to decrease, how photovoltaic panels continue to improve and how the industry has made it easier to integrate solar into more communities. If you were not from this planet, you would question why everyone does not have solar. It sounds like the best thing since sliced bread.

In the words of Lee Corso, the colorful ESPN football analyst, "Not so fast, my friend."

Others might have a completely different take on solar and distributed energy resources altogether. Ironically, this event was held in Atlanta, which is also where NERC is headquartered. NERC has raised some concerns about DER. In fact, I wrote an article about it. NERC is not alone in its concerns. According to a study issued by Accenture, many utility executives see DER as the biggest stress on grid reliability. Nearly 60% of the executives surveyed expressed concerns.

Adding to the complexity of this debate is the efforts by many states and cities to "go green." California just passed legislation requiring the state to be 100% renewable by 2045. Other states are certain to follow California's lead. Many, like North Carolina, already have ambitious renewable goals. Recently the Atlanta City Council approved a measure aimed at making Atlanta 100% renewable by 2035. So, who is right?

Recent studies have suggested that DERs are not a threat to the grid and may even help the grid to be more reliable. CAISO — in collaboration with the National Renewable Energy Laboratory, First Solar and Southern Co. — used a 300-MW solar facility to conduct a study that determined that "solar photovoltaic resources can provide ancillary services in a way comparable to or even better than conventional generation resources." General Electric has stated, "The days of relying on synchronous generation for everything are over." And who could argue against the technological advances that have been made in the industry such as plant-level controllers and virtual oscillator controls, which are designed to respond to changes in load, frequency and voltage similar to conventional generation? I highly suggest reading the article "Can Smarter Solar Inverters Save the Grid?" found here.

The DER industry will point to these studies, articles and advancements and say, "Move on, there is nothing to see here." However, (insert Lee Corso quote here), there is ample evidence to show that we are not quite there yet.

On Aug. 16, 2016, there was a significant event resulting in the loss of nearly 1,200 MW of PV generation. In short, a fire caused a fault that resulted in three facilities ceasing output instead of riding through the fault.

DER detractors will point to events like this to show that instead of providing support to the grid, DER actually hurt the grid when needed at the most critical time. NERC and the Western Electricity Coordinating Council conducted a study of the event and published a report. (See *CAISO Boosts Reserves After August Event Report*.) The 2016 Australia blackout has been attributed to its reliance on wind power. Another concern of NERC is that with so many DER projects in the works, it cannot adequately account for and plan for these additional megawatts. Planning is essential to grid reliability. So where do we go from here?

Although I claim to be a subject matter expert (I have stayed at a Holiday Inn Express before), I do not claim to have all of the answers. However, with legislators mandating renewable energy usage and renewable energy becoming cheaper with each passing year, we have to adequately plan for this new normal. To that end, it is critical that the various stakeholders — DER industry, regulators, legislators and utilities — work together to effectively and strategically integrate renewables into the grid while also providing the reliability that is necessary. We cannot afford legislative mandates like the one in Hawaii that had to be rewritten because of unintended consequences. We also cannot afford the installation of solar farms that cannot respond appropriately to disturbances on the grid, like the August 2016 Southern California event. We cannot afford burdensome regulation that overreaches. We can afford to have thought leaders at companies such as First Solar, Southern and Duke Energy; government agencies like FERC, NERC, NREL and the Energy Department; industry associations like SEIA, SEPA and the Institute of Electrical and Electronics Engineers; and state legislators work together and create strategic policies that ensure that we all succeed in this new normal.

Is DER a threat to the grid? Not if we all work together to ensure that it is not.

*Terry Brinker, who has 23 years of experience leading, facilitating and implementing improvements in power plant operations, control room operations, compliance and regulatory matters, is the president of Reliable Energy Advisors. Terry previously served in leadership roles during a five-year stint at NERC, where he served as senior manager of standards information and personnel certification, manager of registration services, and senior event investigator.*

# Mid-America Regulatory Conference

CHICAGO — The Mid-America Regulatory Conference last week drew an above-capacity assembly of public utility regulators, legal counsel and other industry insiders to the shores of Lake Michigan. Registration was initially capped at 550, but 62 more attendees signed up for a conference that featured panel discussions on cybersecurity, energy storage, artificial intelligence and other challenges facing regulators.

Wisconsin PSC Chair Ellen Nowak conducts a "fireside chat" with Southern CEO Tom Fanning. | *© RTO Insider*

## FERC Faces 'Plot Twist'


Acting FERC Chairman **Cheryl LaFleur** addressed the commission's lack of a quorum during her keynote, saying there's been a "little bit of a plot twist" in D.C.

LaFleur sits in the chairman's seat for the third time in seven years following Norman Bay's departure in February, which also left FERC without a quorum. LaFleur is one of only two remaining on the five-person commission. Commissioner Colette Honorable has announced her last day will be Friday, the day her term expires. (See related story, *Honorable Says Goodbyes*, p.1.)

LaFleur made clear she intends to finish her term, which expires in June 2019. She will now alone await the arrival of recent appointees Robert Powelson and Neil Chatterjee, who still await Senate confirmation.

"This will add a line to my obituary and hasten its appearance," said LaFleur, noting that one of her staffers has grown a "quorum beard" similar to hockey playoff beards.

"And it's really quite shaggy."

Orders awaiting a final ruling are piling up. FERC's regular monthly open meeting is still on the calendar for July 20, but it is expected to be canceled. The commission doesn't meet in August, meaning FERC might not conduct its second open meeting of the year until late September.

"We're trying to triage [the orders]," LaFleur said. "We're assessing the comments, and we'll frame the issues for the new commissioners. Since we'll [eventually] have four new commissioners, it's not for me or Colette to say which way we'll go."

In the meantime, the commission is keeping an eye on price formation ("It's important to send clear and concise signals."), energy storage ("We've gotten a pretty strong signal there's a lot of work on that.") and the "issue du jour" — the interplay between wholesale markets and state policies.

"We've seen a decoupling of what resources are being built and invested in, driven by federal tax policies and state policies," she said, citing as examples CAISO's curtailment of solar and hydro energy, and efforts by SPP and MISO to integrate more than 20 GW of wind energy.

"The states are not satisfied with the resources markets are choosing for them," she said. "They are subsidizing some resources [nuclear units in New York and Illinois] and requiring utilities to buy resources. Are we going to let the markets choose, or the states choose?

"I always say there are three basic values: what is the cost, the reliability and the environmental impacts? The markets weren't set up to take the environmental impact into account. They would have to be redesigned," LaFleur said.

She offered three solutions to the problem: 1) redesign the markets to allow the states to become the "resource payer and selector," but set a market for nonsubsidized resources and allow the markets to price in carbon; 2) litigation, as is taking place in Illinois and New York; and 3) changing how states handle resource adequacy.

"I'm fine with that," LaFleur said, "as long as we do it on purpose, and don't tumble into anything by accident."

## Southern Diversifies

With 46 GW of generating capacity and vast natural gas assets, Southern Co. bills itself as "America's premier energy company." But like others in the industry, the utility is weaning itself off coal.

"Carbon is a big issue around the world," Southern CEO Tom Fanning said during a "fireside chat" with Ellen Nowak, chair of the Wisconsin Public Service Commission. "We have to think about ways to transition our fleet in a responsible way, while balancing the issues of clean, safe, reliable and affordable energy. The transition to that is a big, big deal."

The company plans to add 1,900 MW of renewable resources, along with 1,000 MW of nuclear capacity and 500 MW of "21st century clean coal." Its wholesale subsidiary, Southern Power, has added or announced more than 2,400 MW of new capacity from renewable resources and more than 1,400 MW of natural gas capacity since 2010.

Before Fanning arrived at Southern in 1980, the company's generation was 70% reliant on coal. Coal still made up 67% of the resource mix in 2002, but that number dropped to 31% last year. Natural gas meanwhile increased from 11% to 47%, while renewables now account for 5% of the portfolio.

"It's all part of our long-term strategy. We really wanted to be long on gas," Fanning said. "It was clear to us the transition of the fleet had to occur."

To that end, Southern in recent years

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## Mid-America Regulatory Conference

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acquired a 50% equity interest in Kinder Morgan's Southern Natural Gas pipeline and created the nation's largest natural gas-only distribution company by merging with AGL Resources.

"One of the keys to success in building this portfolio of the future is the notion of infrastructure creating options," Fanning said. "It gives you the scale to withstand stormy seas. Who would have predicted Westinghouse [Electric] would have gone bankrupt?"

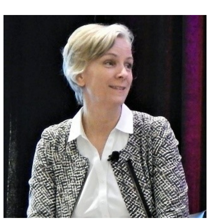
Southern and Westinghouse recently reached an agreement to complete two units as part of the troubled Vogtle nuclear plant expansion. Whether the construction is ever completed remains to be seen, but Southern will continue to diversify its portfolio.

"[The U.S.] has the ability to set policy based on the notion of abundance," said Fanning, who co-chairs the Electricity Subsector Coordinating Council, an advisory board to the federal government. "One of the challenges we saw in the last presidential election was that so many people are viscerally losing faith in the institutions of government and the people running them. We in the industry have to step into the middle and get rid of the red and blue.

"I'm one of the optimists. At the end of this decade, we can easily be net energy exporters, creating wealth, creating a better experience for everybody. We have the public-private partnerships to grow the finances of the states we serve. I believe we can make a difference."

### Commission Chairs: Energy Policy with the States

A panel of Midwest commission chairs agreed that state legislators and regulators will continue to set energy policy direction regardless of what happens in D.C.



**Nancy Lange**, chair of the Minnesota Public Utilities Commission, said the state's long-time fuel mix of coal, natural gas, nuclear, Canadian hydro and wind energy is changing in the face of modest load growth (less than 1%). Each of Minnesota's three investor-owned utilities are adding more wind generation to the mix, driving out coal in the process.

"It's not because of policy but because of price," Lange said. "Minnesota utilities are still offering coal as a must-run resource, but they're on the margin in some cases, and that's led to some of the retirements we've seen. The interesting thing about coal is some of the coal units are not operating as baseload units in the market, largely because they're not clearing the market price."

The Illinois Commerce Commission's **Brien Sheahan** said renewable energy and energy efficiency will earn 70% of the economic benefits flowing from the Future Energy Jobs Bill, approved in December, which includes zero-emission credits for nuclear plants.

"Some have estimated that at $12 [billion] to $15 billion," he said. "It's not just about supply. … It's really about energy policy and getting the state to lower carbon in the future. Whether we continue to have [a] leadership position depends on what the courts do and what FERC does. There was a lot of discussion at the FERC technical conference about accommodation, harmonization or mitigation. Some of [FERC's] proposals lean to mitigation too strong.

"Markets exist to serve state purpose. They don't exist in and of themselves," Sheahan said.

DTE Energy announced recently that it would phase out coal by 2030, accelerating what the Michigan Public Service Commission's Sally Talberg called a "fundamental transition in [the state's] energy supplies." She said the slow pace of energy policy decisions at the federal level makes it difficult for state regulators and planners to find certainty.

From left to right: Chairs Dana Murphy (Okla.), Ellen Nowak (Wisc.) and Sally Talberg (Mich.) share a laugh. | © *RTO Insider*

"Often, by the time an investment is made, you get a court ruling," Talberg said. "Regardless of what we see at the federal level, states are taking the initiative. Naturally, they're looking at cleaner suppliers. It does provide us the opportunity to move to cleaner and more efficient resources, such as natural gas."

Nowak pointed to the difficulty of assessing a social value for various fuel resources, asking, "Why are we pricing just wind and solar?

"I've always struggled with choosing just one resource to apply that to," she said. "We don't do it for nuclear, and we don't do it for gas. What's the social benefit for coal? It provides jobs. Nuclear is carbon-free. … Are we going to put social value on that?"

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Montana PSC Commissioner Travis Kavulla moderates a panel discussion of seven commission chairs. | © *RTO Insider*

# Mid-America Regulatory Conference

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"The [legislative] directive to look at externalities and the social cost … is a very difficult thing for our commission to grapple with," Lange said. "As these [distributed energy resource] valuations and methodologies move along … we think of them as supply resources and not social resources. Not having to add on that externality piece, which some legislators added on because of some imperative they want to take … will have the carbon fee showing up as costing less in [integrated resource planning] scenarios."

## 'Doug' Need not Apply at RTOs

The staid, hidebound grid operator, with its granular focus on engineering models and studies, has seldom been an attractive landing place for America's brightest young students. Acronyms like PJM and MISO don't carry the same cachet as Apple, Google or Microsoft.

However, that is changing quickly, agreed a panel of RTO leaders.

"When I first joined SPP, I kept hearing about this guy, Doug," said **Paul Suskie**, an Arkansas commissioner before joining the RTO in 2011. Eventually, Suskie, SPP's executive vice president of regulatory policy and general counsel, came to learn that "Doug" actually stood for Dumb Old Utility Guy.

No more.

"One of the benefits we have … in the industry is we are kind of cool now," ERCOT CEO Bill Magness said. "That's hard to get used to. They see how we integrate wind and solar on the system and how we're developing markets for the future. They're introducing us to other students as, 'They're doing cool stuff.' Our mission, to a lot of younger employees, is a very critical thing. We're doing something that's important and needs to be done."

PJM CEO Andy Ott (left) and ERCOT CEO Bill Magness. | © *RTO Insider*

Asked how MISO markets to the younger generation when it can take 10 years to build a transmission line, CEO **John Bear** said, "Once we bring them into the control room and show them what we're up against and where we're headed in the future, that's very exciting for them."

They've "significantly changed our working environment," Bear said. "Our offices look more like Starbucks than they did before. That, and the issues we are trying to solve are very intriguing to millennials. They love the mission of the RTOs. They're not looking to go to Wall Street, but helping people who can't look out for themselves."

MISO's internship program currently brings in 30 to 50 students each cycle. Of course, not all students wind up with a job, Bear said, "but they all go back and talk about what we're doing. It's word of mouth. We're not a big brand, but the compounding effect is very high."

PJM CEO Andy Ott extolled the virtues of his RTO's Arc Program, an engineering development initiative designed to provide talent with "career-broadening opportunities." Participants in the 36-month rotational program spend nine months apiece focused on core learning sessions for markets, system operations and planning.

"It not only gets people excited to work for PJM but improves our diversity," Ott said.

A diverse team of PJM employees interviews roughly 60 college students a year, hiring only the top three, he said.

"It's highly competitive. Over the past six years, nearly two-thirds of the candidates we've hired are diverse candidates. There's no mandate. It just happened organizationally."

Suskie said SPP has also "beefed up" its internship program and has reached out to historically black colleges. "The demographics of the industry are changing," he said.

Magness spoke to the convergence he has seen between operations and information technology personnel.

"These engineers today know how to code, and the coders understand our system," he said. "That makes it a faster-paced industry than it used to be."

Naturally, with change comes learning to adapt to it. Or most of it.

"Just no flip-flops for guys," Magness said. "I don't want to look at that."

## Integrate Storage Now, Advocates Say

Energy storage proponents said battery technology and cost improvements make storage more commercially viable, but regulatory and policy actions still pose challenges.

"Energy storage and distributed generation all offer something we've never had in the utility industry before. It gives the customers the ability to choose," said Betty Watson, senior manager of energy policy for Tesla. "Energy storage … is the ultimate streamlined technology. We now have the ability to react to what's going on the grid. If you look at ways utilities are incentivized, they need to invest in infrastructure.

We're talking about a technology that reduces the amount of money you invest [in infrastructure]. There are a lot of current opportunities under current existing regulations, but this technology will drive


Indiana URC Commissioner Angela Weber moderates a panel of RTO CEOs. | © *RTO Insider*

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# Mid-America Regulatory Conference

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change in the industry," she said.

"A market means an opportunity to earn a return on the work we do," said John Fernandes, Invenergy's director of regulatory affairs. "Developers are frequently told, 'Well, show us something. We'd like to take a look at it.' We need reassurance not that we will get selected, but assurance it's not an exercise in regulation. It's an opportunity to compete."

"By the time someone publishes a cost for energy storage, it's already improved by the time the ink dries. That's how fast this market is moving," pointed out Brent Bergland, general manager with Mortenson Construction. "By the time a report gets to the commissions, it's old news. It took six months to create, but over six months, you might have a significant drop in the cost of services."

"It's up to us to keep the momentum going to understand the technology," said Kiran Kumaraswamy, AES Energy Storage's market development director. "Pilots waste years. If we're making a decision on a study, we ought to be planning now."

"My frustration with pilots is that they're too narrow. It's one location, one set of conditions," Watson said. "We learned from renewables that when you expand the scope, expand regions and aggregate things, these conditions change. We need to get storage on the system and see how it interacts at multiple uses, so we can integrate it."

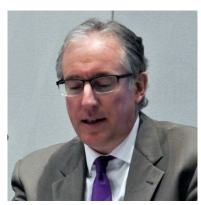
## Integrating Wind Energy a 'Mind-Changing' Issue

As SPP and ERCOT continue to see periods when wind accounts for at least 50% of energy production — a share SPP predicts could reach as high as 60% — **Beth Soholt**, executive director of Wind on the Wires, sees no reason renewables couldn't account for 35 to 40% of energy production at any time.

"I think that's very doable," said the Midwestern renewables advocacy group's leader. "One of the greatest shifts we've seen is learning how to operate the system with much more wind. It's not just technical issue, but a mind-changing issue that you can have a reliable system with a lot more variable generation. We're seeing coal plants being ramped to the market [like intermittent resources]. I think utilities will get smart about their new role in the integrated market."

**Melissa Seymour**, MISO's executive director of customer and state affairs in the Central Region, said the RTO, which is dominated by vertically integrated utilities, could see between 23 and 41 GW of wind on its system by 2025, creating a greater need for transmission. Most MISO states are on track to meet or exceed their renewable portfolio standards, she said.

"Markets need to really incent the types of products the market needs," Seymour said. "We have the same issues as we do with storage. Conversations with stakeholders are very important as we continue to grow. We have a lot of resources on the system that want to come offline. MISO is trying to ensure they can do this in a safe way. Enabling effective retirements is something we can do going forward."



"Now is the time for states and the RTOs … to figure out ways to better coordinate the retail planning of the markets with the wholesale design of the market, optimizing clean-energy resources on the system, to ensure just and reasonable rates and prudently occurred costs, for the assets," said **John Moore**, director of the Sustainable FERC Project at the Natural Resources Defense Council.

## The Machines are Coming

A panel focused on artificial intelligence and machine learning assured its audience there is nothing to fear as today's smart grid gets even smarter. AI, which uses complicated algorithms to detect unseen patters, and machine learning, the ability of computers to learn without being explicitly programmed, simply enable utilities to use predictive analytics to forecast consumption, monitor assets to reduce outages and improve efficiencies across the grid.

"Artificial intelligence allows you to use a scalpel, rather than a sledgehammer, to make effective use of your dollars," explained **Anna Lising**, senior manager of regulatory affairs for Oracle Utilities.

Jeff Gleeson, a product manager with Nest Energy Services, provided a real-life example with the Nest Learning Thermostat. Owned by Alphabet (parent company of Google), the Nest uses AI and machine learning hidden from the customer to yield more efficient results from their energy usage.

"The grid is getting more complicated. People's usage needs to match the complexity of the grid," Gleeson said. "We believe you don't need to know the complexity. We want you to be comfortable. We're working in the background … using artificial intelligence and machine learning behind the [thermostat]. The thermostat knows what your [time-of-use] rate is. It nicely corresponds to the grid's challenges … the solutions are also getting more complex, but the good thing is, we can do it in certain ways that make it very easy."

"The neat thing about artificial intelligence and machine learning is that it's been used in the utility industry for over a decade," said Sean Gregerson, a global director with Schneider Electric Software. "We're ahead of the curve. Ultimately, machine learning is going to be used for self-healing grids … automatically healing grids that are under stress or failing in unforeseen ways."

"It's important for everyone to understand, this is not necessarily as complicated as it sounds. It's heavily stats-based," Gleeson said. "If you're wondering whether the machines are coming for us, know machines have a hard time telling the difference between a plate of fried chicken or a picture of a poodle. If you see the pictures next to each other, you feel bad for the machine, because they look the same."

There are also unforeseen drawbacks. Gregerson related a story about his children playing with Alexa, Amazon's voice-responsive "intelligent personal assistant." After his kids mistakenly signed up for a product agreement, Gregerson said he tried to undo the damage.

Alexa responded: "I'm sorry. I don't understand that."

*— Tom Kleckner*

## CAISO NEWS

# Study to Weigh Aliso Canyon Shutdown

By Jason Fordney

California regulators last week advanced on a plan to study the potential for eliminating the Aliso Canyon natural gas storage facility.

The move came as Southern California Gas reiterated warnings about the impact of gas shortages on grid reliability this summer.

The state's Public Utilities Commission issued a draft request for proposals to develop an "Aliso Canyon Reliability and Economic Analyses." The central question to be answered, according to the draft: "should the commission reduce or eliminate the use of the Aliso Canyon storage facility, and if so, under what conditions and parameters, and in what time frame?"

The commission seeks public comment on the draft by June 29 and expects to issue the RFP on July 6. It is considering what elements of the proposal work or could be improved, if any important questions are missing and whether instructions are clear.

Injections into the 86 Bcf facility near Los Angeles have been halted since the leak was discovered in October 2015. The restriction was kept in place even after the leaking well was finally plugged in February 2016.

State Senate Bill 380 prohibited reinjection of gas into Aliso until completion of a safety review and required the PUC to determine whether use of the facility can be reduced or eliminated while still maintaining electric and gas reliability.

Winning bidders on the RFP will be required to hold stakeholder workshops and public hearings, as well as perform hydraulic model analysis of the reliability of the Aliso system under a variety of scenarios, using forecasted electricity demand and contribution of renewables to the generation mix.

The PUC is looking for bidders experienced with Synergi Gas software — or an equivalent — and working on gas-electric coordination. Also desired is a background running community forums and "developing models to assess the market, consumer and economic impact of significant changes to the natural gas or related markets."

Bidders' proposals are due on Aug. 24, and the contract award date is tentatively set for Sept. 29.

SoCalGas last week repeated a May warning directed at the PUC, California Energy Commission and CAISO about Aliso Canyon. (See *California Grid Emergency Comes Days After Reliability Warning*.)

"From our perspective, we are cautiously optimistic that, based upon the CAISO forecast, we will be able to meet the demands on our system. Of course, this is dependent on there being no unplanned outages on either the electric or gas systems," SoCalGas CEO Bret Lane said in a June 16 letter.

Lane's letter was accompanied by another June 13 letter from a group of municipal utilities to State Sen. Henry Stern, saying that they have serious concerns with the continuing moratorium on injections that the legislature required until a root cause of the leak is identified. The analysis is not needed because the wells have been retrofitted and gas no longer flows into outer casings, the practice that led to the gas leak, the utilities said.

"We are concerned that the bill constrains the transmission of natural gas, which could limit local electric supply, resulting in electric outages," says the letter from Burbank Water and Power, Pasadena Water and Power, and Vernon Public Utilities.

Aliso Canyon gas leak site in December | *SoCalGas*

The utilities also said that the legislation failed to define a process for emergency gas injections, "suggesting that a response to a blackout might come too late." They backed SoCalGas' recommendation that the current gas inventory at Aliso Canyon be increased to prevent blackouts.

The utilities caution that temperatures were moderate last year, which has so far not been the case this year. A heat wave last week swept areas of California, cutting electricity to about 190,000 Pacific Gas and Electric customers and prompting CAISO to issue a conservation alert. (See *California Heat Wave Prompts CAISO Flex Alert*.)

| Key Action | Date | Time |
|---|---|---|
| RFP Release Date – Posted on www.caleprocure.ca.gov | 07/06/2017 | N/A |
| Optional Bidder's Conference<br>Location: Golden Gate Room, California Public Utilities Commission | **07/12/2017** | **10 AM – 12 PM (Tentative)** |
| Bidder's Written Questions Submittal Deadline | **07/20/2017** | **5:00 PM Pacific Time** |
| CPUC Written Answers Tentative Posting Date | **07/27/2017** | N/A |
| Bidder's Proposals Due Date* | 08/24/2017 | 5:00 PM Pacific Time |
| Bidder's Interview | **9/1/2017 – 9/7/2017** | |
| "Intent to Award" Tentative Posting Date | **09/08/2017** | |
| Deadline to sumit intent to protest (5 Business Days) | **09/15/2017** | 5:00 PM Pacific Time |
| Deadline to submit protest letter (5 Business Days) | **09/22/2017** | 5:00 PM Pacific Time |
| Tentative Contract Award Date | **09/29/2017** | |

*The Bidders Proposal Due Date cannot be changed except by an official addendum. All key actions and dates after the Bidder's Proposal Due dates are estimated and subject to change.

Key action dates | *California PUC*

## CAISO NEWS

# CAISO Seeks to Drop Outdated Planning Role

*By Jason Fordney*

CAISO last week proposed to eliminate from its Tariff an annual state transmission concept plan that it says is obsolete because of changes at the federal level.

The move has support from Southern California Edison and the California Office of Ratepayer Advocates (ORA).

CAISO has developed the Statewide Conceptual Plan each year since 2010 as part of its lead role in the California Transmission Planning Group (CTPG), the transmission owner and operator group once responsible for coordinating local and regional planning across the state under FERC Order 890.

But since the implementation of FERC Order 1000 — the federal process that supersedes the previous planning process — the CTPG is no longer operating, and utilities have generally stopped responding to CAISO's conceptual plan.

"There is little if any value in the ISO alone developing the conceptual statewide plan, and it detracts limited ISO resources from focusing efforts on the extensive and important planning activities they must otherwise undertake," CAISO said in its draft proposal.

The planning process under Order 1000 now covers regional and interregional planning, and the CTPG has not held a meeting in four years, has none scheduled and has no chairperson. The ISO Tariff still requires the grid operator to develop the plan to determine transmission requirements to meet reliability, economic and public policy needs.

SCE, the state's second largest investor-owned utility, said it "concurs with the proposal's conclusions and the recommendation to remove the Conceptual Statewide Plan from the California ISO Tariff."

ORA agreed that the conceptual plan "no longer serves its intended purpose" but said the impact of eliminating the plan should be evaluated after the completion of the next interregional transmission planning process. It should be determined whether the revised process adequately incorporates California's specific transmission needs into interregional plans, the agency said.

Order 1000 identified CAISO as a planning region with Pacific Gas and Electric, SCE and San Diego Gas & Electric as members. Other participants in the conceptual plan are now associated with WestConnect as a planning region.

"Absent the active participation of all statewide planning entities in developing a conceptual statewide plan, development of the plan amounts to little more than a unilateral ISO exercise," CAISO said.

The ISO is asking that stakeholders submit comments on the final draft proposal by June 29.

## CAISO NEWS

# CAISO Proposal Would Permit 'Economic' Outages

*By Robert Mullin*

Power producers could temporarily suspend the operations of unprofitable generators not needed for system reliability under a CAISO plan released last week.

The Temporary Suspension of Resource Operations straw proposal, released Wednesday, would allow a plant owner to temporarily take a money-losing generator out of the market short of the "mothball" and retirement procedures already spelled out in the ISO's Business Practice Manuals. (See *CAISO Initiative Could Toss Lifeline to Struggling Generators*.)

The proposal stipulates that a resource owner must manage a suspended resource in such a way that it can retain the same megawatt rating and ramping capability as before the shutdown. Any plants denied a request could become eligible for payment under CAISO's capacity procurement mechanism (CPM), which currently compensates units for specific reliability needs.

While that move would fall far short of establishing a capacity market, it could provide needed financial support to gas-fired generators the ISO identifies as vital for future system needs, particularly in integrating increased amounts of renewable resources. CPM payments would be limited to four-month terms.

The proposal calls for owners to be permitted to shut down a resource for two to four months at a time, with the option to request a subsequent four-month suspension.

A unit approved for shutdown would not be required to respond to "exceptional" — or out-of-market — dispatches issued by the ISO, but it could be recalled for system emergencies, making it eligible for a CPM payment. A suspended unit would be ineligible to be counted in the ISO's resource adequacy showing during its suspension.

The proposal would allow resources to apply for temporary shutdowns throughout the year, but they must provide notice 60 days in advance of the effective date of the suspension. CAISO, in turn, would be required to notify the resource of an approval or denial of the request eight days before the effective date.

"The ISO will assess requests on the first-come, first-served basis, and there will not be a window that resource owners would need to work around," CAISO said.

A resource would be required to maintain all environmental operating permits while on shutdown, and it must be fully available for service on its return date, the proposal stipulates. To accommodate "unforeseen circumstances" — such as an expected loss of resources, transmission outages or extreme weather — suspended units must be prepared to return to service within 10 days of being notified by the ISO.

CAISO developed the temporary suspension proposal in response to stakeholder comments filed in a 2016 FERC proceeding over the ISO's refusal to approve outage requests for three of four units at the 965-MW La Paloma combined cycle plant 140 miles north of Los Angeles (EL16-88).

FERC last October agreed with the ISO's decision to reject the plant owners' requests because they were made for economic — and not physical — reasons.

Because the request was economic, it "did not represent an appropriate use of the outage management system as allowed by the CAISO Tariff," the ISO said.

CAISO also denied an additional request to compensate the units by designating them as reliability-must-run resources, contending that they were not needed for reliability purposes. At the time, 42 MW of La Paloma Unit 2 were under an RMR agreement.

La Paloma filed for bankruptcy late last year, citing $524 million in debt and an "inhospitable regulatory environment."

Although stakeholders largely agreed with CAISO's La Paloma response, some asked that FERC direct the grid operator to amend its Tariff to allow for outages based on economic considerations — a request that the commission rejected. The ISO nevertheless committed to establishing a stakeholder process to take up the issue this year.

"Through that process, the CAISO and stakeholders will have sufficient time to consider all pertinent issues, the conditions under which economic outages should be permitted, if at all, and how economic outages would interact with other requirements of the CAISO tariff and with CAISO grid and market operations," the ISO said.

The ISO has scheduled a June 28 call to discuss the proposal and has asked stakeholders to submit comments by July 13.

## CAISO NEWS

# Consolidated EIM Proposal Effort Gets Underway

By Jason Fordney

CAISO is seeking comment from market participants on three proposed modifications to the Western Energy Imbalance Market (EIM).

The grid operator last week kicked off the stakeholder process for the proposals, which include allowing third-party transmission providers to receive congestion revenue when they make unused capacity available between EIM balancing authority areas (BAAs).

In response to questions during a call on the initiative, CAISO said transmission owners will not have to turn over control of their transmission facilities to participate and would receive payment only if there is congestion on the system.

CAISO says the measure would increase transfer capacity among members, which the ISO's internal Market Monitor has pointed out reduces congestion and limits the ability of any single participant to wield market power within its BAA. (See *Increased Transfer Capacity Reducing EIM Congestion*.) EIM entities can currently collect congestion revenue through an offset, but that functionality is not extended to third parties.

The ISO plans to use its existing functionality for transmission contributions, known as "energy transfer system resources" that are used to track, tag and settle EIM transfers. It will need to establish a *pro forma* agreement that enables scheduling coordinators to submit transmission contributions on behalf of a third party, and create a new make-whole mechanism that would guarantee a payment from congestion revenue. The ISO is seeking stakeholder input on what level of interval granularity those payments should be calculated and how their associated costs should be allocated.

CAISO also wants to correct an inequity that occurs when an EIM BAA wheels power between other BAAs. Wheel-through BAAs receive some revenue when congestion occurs but are not compensated if there is no congestion. In that circumstance, only the source and sink BAAs accrue benefits when a wheel-through transfer occurs.

"How should we quantify the benefits of providing EIM transfers through an EIM BAA?" CAISO asked in its meeting materials.

The ISO has also proposed a new policy for situations in which market participants change their bilateral schedules after submitting their hourly base schedules. Under current practice, changes made after submission are exposed to real-time imbalance settlement payments.

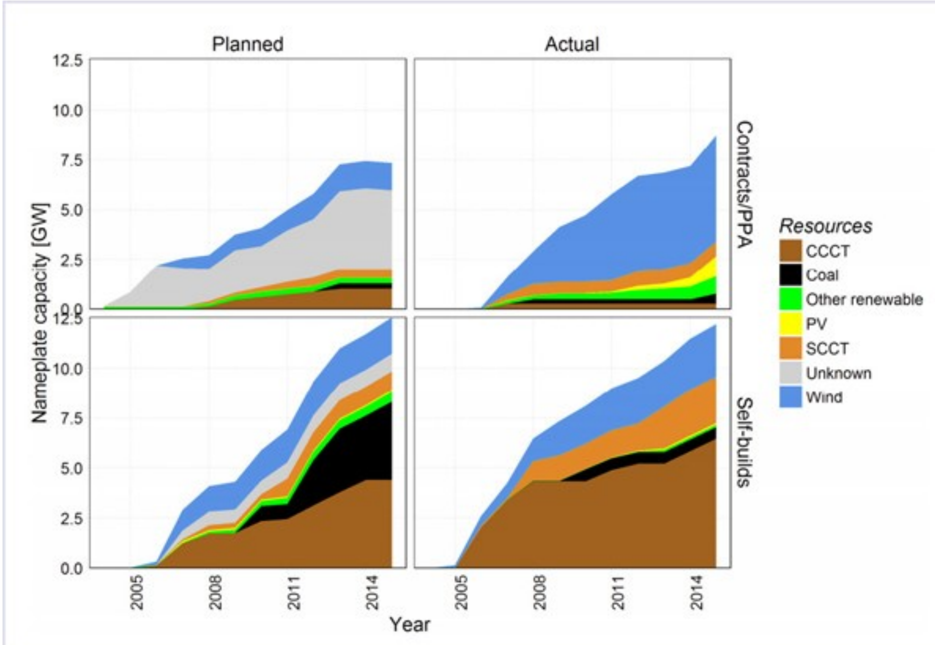
Settlement can result in either charges or payments, but there is no way for market participants to know the cost beforehand. Proposed changes would allow them to manage their exposure to imbalance settlement charges, CAISO said.

After the comment period ends June 30, CAISO will post a straw proposal on the initiative by July 27 and hold stakeholder meetings in August and September. The EIM Governing Body is set to review the proposals in October, ahead of a decision by the CAISO Board of Governors in November.

## CAISO NEWS

# Wind Procured by Western Utilities is Triple of Planned, Study Says

*By Jason Fordney*




Actual and planned nameplate capacity additions by resource and contract type for 12 load-serving entities in the West. | *Lawrence Berkeley National Lab*

Western U.S. utilities procured three times more wind capacity in 2003-2014 than planned, showing there is a limited relationship between electricity resource planning and procurement, according to a new Department of Energy study.

Expansion of nameplate wind capacity by 2015 was expected to be about 15% but was actually about 50%, likely coming from power purchase agreements, the analysis of 12 Western load-serving entities showed. Changes in load growth, regulation and contracting led to adjustments in resource planning, and differences in resource mix came largely from renewable portfolio standards and demand-side management, as well as fuel price changes.

The study considered what types of economic and regulatory information is used in planning and procurement, and examined the value of the planning process in light of its relationship to actual practice. The analysis compared integrated resource plans filed in the early and mid-2000s to the actual procurement that followed.

Although IRPs are designed to ensure that utility investment decisions are as cost-effective as possible, there had been no previous "empirical assessment on the effectiveness of IRP implementation," said the study, conducted by the Lawrence Berkeley National Laboratory.

"We find that most information produced in the planning phase is generally disconnected from the procurement phase," the researchers said.

After 2008, adoption of less efficient simple cycle combustion turbines correlated with dropping natural gas prices, which might also have been needed to provide balancing power because of higher usage of intermittent renewables. There was also less usage of coal-fired generation than planned, as difficulties in getting coal plants permitted were mentioned by several LSEs in their resource plans; natural gas was likely used as a baseload power substitute.

The researchers said only some of the forecasts, least-cost/risk portfolios and other information produced during the long-term planning processes were used during the procurement processes, and that procurement decisions relied "extensively on the most recent information available for decision making."

"These findings suggest that states' IRP rules and regulations mandating long-term planning horizons with the same analytical complexity throughout the planning period may not create useful information for the procurement process," the study says.

The study found "in aggregate … a general alignment between planned and procured supply-side capacity. However, there are significant differences in the choice of supply-side resources and type of ownership for individual LSEs."

Avista, Puget Sound Energy, Seattle City Light and Public Service Company of New Mexico procured less capacity than planned, possibly because of lower load growth, while Idaho Power, PacifiCorp and Portland General Electric procured more capacity than was planned. Idaho Power procured two to three times more wind capacity than planned. Although PacifiCorp had not planned for any wind in 2004, more than half of its procured nameplate capacity was wind.

*SPP*

For the Los Angeles Department of Water and Power, Sierra Pacific, Nevada Power and Public Service Company of Colorado, the largest difference between planning and procurement was substituting natural gas units for coal.

There is no formalization of how utilities should use inputs from their IRPs in their procurement, and there is little evidence regarding how sensitivity and risk analyses used in the IRPs are actually applied in procurement decisions, the study says.

It called for a "more careful" definition of the links between IRPs and procurement, calling it "an important problem as energy technologies, markets, and policy and regulatory goals evolve and become more complex."

## ISO-NE News

# NH Regulators Order DER Study; Cut Net Metering Credits

*By Michael Kuser*

New Hampshire regulators on Friday took the first step toward an overhaul of their net metering rules, reducing compensation for rooftop solar owners while ordering a study of the value of distributed generation that will inform long-term changes.

The Public Utilities Commission ordered utilities to implement a new alternative net metering tariff that retains monthly netting for small distributed generation system owners while moving to instantaneous netting for non-bypassable charges. The rules, "to be in effect for a period of several years," will begin Sept. 1 (Order 26,029).

The commission chose a quasi-adjudicative process to reconcile two settlement proposals on how to develop and implement a new alternative net metering tariff, as directed by the state legislature last year in House Bill 1116.

### Two Proposals

One settlement proposal came from a coalition of utilities and consumer parties (UCC), including Eversource Energy, Liberty Utilities, Unitil Energy Systems, the state Office of Consumer Advocate, the New England Ratepayers Association, Consumer Energy Alliance and Standard Power of America.

The other proposal was filed the same day by a coalition of distributed generation

Exeter High School solar panels

industry advocates and environmental organizations known as the Energy Future Coalition (EFC), which included the Acadia Center, The Alliance for Solar Choice, the Conservation Law Foundation and eight other organizations and companies (docket DE 16-576).

In its unanimous 74-page order, the commission ruled that:

- Small customer-generators with renewable energy systems of 100 kW or less will continue to net meter their DG resources monthly. Those customer-generators will receive monthly net export credits equal to the monetary value of kilowatt-hour charges for energy service and transmission service at 100% and distribution service at 25% — a 75% reduction — while paying the full amount of non-bypassable charges, such as the system benefits charge, stranded cost recovery charge, other similar surcharges and the state electricity consumption tax. Previously, they received kilowatt-hour credits.
- Large customer-generators will continue to be net-metered as they are currently but will also receive monetary credits rather than kilowatt-hour credits on a monthly basis. To qualify for alternative net metering, large customers must consume at least 20% of their actual or estimated annual distributed generation system electric production behind the meter.
- DG systems installed or queued during the period the new net metering tariff is in effect will have their net metering rate structure grandfathered until Dec. 31, 2040.
- Pilot projects will be proposed and a value of DER study will be designed and completed to "inform the development of the next version of net metering or another alternative regulatory mechanism."

Nashua, N.H., dam

"As the penetration level of DG in the state is quite low in both absolute and relative terms, there is little evidence of significant cost-shifting from DG customers to customers without DG," the commission said. "Payment of non-bypassable charges by all net-metered customers and a reduction in the distribution credit for net exports should serve to mitigate the potential for such cost-shifting, even if DG penetration levels increase significantly above their low levels."

The commission said it accepted common elements in the two settlement proposals and resolved differences between them based on the legislative purposes of HB 1116. The bill called for "the continuance of reasonable opportunities for electric customers to invest in and interconnect customer-generator facilities and receive fair compensation for such locally produced power while ensuring costs and benefits are

*Continued on page 14*

## ISO-NE News

# NH Regulators Order DER Study; Cut Net Metering Credits

Continued from page 13

fairly and transparently allocated among all customers."

The order requires Eversource, Liberty (Granite State Electric) and Unitil to file revised tariffs within 30 days. The commission also approved an automatic rate adjustment mechanism for the companies to recover lost revenue, under the process approved for Unitil in February (Order No. 25,991).

### Value of DER Study

The order provides that the alternative net metering tariff take effect while the utilities and stakeholders collect further data, implement pilot programs and conduct a study on the value of DERs.

It directs stakeholders to convene working groups within 60 days to develop proposals on the commission's mandates. It also requires them to file quarterly progress reports with the PUC. The order also gives concerned parties 30 days to submit written briefs or comments on grandfathering issues, such as the clause that "customer-generators that receive a net metering capacity allocation while the new alternative net metering tariff is in effect to be 'grandfathered' at the applicable net metering design and structure then in effect through Dec. 31, 2040."

### Reaction

"The ruling is a mixed bag," CLF attorney Melissa E. Birchard said.

While the order is an overall win for the state because it sets a path forward to value the broad benefits of clean energy resources and accelerates grid modernization, Birchard said she was dismayed by the cut in the distribution credit.

"It is disturbing to see cuts to an important program like net metering at the same time that New Hampshire is lagging behind the rest of the region on solar penetration and energy efficiency," Birchard said. "If we're not careful, other states in the region are going to reap the financial benefits of strong solar and energy efficiency programs while Granite Staters pay more on their electric bill for a disproportionate share of the costs."

While the distribution portion of the credit is only one piece of the overall credit, "this cut is arbitrary in the sense that there was no real data in the docket to support it, and it will affect the pace of clean energy investments," Birchard said.

### Gradual Change

The commission said that an abrupt change from monthly netting to instantaneous netting would likely confuse customers and send potentially inefficient price signals.

"For example, instantaneous netting may be confusing to customers who lack real-time data about their electricity usage," said the order. "It may also provide financial incentives for maximum on-site electric consumption during periods when the benefits of DG exports to the system may be greatest, such as at the time of late afternoon system peaks, thereby decreasing the potential system-wide benefits of those energy exports."

Birchard believes the cuts in net metering will be temporary.

"There should be a new rate established after the commission carries out a value of distributed energy resources study, particularly distributed solar and hydro, and after that study it's going to open a proceeding to revalue it," said Birchard. "So the credits that those resources receive will be based on the broad benefits, potentially including climate change and health benefits. That kind of value-based rate can make clean energy innovation more competitive in an open market way so that different kinds of resources can compete with each other based on their value."

## ISO-NE NEWS

# Planning Advisory Committee Briefs

### ISO-NE Prepares 2017 RSP for Public Hearing

WESTBOROUGH, Mass. — ISO-NE Director of Regional Planning Mike Henderson on Wednesday presented the schedule for stakeholder comments on the grid operator's 2017 Regional System Plan, which are due July 24.

The plan will be discussed at the August Planning Advisory Committee ahead of a Sept. 14 public meeting in Boston. The draft plan will be posted online by July 7.

"Our view is that the report should be viewed as a [critical energy infrastructure information] document," Henderson told the PAC during a June 21 teleconference. "In past years, we have noted some, frankly, mistakes that the ISO made in the report where we may have inadvertently included some CEII materials, and as a draft document, that would present a major issue. ... We'd hate to see something that does not reflect your [PAC members] input ... put out in the public domain."

Transmission planner Jon Breard presented an update on transmission projects and asset condition as part of the RSP drafting process. One participant asked if, based on the presentation, the growth in transmission spending was coming to an end in 2019.

"I'd be careful about 'coming to an end,'" said Brent Oberlin, director of transmission planning. "It's just what we have planned so far [is] really slowing down, and that's our expectation going forward." He added that the RTO must still complete reassessments for Maine, New Hampshire and central Massachusetts.

### RTO will not Conduct Public Policy Tx Study for 2017

Oberlin presented ISO-NE's conclusion that no federal or state public policy requirements are currently driving transmission needs, precluding the need for a special study on the subject this year. The RTO's position aligns with a similar assessment submitted by the New England States Committee on Electricity (NESCOE) last month. (See *ISO-NE: Won't Override States on Public Policy Tx Needs*.)

A May 16 letter from the Conservation Law Foundation asked the RTO to conduct the analysis despite NESCOE's conclusion. NESCOE responded that ISO-NE should evaluate potential projects only after states have indicated transmission needs resulting from their policies.

Paul Dumas of Avangrid asked when the Tariff stipulates that the RTO must start another public policy process.

"At least every three years," Oberlin said. "So the farthest that we would go out would be initiating the process in 2020. I think we're going to keep an eye on where the states are with [requests for proposals] and things like that and make our determination if we would go earlier."

### Eversource to Replace 'Vintage 1950' Equipment

Eversource Energy's George Wegh presented CEII material on the utility's work to modernize several outdated substation control houses in its Eastern Massachusetts service territory. Wegh apologized for informing the PAC after the work had already started. He said Eversource would fix whatever internal communications problem created the lapse in planning protocol.

Two of the control houses being refurbished are "vintage 1950" and still use some of the original equipment, including analog meters and electromechanical relays.

### Woodpecker Woes on 345-kV Lines in Eastern Massachusetts

Eversource's Chris Soderman presented evidence of woodpecker damage and decaying support structures along a 345-kV line in Eastern Massachusetts and similar problems on the Southern Connecticut Loop, where the company will not only replace structures but install optical ground wire to enhance communications and reliability.

The company will replace with steel approximately a fifth of the 262 wooden structures along the 29-mile Northfield-to-Ludlow line in Massachusetts. The estimated $8 million cost includes installing new hardware and insulators.

Woodpecker damage | *Eversource Energy*

Along the Connecticut line, which runs about 38 miles, Eversource will spend an estimated $68 million to replace 258 structures, many of which have decaying, laminated wood cross arms. Soderman emphasized that the light-duty weathering steel poles being installed on both projects were not custom ordered but off-the-shelf equipment.

### National Grid Implements Reliability Scheme on Tx Circuits

Jack Martin of National Grid presented the utility's plans to install dual high-speed protection systems on 45 major transmission circuits over the next decade to meet standards set by the Northeast Power Coordinating Council.

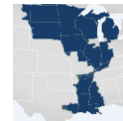
NPCC Directory 1 mandates that all New England transmission owners meet the performance reliability requirements on Bulk Electric System elements by Sept. 10, 2025.

National Grid will pursue a five-stage rollout and estimates the cost for Phase 1 at $1.8 million. The company expects substantially higher costs for the ensuing phases, which include significant installation of optical ground wire and a number of control house rebuilds.

The utility has started conceptual engineering for the other four phases and will update the PAC once it has estimated the costs.

*— Michael Kuser*

## MISO NEWS



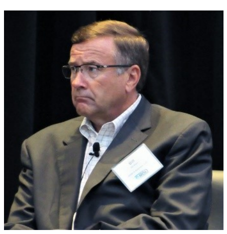
# Industry Vets Talk Future Challenges at MISO Annual Stakeholders' Meeting

*By Amanda Durish Cook*

BRANSON, Mo. — Energy industry veterans mused on the state of energy innovation and the future of the sector during a panel discussion at MISO's Annual Stakeholders' Meeting last week.

**Thomas Voss**, retired chairman of Ameren and a self-proclaimed devotee of innovation, said microgrids and rooftop solar are gaining traction.

"In California, it's completely changed the planning process. Lines that they thought would be overloaded were fine because of rooftop solar," Voss said during the June 21 panel. "Now there's winner and losers, and it might not be as fair as it should be, but hopefully we can come together and solve that."



**William Mohl**, a former Entergy executive, said MISO has the luxury of studying what the RTOs on the coasts are doing with renewables and storage and waiting until it becomes economic to implement the results.

James Jura, former CEO of Associated Electric Cooperative Inc., recounted how he used to ask industry participants if they had heard of Elon Musk before he was a household name: "I said, 'You have to look him up because he's going to get between you and your member-owners.'"

**Libby Jacobs**, former chair of the Iowa Utilities Board and former Organization of MISO States president, said FERC will need to address the public appetite for renewables with orders or possible rulemaking.

"I do see energy storage as one of the coming-together points of what regional, state and national entities can do," she said. MISO has tentatively scheduled a July 24 common issue meeting to discuss how storage might fit into its market and could convene a task team to craft new rules. (See *MISO's Next Step on Storage: 'Common Issues'; Task Team?*)

Voss said with load growth flat nearly nationwide, it's time for state regulators to determine whether current energy policies will still make sense when demand eventually rises again.

Mohl agreed. "Slow load growth hides a lot of sins," he said, adding that baseload resources are no longer being tested regularly for reliability.

Capacity is still not properly priced for merchant generation, Voss said, maintaining that suppliers have no incentive to build any new generation — especially in Southern Illinois. "I don't think the capacity problem has been solved anywhere in the country. There's no drive to build anything new," he said.

Mohl added that low margins and low gas prices are pricing some longtime generators out of the market.

"There are some that say, 'Well, they should just leave the market,' but we don't want all of them to leave the market," he said, adding that capacity needs to be priced properly.

As the industry moves away from coal — and even nuclear — generation, RTO leaders, regulators and utilities will require more defined plans for upgrading natural gas infrastructure and pipelines, Mohl said.

"I think a lot of times people hope and pray that it's there when they need it, but what I don't see is a more intentional plan. … If you get down to renewables and natural gas and remove baseload generators, there's inadequate infrastructure," he said.

"There's a big disconnect there," Voss agreed. "There hasn't been enough attention on, 'Is the firm supply of gas really firm?'"

"Right now, it really doesn't matter. But it will," Mohl added.

Jacobs predicted increased difficulty in siting new pipelines and transmission alike because of a surge in environmental activism. "I think 10 years ago, regulators would have asked, 'Why are there police, bomb-sniffing dogs at your meetings?'" she said.

# Board of Directors Briefs

## Committee Permits Consideration of Extra Term for Dail

BRANSON, Mo. — The MISO Nominating Committee has waived Board of Directors term limits and unanimously voted to allow current Director Baljit Dail to stand for an additional term, board Chairman Michael Curran said last week.

Dail, who this year reached the board's limit of three three-year terms, will be included on a slate of qualified candidates being prepared by consulting firm Russell Reynolds.

MISO Board Chair Michael Curran (left) and Director Baljit Dail | © *RTO Insider*

With five first-time directors added since 2015, the veteran agreed to seek re-election for an additional three-year term, but that required the waiver. (See "Committee Could Lengthen Board Member's Tenure," *MISO Board of Directors Briefs*.)

Curran said the committee approved the waiver with an understanding that it should be used sparingly.

"Only in very unique situations should we hand out a waiver. It's not something that we should use all the time," Curran said at a June 22 board meeting. The committee cited Dail's much-needed information technology experience as the reason for the waiver.

The board is unlikely to confront another

*Continued on page 17*

## MISO News

# MISO South Outages Worry RTO, Monitor

By Amanda Durish Cook

© RTO Insider

BRANSON, Mo. — MISO staff and the Independent Market Monitor agreed that the RTO's markets performed as they should have this spring, but both found a surge in MISO South outages troubling.

MISO reported an average 69.2 GW of load March through May, up 1.3% from 68.3 GW in spring 2016. Executive Director of Strategy Shawn McFarlane said hotter-than-normal spring temperatures contributed to the load increase. The RTO hit a 92.2-GW spring peak on May 16.

The average spring real-time energy price was $29.96/MWh (the Monitor reported an average $29.90/MWh), a 39% increase from spring 2016, driven by a sharp increase in gas prices, MISO said. Market Monitor David Patton said natural gas prices rose 57 to 65% year-over-year, with the highest price spikes in Texas and Louisiana.

McFarlane said the higher load, combined with forced outages, caused high real-time congestion on multiple days, particularly in the South and Central regions.

MISO racked up $467 million in congestion during the quarter, Patton said during his quarterly report delivered on the first day of summer to the Markets Committee of the Board of Directors. He cited higher gas prices as a contributor to the rise in congestion, saying "gas-fired units are often marginal when generation is redispatched to manage network flows."

"MISO experienced the most congestion of any other RTO in the country … almost half a billion dollars," Patton said. He repeated his proposal for relieving congestion: that MISO and its neighbors transfer the control of border constraints when one RTO has more relief on a flowgate than the other.

"A good reminder that there is always work to be done at the seams to improve things for our constituents," Director Paul Bonavia said.

The congestion was also because of high planned outages in MISO South, Patton said, adding that the RTO should seek additional authority to approve and coordinate outages. Expanding the authority of the RTO, which is currently limited to a "reliability review," will be one of the recommendations in his annual State of the Market Report this month.

Under its Business Practices Manual, MISO can only "recommend [an outage] schedule that maintains system security and minimizes adverse impacts." Owners and operators submit planned maintenance outage schedules for generators 10 MW and above to MISO for a minimum rolling 24-month period. The RTO studies the impact of all transmission and generator outages and works with owners to reschedule when an "outage analysis indicates unacceptable system conditions" or when a zonal maintenance margin is reached. "We have to not schedule ourselves into emergency situations. The ability to schedule them to minimize their effects will be a significant savings," Patton said.

There is no need for all resources to schedule their maintenance outages in the spring and fall shoulder months, Patton

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# Board of Directors Briefs

Continued from page 16

waiver situation within the next six years based on the terms of current directors, Curran said.

The terms of Thomas Rainwater and Paul Bonavia also expire at the end of this year, but neither have reached the term limit and both will seek re-election.

At the June 21 Advisory Committee meeting, Wisconsin Public Service's Chris Plante said retaining Dail for an additional term can help educate MISO's newer board members and keep valuable institutional knowledge in the board.

"This should not be seen as a routine thing," cautioned Arkansas Public Service Commissioner Ted Thomas.

### MISO Reports Likely Year-End Overage; Board Urges Staff Stick to Budget

MISO expects to finish the year 1.2% over budget, Chief Financial Officer Melissa Brown said during a quarterly finance report to the board.

Year-to-date, MISO is $1.5 million under budget, mostly because of late start times on projects and delayed employee travel, according to Brown. The RTO will also save about $1.1 million during the year, in part because of the cancellation of a forward capacity market in retail-choice areas. Still, that savings will be erased by a lower-than-expected employee vacancy rate, resulting in an unexpected $1.5 million spend.

Brown expects the unusually low vacancy rate will persist for the remainder of the year. That, coupled with unforeseen expenses related to upgrading IT systems and miscellaneous overages, could push spending to $241.4 million, against the 2017 budget of $239.1 million. However, expenses could range anywhere from $238.8 million to $241.9 million.

Curran said the RTO should be able cover the forecasted overages with reductions in other spending. "We're hopeful that we can dial that in with six more months to go," Curran said, adding that savings shouldn't come at the expense of project progress.

With labor costs comprising about 60% of MISO's annual budget, it will be difficult to find cuts that don't impact labor, Brown said.

Director Todd Raba also requested that the RTO make up the overage with other cutbacks.

Additionally, MISO has so far spent about $15.1 million of its $29.9 million capital budget, which should leave spending on target by year-end, according to Brown.

*— Amanda Durish Cook*

## MISO News

# MISO Steering Committee Elections Decision Delayed

*By Amanda Durish Cook*

BRANSON, Mo. — A proposal to detach the appointment of MISO's Steering Committee leaders from the election of the RTO's Advisory Committee has been put on hold until late July.

The RTO's Stakeholder Governance Guide currently calls for the vice chair of the Advisory Committee to serve as chair of the Steering Committee and vice versa. (See "MISO May End Automatic Steering Committee Leadership Posts," *Organization of MISO States Board of Directors Briefs*.)

"Today, the Advisory Committee elects the Advisory Committee chair and vice chair, and then by way of peculiarity, they do a flip-flop" to lead the Steering Committee, Entergy's Matt Brown said during a June 21 Advisory Committee meeting.

Representing MISO's Transmission Owners sector, Brown proposed a sector email ballot to change the practice. The motion asks that "nominations be solicited annually for the Steering Committee chair and vice chair positions" and that the posts be open to any interested stakeholders. Elections would be decided by the Advisory Committee via sector vote.

Still, a majority of stakeholders in attendance voted to table the motion until the committee's next conference call on July 26.

Brown said the current Advisory Committee chair and vice chair — Manitoba Hydro's Audrey Penner and NRG Energy's Tia Elliott — should be able to fulfill their current Steering Committee terms until the end of the year to avoid a leadership shake-up. The motion asks for elections to begin in 2018.

"It's not the most important issue facing MISO now," Brown admitted. "However, it's important to the MISO Transmission Owners."

Brown said sectors should vote to end the "unusual" practice of automatic leadership and move to "a more conscious choice."

"This has absolutely nothing to do with the people that currently hold these roles," Brown said. He recommended the vote to help the Steering Committee attain a level of independence from the Advisory Committee that is "impossible to achieve today."

Elliott asked if the proposal was aimed at "fixing" something specific that the Steering Committee failed to address.

"This is not anything specific," Brown replied. "This is not about any actions or decisions of the Steering Committee or any actions or decisions of its current leadership."

Northern Indiana Public Service Co.'s Paul Kelley said the move was simply a response to a request by MISO Director Thomas Rainwater at the last Advisory Committee meeting to identify attainable stakeholder process improvements.

MISO Stakeholder Relations staffer Alison Lane said the Steering Committee's dependent leadership posts were created about eight years ago with the Steering Committee itself. At the time, it was viewed as a "cohesive way" to coordinate with the Advisory Committee.

"That's based on an eight-year-old memory," Lane said after a beat.

# MISO South Outages Worry RTO, Monitor

*Continued from page 17*

continued, noting that capacity often exceeds winter load in the South by so much that it becomes "stranded" because of the limit on South-to-North transfers. "Economic opportunities likely exist to shift outages from shoulder to winter months," he said.

Outages in MISO South removed as much as a 34% share of capacity during the spring, and outages in MISO Midwest took about 25% of capacity. Last year, spring outages took out 15% in the South and 14% in the Midwest. As a consequence, real-time congestion cost increased more than 50% over last winter and the prior spring quarter, according to the Monitor.

Patton also noted that the transmission and generation outages and extreme weather in the South led to 22 days of conservative operations in load pockets and three days with maximum generation alerts in April. An emergency maximum generation event on April 4 was spurred by the loss of a large nuclear unit, apparently Entergy's Grand Gulf 1 in Mississippi, which the Nuclear Regulatory Commission reported going out of service because of a condensate leak.

Director Baljit Dail asked if there was a reason behind the spate of outages. "It just struck me as a massive increase. … It was two-and-a-half times what we normally have," he said.

Staff agreed the outages were higher than the usual crop of shoulder-season outages.

"We do agree with Dr. Patton's suggestion that a higher degree of coordination would be useful," Chief Operating Officer Richard Doying said.

Bonavia said he once commiserated with control room operators over the challenges of handling summer heat but was told it was the shoulder months that caused the most anxiety. "They're ready on those hot summer days when demand is screaming. … It's those shoulder periods when the weather is volatile and the storms kick up that worry them," Bonavia recounted.

Bonavia

Patton also praised the rollout of MISO's extended locational marginal pricing (ELMP), which he said was responsible for about a 10% decrease in real-time revenue sufficiency guarantees paid out to market participants in the spring. However, Patton said he is still recommending that the RTO expand ELMP further to allow all generators with two-hour minimum run times to set prices, instead of MISO's change, which added online resources with one-hour start-up times. MISO contends that the Monitor's price-setting expansion would not be worth the expensive software change. (See "MISO Officially Expands ELMP," *MISO Market Subcommittee Briefs*.)

# MISO NEWS

## Planners: MISO Near-Term Resource Adequacy Sufficient

*By Amanda Durish Cook*

BRANSON, Mo. — MISO will have adequate generation over the next five years to address its changing resource mix and the adoption of new technologies, planning staff told RTO leaders last week.

Low electricity demand plays a big part in the brighter forecasts and more optimistic tone adopted by MISO when discussing future resource adequacy, staff say.

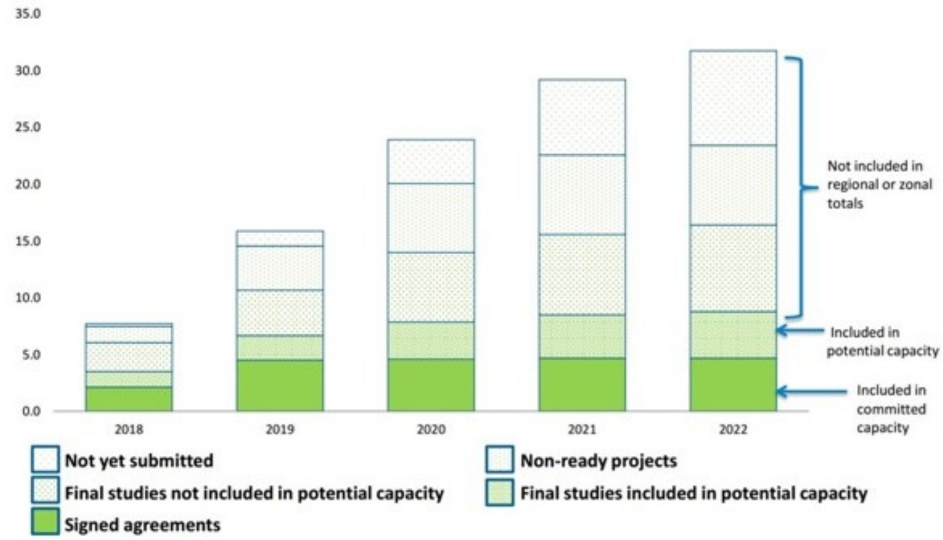
"Energy efficiency has made our load essentially flat since 2008," Clair Moeller, MISO executive vice president of operations, said during a June 20 meeting of the Board of Directors' System Planning Committee.

The RTO's annual resource adequacy survey published jointly with the Organization of MISO States earlier this month found that low demand will leave its footprint flush with capacity through at least 2022. The survey showed a 2.7- to 4.8-GW regional surplus over the next five years, while last year's survey predicted a 0.4-GW shortfall by 2018 if no new generation came online. (See *Capacity Survey Shows MISO in the Black*.) MISO expects peak loads of more than 130 GW by 2032. Current summer peak is expected to hit about 125 GW.

Director Phyllis Currie asked what MISO is receiving from states in terms of resource planning.

Jennifer Curran, MISO vice president of system planning, pointed to a new level of fuel diversity in states' integrated resource plans, which typically chart a resource mix that is one-third each coal, natural gas and either wind or nuclear generation.

"The old days were a preponderance of coal; the new days are a preponderance of gas," Moeller said.




Potential generation additions (GW) | *MISO*

Wind projects still occupy about a 67% share of the current 32 GW of new generation in the RTO's interconnection queue. Moeller expects fewer wind projects to enter the queue as federal production tax credits are phased out.

Planners think batteries do not yet make financial sense in the MISO footprint. "We think we have some time to work through how to do the math to optimize storage," Moeller said.

However, MISO is hedging bets this year by introducing a fourth 2018 Transmission Expansion Plan 15-year future scenario that envisions a surge in rooftop solar, localized storage devices and electric vehicle use. (See "MISO Tweaks 4th and Newest MTEP Future," *MISO Planning Advisory Committee Briefs*.)

"Now the electric vehicle folks are sure this is going to happen, and the solar collector folks are sure this is going to happen," Moeller joked. "We'll see. What we need to ensure is that we have the grid for the future when the future gets here."

MISO still expects emerging technology like solar to increase the complexity of transmission planning and noted that demand-side programs have the potential to "fundamentally change load levels and shapes."

Moeller noted that the Department of Energy forecasts even higher future solar penetration than MISO's highest predictions.

"We're not quite sure where their optimism comes from, but that's where it is," Moeller said.

An Energy Information Administration report released early this year projects that the U.S. will add nearly 70 GW of new wind and solar photovoltaic capacity from 2017 to 2021. Solar will be one of the "most competitive sources of new generation" by 2022 and will represent more than 50% of new capacity additions between 2030 and 2040, according to the agency.

## MISO NEWS

# MISO: $130M Needed for New Market Platform

*By Amanda Durish Cook*

BRANSON, Mo. — MISO wants to spend $130 million over the next five years to construct a new market platform before its existing one becomes outdated, but its Board of Directors is insisting on a thorough stakeholder review of the project's cost.

Jeff Bladen, MISO executive director of market design, said the upgrade would involve a "piece-by-piece replacement of components" resulting in a "far more modular platform" compared with the rigidity of the current system, which hinders market changes.

Swapping out market software incrementally instead of introducing a new platform all at once is the safer option, Bladen said.

"The risk of a misstep is far less using an incremental process," he said during a rare June 20 joint meeting of the board's Markets and Technology committees.

MISO's current platform is "inflexible," and even simple market changes require testing and retesting because of possible effects on other software, according to MISO Technology Executive Kevin Caringer. He likened the new design to Microsoft PowerPoint, which can recognize and accept fonts and graphics from other sources.

### Looming Obsolescence

The RTO evaluated its market system last year and concluded it had five to seven years before evolving cybersecurity standards and increasing market complexity render the system — designed in the late 1990s — obsolete and no longer able to clear the day-ahead market. (See *MISO Reaffirms 2023 End Date for Market Platform*.)

"The time is now to begin long-term investment," Bladen said. "Findings and conclusions drawn from the evaluation resulted in a clear call to immediately initiate a system upgrade."

Caringer said MISO will spend about $3 million on cybersecurity to extend the life of the current platform for the five years needed for the switch to a new platform.

MISO is asking for an additional 25% contingency budget for unforeseen expenses in addition to the expected $130 million plan. Staff said it will present final cost estimates to the board in September. The board's Audit and Finance Committee will decide whether to approve the spending in October, and a full board decision on the budget is set for December.

MISO staff predicts the project will yield a 4-to-1 return on investment, with $201 million in benefits, $254 million in cost avoidance and $111 million in risk mitigation.

### Board Scrutiny

Director Baljit Dail asked how MISO will prove the benefits and savings to its stakeholders.

Bladen said the RTO can share a recent benefits report once it removes nonpublic information from the document.

"I don't want this to be jammed into December. At some point, I'm going to ask, has this report been scrubbed and has it been shared with stakeholders? I don't want that to happen in December," Dail warned.

Director Paul Bonavia wondered if MISO will give stakeholder groups a chance to collaborate to develop a process for responding to the benefits report.

Bladen responded that MISO expects to follow its normal annual budget process with stakeholder review occurring in the Finance Subcommittee.

"I appreciate that, but the budget process usually doesn't have $130 million to $160 million in additional spending. One director's strong counsel to you all is make sure the usual process can handle [this]," Dail said.

Other directors pointed out that the project's benefits may play second fiddle to the market failure that looms if MISO does not implement a new market platform.

"I'm not too captivated by the benefits. We need to move," Director Michael Curran said. "I'd love to see the benefits, but we have to spend the money. … It's a burning platform; it's a slow burn, but it's coming."

"My comment is, however you want to justify the benefit, it needs to be put before the stakeholders," Dail replied. He suggested that MISO convene a special stakeholder committee to discuss the investment and consequences of not reconstructing the market platform.

"I'd like to see [the stakeholders'] fingerprints all over this," Curran agreed.

Bladen said MISO could initiate stakeholder workshops to discuss building the platform.

In response to a question from Curran, Caringer said MISO could reach out to developers of its original market platform to help improve the transition. Some longtime MISO employees also have knowledge of the system, he said.

Curran said he wanted to require any potential project vendors to have contact with developers of the original system. CEO John Bear said the board would address that topic in a closed session that immediately followed the meeting.

## NYISO NEWS

# Comprehensive DER Oversight Best, NYDPS Hears

By Michael Kuser

ALBANY, N.Y. — Regulatory oversight of distributed energy resources is better fully mapped out at the beginning of the process rather than built piecemeal, more than a dozen industry stakeholders told staff of the New York State Department of Public Service last week at the second of two technical conferences on DER oversight.

The first conference was held June 12 to explore how the Public Service Commission can best regulate utilities and protect consumers through the application of uniform business practices and marketing standards in the new era of rooftop solar and residents becoming "virtual" DER providers through membership in community distributed generation programs.

"What we have done in other areas is we've erred on the side of being more generous in the initial phase, trying to support new markets, but then you go to try to introduce new rules [and] people go crazy," said Erin Hogan, director of the state's Utility Intervention Unit. "So in my mind, it almost seems better to start with a more comprehensive structure and take away, as opposed to trying to add when you've discovered a problem."

The PSC in March adopted a new "value stack" pricing mechanism for solar and other DER, along with two other orders to transition utilities into "distributed system platforms" and align their incentives with DER providers. The Value of Distributed Energy Resources order approved March 9 (Case 15-E-0751) began the transition away from net energy metering and toward an approach that aggregates specific value components. The number of those components will be raised over time to increase the granularity and accuracy of the valuation. (See *NYPSC Adopts 'Value Stack' Rate Structure for DER*.)

### Benefit of the Bargain

Scott Weiner, DPS deputy for markets and innovation, chaired the June 19 roundtable discussion and emphasized that "we're dealing with not the purchase of bread or the repair of a car, which has its own


Weiner


Strauss

protection, but with the provision of electricity and the opportunity of companies to enter into a marketplace, an expanded marketplace that has been created by the commission. The underlying question is, what responsibility does the commission have to make sure that end-use customers receive the benefit of the bargain that they're agreeing to?"

"Oversight is important to build consumer confidence," said Sara Margaret Geissler, manager of customer operations regulatory performance at Consolidated Edison. "We all want to create a market that they can have confidence in ... and a core part of that is making sure, or having enough guidelines to ensure, that they understand what they're signing and they know who to call if they have an issue."

Geissler represented the joint utilities at the technical conference, which also include Central Hudson Gas & Electric, National Grid (which owns New York State Electric and Gas, and Rochester Gas and Electric), Orange and Rockland Utilities, and Rockland Electric.

### Differentiate the Customers

Valerie Strauss, policy director at the Association for Energy Affordability, noted the importance of differentiating between residential and commercial customers — and between different levels of commercial customer.

"We need to look at this in terms of the risk to the consumer," Strauss said. "The current proposal is a blanket [that] kind of covers everybody. ... We would suggest that that be revisited and some changes made for the provisions to more reflective of the risk."

Strauss suggested that commercial customers could be differentiated by the number of units they control: "Certainly a mom-and-pop owner who has five buildings with 10 units each is not a sophisticated [commercial and industrial] customer. A property manager who owns 100 buildings that have 100 units each probably is."

Community DG is new in New York but not in other markets, according to Hannah Masterjohn, policy vice president at the Clean Energy Collective.

"We have pretty substantial markets in Massachusetts, in Colorado, where we've already got thousands of customers participating in projects," Masterjohn said. "When we look at our experience ... we find low complaints overall, and the vast majority are related to utility billing issues. When we're talking about community solar, the customer's paying a third-party provider, but what they're paying for is bill credits on their utility bill, so that benefit that's getting delivered to them, that's where they have most challenges."

David Sandbank, director of the New York Sun program at New York State Energy Research and Development Agency, has overseen 64,000 solar installations since 2012 and said that his program doesn't have any oversight over community DG.

"Right now, our focus is really on system performance of the main system itself," Sandbank said. "There's no specific protections for community solar subscribers in New York. ... We have provided a lot of customer education on our website and we've launched a very robust digital marketing campaign to educate potential solar customers."

Zack Dufresne, communications director at the Alliance for Clean Energy New York, asked whether the state could afford to regulate heavily.

"These regulations will take significant resources on the part of the PSC," he said, "and I'm wondering if starting off with this maximalist position, [will] the DPS staff have the resources in place for that?"

"Let's not have the tail wag the dog," Weiner said. "If we feel there are certain activities that commission staff should be engaged in, we'll make sure we have the resources."

## NYISO NEWS

# NY Bill Orders Storage Targets

Continued from page 1

and the Long Island Power Authority to set targets and develop a storage deployment program.

"This newly passed bill gives New York's PSC clear direction: set a storage target and design a deployment program by the end of 2017," said Anne Reynolds, director of the Alliance for Clean Energy New York. "This is a great signal to the storage industry that New York will be a promising place to invest. But first we need Gov. [Andrew] Cuomo to sign it into law."

The Energy Storage Deployment Program bill combined Assembly and Senate measures sponsored by Assemblywoman Amy Paulin and Sen. Joseph Griffo.

Both sponsors of the legislation pointed to enhanced reliability of the electric grid as a top benefit of increased use of energy storage, as well as the jobs expected to be created.

A NYSERDA study earlier this year found that about 4,000 workers were employed in the state's energy storage industry by the end of 2015, up 30% since 2012. The study projected the state's industry could grow from about $1 billion in revenue to up to $8.7 billion in 2030, with the number of jobs possibly exceeding 25,000.

"Storage also increases the resiliency of the electric grid by supplying power in the event of an electrical outage. The creation of an energy storage deployment program will increase the installation of energy storage systems throughout the state and accelerate these benefits," Paulin said in a statement after the bill's passage.

### Setting Targets

Because energy storage is applicable to so many electricity grid functions, a narrow focus on one area fails to capture the complete value of the technology, according to Dr. William Acker, director of the New York Battery and Energy Storage Technology Consortium.

"By analyzing the system as a whole and setting targets, you're able to create a situation where the energy storage can be adapted into a variety of different applications," Acker said. "That will open up the markets and lead to penetrations that are far greater than the targets that will have been set. The energy storage industry has made rapid technological advancement over the past few year, but equally important, the costs have dropped dramatically in terms of both the technology and the scale of production." (See *Storage Technology Still Outracing RTO Metrics, Rules*.)

Reynolds said her group looks forward to working with the PSC to create a workable program and targets.

"Since it is up to the PSC to determine the specific target by the end of December, industry members do not yet know what impact this could have," Reynolds said. "New York's ambitious renewable energy mandate is 50% by 2030. Technically speaking, we do not absolutely need storage to get there, but it can be an excellent complement to increasing renewables deployment and boosting overall system efficiency."

The state's Clean Energy Standard, part of Cuomo's Reforming the Energy Vision initiative, mandates that 50% of electricity generation come from renewable resources by 2030.

### New Commissioners on PSC

The Senate on June 21 approved NYSERDA CEO John Rhodes to serve on the PSC, along with former state Sen. James Alesi and Philip Wilcox, an official with the International Brotherhood of Electrical Workers, a union that represents power plant workers. Cuomo has named Rhodes as chair of the commission.

The Senate also reconfirmed Diane Burman for a second six-year term as commissioner after her current term ends next February. The term of Gregg Sayre, who has been serving as interim chair of the commission, also ends next year.

## PJM News

# PJM Regulation Compensation Changes Cleared over Opposition

*By Rory D. Sweeney*

WILMINGTON, Del. — The PJM Markets and Reliability Committee on Thursday endorsed a plan to change compensation in the RTO's regulation market, despite howls from some market participants that units would be shouldered with more work while receiving less pay.

Hsia

PJM's Eric Hsia said the changes resulted from staff observation that the RegD, fast-responding signal would sometimes move in the opposite direction of the area control error, exacerbating the frequency regulation problem.

Additionally, many resources were self-scheduling into the market, which amplified the response to the signal, he said. Howard Haas, the Independent Market Monitor's chief economist, later added that the current market design incentivizes self-scheduling to receive surplus payments.

PJM and the Monitor developed a package of revisions to the market that received 75% approval from the Regulation Market Issues Senior Task Force. The package would, among other revisions, replace the "mileage ratio" portion of the regulation performance credit, which proponents say doesn't correctly compensate RegD and causes load to overpay for the service. Hsia noted that discrepancy also contributed to the oversupply issue.

In connection with the task force, PJM produced a new regulation signal and requirements that were implemented on Jan. 9. (See "New Regulation Rules Improving ACE Control," *PJM Operating Committee Briefs*.)

Transitioning to the revised signals could drive the value of RegD compensation to zero, Hsia said, so the package includes a minimum "regulation rate of technical substitution" (RRTS) value of 0.65 for the first 12 months of implementation and 0.5 for the following 12 months. The RRTS terminology would replace the previous "benefit factor."

"Really, what we're trying to do there is ensure that there is going to be compensation even though there will be oversupply," he said.

Rutigliano

Tom Rutigliano, representing the Energy Storage Association, argued that PJM's plan omits necessary changes. He urged stakeholders to defer voting on the package until it includes greater detail on regulation providers' obligations, how resources' physical limitations will be incorporated into the signals and how the metric that replaces the mileage ratio will be calculated.

"We feel the Tariff language seeking endorsement today is unacceptably vague on several key market features," he said.

The revised regulation signal changed a longstanding, material market rule that made the RegD product energy-neutral, Rutigliano said. Making the change without revising the Tariff bypasses FERC review in violation of the Federal Power Act, he said. Ten unaffiliated organizations built about 285 MW of storage designed to charge and discharge equally in a 15-minute time frame, he said, but the new signal implemented on Jan. 9 has no firm energy limit and substantially changes performance requirements. Analysts at ICF say the neutrality requirement means that during steep ramp-up or ramp-down hours, RegD resources alone will not be adequate; thus RegA resources will set the market clearing price.

"This is an entire industry that received clear guidance [on] their performance obligations, invested hundreds of millions of dollars in single-purpose machines to meet those obligations and, frankly, had the rug pulled out from under them," he said. "We are asking that no participant in this market should have that happen to them without getting their day at FERC."

Hsia had noted earlier that PJM has been working with market participants to address some issues created by the new signal. He said instances of resources being asked to follow a signal for more than 15 minutes dropped to just two in the first half of June. No resources were asked to follow a signal for more than 30 minutes.

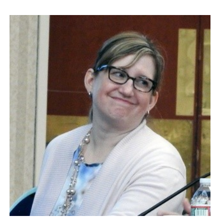
The package of revisions will also change how regulation payments are calculated, all without being codified in the Tariff. Rutigliano called this an "unprecedented" situation "where you have what is essentially an administrative pricing curve, and that curve is left entirely to the RTO's discretion."

Speaking on behalf of client Beacon Power, Gabel Associates' Gabbi Hudis said the revisions "have those resources performing additional work while receiving significantly less compensation than the RegA resources."

"I can appreciate the desire to get this right," said Gabel Associates' Mike Borgatti, representing client NextEra Energy. The rule changes are "significant" for some market participants, he said, and neglecting to include them in the Tariff set "an unhealthy precedent." Additionally, FERC's lack of quorum means it's unlikely that delaying the vote a few months will significantly impact how soon the commission will consider the issue, he said.

Haas said all of Rutigliano' s concerns were discussed by the RMISTF and that FERC orders established the RTO's authority to make changes to the regulation signal and the rate-of-substitution curve.

"What we're seeing here in terms of the PJM/IMM proposal is the result of all of those discussions, and those discussions led to 'we need to fix this issue,'" he said. "We can hold off and continue to talk about this forever, or we can take this proposal to the commission. [ESA] wants this issue to be in front of the commission. Allowing the PJM/IMM proposal to go forward will allow [that] to happen. … I think that's the appropriate place to take this."



Bruce

Susan Bruce, representing the PJM Industrial Customer Coalition, agreed that the decision should now be in FERC's hands. "These issues are now before FERC, and we would like to move the PJM/IMM

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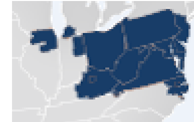
## PJM NEWS



# PJM Stakeholders Seek Story Behind Dispatch Data

By Rory D. Sweeney

VALLEY FORGE, Pa. — The plethora of data PJM provides is only useful if the grid operator also explains what it all means, stakeholders told RTO staff last week at a special session of the Market Implementation Committee on providing transparency in how market prices are developed.

John Horstmann of Dayton Power and Light said that stakeholders are not always as informed as staff about what is significant in the numbers and what is not.

"I think we're looking for more than just raw data," Calpine's David "Scarp" Scarpignato said. "We're looking for some kind of meaning."

Staff acknowledged the need for explanation. The meeting adjourned early, with Rami Dirani, PJM's facilitator of sessions on the topic, agreeing to develop a presentation on what data the RTO can provide and some ideas regarding the best way to provide them. The presentation, scheduled for the committee's next meeting July 11, will also address confidentiality and critical energy infrastructure information (CEII) considerations, he said.

Gary Greiner of Public Service Electric and Gas said that he wants to go beyond price spikes and trends and "get a seat alongside of the dispatcher as they're making their reliability decisions" to know why units are dispatched out of market, why those units weren't economic and why that isn't anticipated. PJM's current practice of reviewing the past month's results loses the advantages of instantaneous feedback, he said.

Gary Greiner (left) and Paul McGlynn, PJM senior director of system planning | © *RTO Insider*

"I don't know that that's a good model for price formation," he said.

Acknowledging confidentiality and competitive concerns, Greiner urged PJM to provide the most granularity possible to help market participants understand system dynamics, such as where circumstances are changing

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# PJM Regulation Compensation Changes Cleared over Opposition

Continued from page 23

package to allow that to occur because, in our view, currently customers are overpaying relative to the benefit that they're receiving, so we want to make sure that that doesn't continue," she said.

"Something isn't right about what we're paying for regulation right now," the PJM Public Power Coalition's Carl Johnson said in agreement. "If we do defer [a vote], we risk just taking even longer before we get to a solution on the market side."

Calpine's David "Scarp" Scarpignato added that the current processes also harm resources that provide the traditional, slower RegA service. Exelon's Jason Barker also voiced support for the revisions package.

Proponents of the deferral attempted to negotiate for a specific deadline for making a FERC filing, but Bruce and Johnson were skeptical that additional, more-focused debate — "this time, for reals," as Bruce put it, invoking youth slang — would produce any better results.

"It's hard to know whether or not there's the prospect of consensus," she said. "It seems like that conversation's happened, and there's not consensus. I'm not sure what more could be done to get there in the next two months."

Many other provisions that affect resources aren't included in the Tariff to that level of detail, Scarp said, but that's a separate conversation that goes beyond regulation rules.

"I don't think all stakeholders are in agreement that all of this should even go in the Tariff," Scarp said. "If we put every similar provision in the Tariff, instead of being 6-inches-thick, it would be 6-feet-thick."

Bob O'Connell of Panda Power Funds warned that moving the language into the Tariff instead of the Operating Agreement would shift control away from stakeholders to PJM. He later proposed developing a manual specific to the regulation market that aggregates in one place the market rules currently embedded in multiple manuals.

"If that is what the stakeholders want, I encourage you to move forward with the motion to defer," he said. "If you don't want that, if you want to continue to retain some voice in the process other than just an advisory voice, I recommend that you move forward with the RMISTF package and figure out a different way to address how to get the changes you'd like to see changed worked into the Tariff."

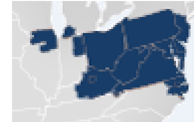
Borgatti made the motion to defer the vote, but it failed, receiving 1.61 in favor in a sector-weighted vote that had a threshold of 3.335 for passage.

John Horstmann of Dayton Power & Light reiterated disapproval with the revisions package that he's expressed previously, calling it "the final nail in the coffin" for anyone who built to the 15-minute standard.

"It's very disappointing that this can occur basically unilaterally," he said. "If we build you [PJM] a one-hour battery today, could the same thing happen a year or two down the road that you want a two-hour battery? Unfortunately, the signal it sends … is that PJM's a pretty risky place to do business because you really don't have a lot of rights when it comes to rule changes. … I've heard an awful lot of reasons why this is such a wonderful process that got us to this point, but largely, the small number [of] owners that are hugely impacted have been pretty much stonewalled through the process."

Stakeholders approved the revisions package with a 3.89 sector-weighted vote.

## PJM News



# Late Agreement with MISO Forces Another Delay on Pseudo-Ties

By Rory D. Sweeney

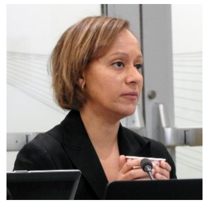
WILMINGTON, Del. — PJM again deferred a vote on the grid operator's proposed pseudo-tie *pro forma* agreement last week after stakeholders complained that revisions were not made public until the night before the Markets and Reliability Committee meeting.

"While I agree you've read the documents [during presentations at previous meetings], I don't agree that you've read the same documents … so, in a sense, they're multiple first reads," American Municipal Power's Steve Lieberman said. "People are trying to keep up with the speed at which you're making changes, but it's difficult."

CFO Suzanne Daugherty, who chairs the MRC, agreed to the delay. She said the late changes reflected language PJM and MISO had agreed to just two days prior to the meeting.

PJM had postponed a vote on the agreement at the May MRC meeting, citing ongoing negotiations with MISO, which had been reluctant to sign PJM's proposal. (See "Pseudo-Tie Discussion Postponed to Continue Negotiations with MISO," *PJM Markets and Reliability Committee Briefs*.)

PJM's Jacqui Hugee said the RTO resolved its issues with MISO by incorporating language into their Joint Operating Agreement obviating the need for the grid operators to agree to each other's pseudo-tie rules. MISO has filed its own agreement at FERC and isn't requesting approval from other grid operators or balancing authorities, she said. Other balancing authorities, including Duke Energy, the Tennessee Valley Authority and SPP, have been willing to sign PJM's agreement.



Hugee

"Whether [the unit is being tied] into PJM or into MISO, the same rules are going to apply," she said.

Some stakeholders, including Independent Market Monitor Joe Bowring, remained concerned about language that suggested that the native balancing authority (BA) would control redispatch of pseudo-tied resources in certain situations, including non-emergencies.

Hugee said the language complied with NERC standards. Mike Bryson, PJM's vice president of operations, explained that the RTO would maintain control during performance assessment hours and resources would be rewarded or penalized like any other resource under Capacity Performance requirements. In other situations, the native BA would set certain operating limits, scenarios that are also addressed in PJM's existing market-to-market flowgate procedures, he said.

"If PJM is experiencing an emergency and MISO is experiencing an emergency at the same time, MISO — according to NERC standards — has the authority to dispatch that resource because it's in their balancing authority. So what will happen is that resource will probably be penalized because they're not available to PJM during that performance assessment hour, assuming PJM would have called on them," Hugee said. "Everybody knows that's a risk they take before they pseudo-tie."

"That means that a pseudo-tied unit is not really equivalent to an internal unit, which is what the issue has been all along," Bowring responded. "I could certainly imagine someone arguing that they shouldn't have to pay a penalty because they were following NERC procedures and following dispatch instructions."

"They can argue it, but we have a provision that says if you are a Capacity Performance resource and you're not there when we call on you, you're going to get a penalty," Hugee said. "The same Capacity Performance rules apply to everybody, whether you're physi-

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# PJM Stakeholders Seek Story Behind Dispatch Data

Continued from page 24

and what's causing it. And while he also acknowledged the importance of not making dispatchers so preoccupied with how their actions will be perceived that they hesitate to make the right decisions, he cautioned against relying on a dispatcher's "experience and intuition" to dictate a "significant portion" of dispatch.

"As much of that as we can push into the algorithms embedded in the models, the better we are — and we won't know that unless we can see it," he said.

The goal for PSE&G, he said, is to make decisions as predictable as possible so market participants can anticipate situations and act on them as quickly as possible.

"I don't have a sense of what's going on there," he said. "When dispatchers are taking out-of-market actions, I'd like to know what they are and why they're taking them … to get closer to a more transparent dispatch that we all understand."

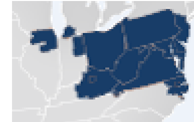
Joe Ciabattoni, who manages PJM's market coordination, said MISO's forecast reports offer more granularity, which PJM is studying and plans to include in its reporting. PJM's security-constrained economic dispatch engine provides forecasts of various intervals, including "very short-term," "short-term," "intermediate-term" and "real-time," he said, adding that staff will consider what data from each category could provide meaningful information for stakeholders.

"Historically, we've always reported on the overall forecast because years ago, before we had sophisticated applications, that's all that really mattered," he said.

Dirani said he would begin compiling information in response to the group's interests. He asked stakeholders to provide, as soon as possible, any additional issues PJM should examine and be prepared to fully evaluate all of them for the next meeting.

"I have some homework," he said. "So do you."

# PJM News



## Load Blocks TO Effort to Extend Hiatus of PJM Transmission-Replacement Talks

*By Rory D. Sweeney*

WILMINGTON, Del. — An informational update on PJM's Transmission Replacement Processes Senior Task Force at the end of the Markets and Reliability Committee meeting last week turned into a hotly contested debate and impromptu vote.

Tonja Wicks (left) and Gloria Godson | © *RTO Insider*

The result was that the task force is still on target to resume on July 28. It has been on hiatus since an MRC vote in September, about a month after PJM and Transmission Owners received an order to show cause from FERC to determine whether the TOs are complying with their local transmission planning obligations for supplemental projects under Order 890. The hiatus, requested to focus on responding to the show cause order, was extended until July at the February MRC. (See *FERC Orders PJM TOs to Change Rules on Supplemental Projects*.)

In his presentation, PJM's Fran Barrett noted the "predominate desire" of TOs to continue the suspension of the task force and transmission customers' "uniform desire" to lift resume task force meetings.

The TOs filed their initial response to the show cause order on Oct. 25 and followed up with responses to comments on its filing a month later. The TOs insisted their Operating Agreement already complies with Order 890 but proposed a Tariff amendment providing additional detail regarding the process for planning supplemental projects (EL16-71).

FERC assured the order would be finalized by January, according to Barrett. But the commission didn't rule on the TOs' response before losing its quorum in February.

"We're locked in the horns of an MRC-directed process versus a FERC-directed process, and we're looking for guidance for how to take that forward," he said.

Chris O'Hara, PJM deputy general counsel, stressed that the RTO doesn't have approval authority over TO supplemental projects. "PJM is ready to engage on these topics. However, that engagement might be more productive after FERC takes action on" the situation, he said.

Representatives of several TOs — including Public Service Enterprise Group's Alex Fried, PPL's Frank "Chip" Richardson, Exelon's Gloria Godson and Duquesne Light's Tonja Wicks — all advised that they would attend task force meetings once the hiatus has ended, but they likely will not be able to make many decisions until the FERC action is resolved. The circumstances that precipitated suspending the task force in the first place haven't changed, they said.

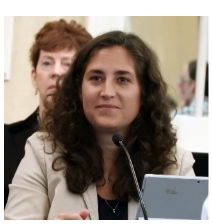
Continued on page 27

## Late Agreement with MISO Forces Another Delay on Pseudo-Ties

Continued from page 25

cally internal or you're tying into PJM from another balancing authority."

PJM also incorporated in the agreement a provision allowing it to suspend a resource. If the RTO intends to cancel an agreement, it likely won't want the tied unit operating during the 60-day notice period for cancellation, Hugee said. She also introduced an accompanying agreement for dynamic scheduling but said that will be brought for vote at a later meeting.



McAlister

AMP's Lisa McAlister asked how the agreement will affect collecting congestion charges from the resource to the RTO border and if it resolves the double-charge issue. Hugee said that topic isn't being addressed in the current agreement and that it will be filed in concert with MISO as JOA revisions in a separate docket at FERC. PJM believes the congestion charge filing is likely to be challenged as there are already five pending complaints on the issue, Hugee said. The RTO hopes the filing on agreements will not be challenged and may win commission approval even without a quorum.

Hugee said that, while the Tariff and JOA revisions for the agreement will require separate dockets, PJM wants to file all of them contemporaneously and have them reference each other.

"The plan is to file one big packet because I'd like to resolve everything at once, and it makes sense to do it that way," she said. "We [would] … explain to FERC that it's very important that all of these things get approved [together] … so that we can alleviate that concern about getting out of sync of one getting approved and the other not getting approved."

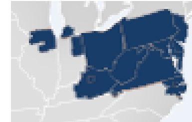
Hugee said that if the agreement needs to be "tweaked" for individual units, she would ensure it remains in accordance with the JOA.

Carl Johnson, representing the PJM Public Power Coalition, was the first to suggest deferring the vote. He said he couldn't vote in favor of the package at the meeting because some of his members hadn't yet reviewed the current version of some of the documents, but that he "probably could get to a point where we could support it" by the MRC's July meeting. Lieberman said AMP also couldn't vote in favor of the changes at the meeting. He said it is still attempting to figure out how PJM handled the revisions it had recommended, which it couldn't find in the current versions.

Hugee said PJM and MISO have committed to filing the agreement with FERC by July 27, the same day as the next MRC meeting.

"Maybe we'll have to ask them for a couple of days," Daugherty said, then announced that PJM would be deferring the vote until the July MRC and Members Committee meetings.

## PJM NEWS



# MRC/MC Briefs

## Markets and Reliability Committee

### Manual Revisions Approved

WILMINGTON, Del. — Stakeholders endorsed by acclimation several manual revisions and other operational changes:

- Manual 14A: Generation and Transmission Interconnection Process. Revisions to the manual and the Tariff were developed to allocate reinforcement costs of less than $5 million to all projects in a queue that add load to the violation causing the need for the reinforcement. Also removes alternate queue screening, allowing projects to be evaluated for impacts once the point of interconnection has been established. (See "Should I Stay or Should I Go? PJM Still Searching for Resolution to Interconnection Queue Issues," *PJM Planning and Tx Expansion Advisory Committees Briefs*.)
- Manual 14C: Generation and Transmission Interconnection Facility Construction. Revisions developed to incorporate the minimum engineering design standards developed by the Designated Entity Design Standards Taskforce for competitively solicited projects for transmission lines, substations and "system protection and control design and coordination." (See "Competitive Planning Components Endorsed; Pieces Remain," *PJM Planning & Tx Expansion Advisory Committees Briefs*.)
- Manual 14F: Competitive Planning Process. A new manual that consolidates PJM policies implementing FERC Order 1000. (See "Competitive Planning Components Endorsed; Pieces Remain," *PJM Planning & Tx Expansion Advisory Committees Briefs*.)
- Manual 20: PJM Resource Adequacy Analysis. Revisions developed to address changes to modeling of zonal and global locational deliverability areas for capacity emergency transfer objective calculations. (See "ISO-NE out of this 'World,' According to PJM Reserve Requirement Study," *PJM Planning Committee/TEAC Briefs*.)
- Manual 28: Operating Agreement Accounting. Revisions conform with FERC order in docket ER16-121-001 requiring allocation of balancing congestion and real-time market-to-market payments to real-time load plus exports on a *pro rata* basis RTO-wide. (See "FERC Finds PJM ARR/FTR Market Design Flawed; Rejects Proposed Fix" and "FTR Revisions Continue Forward," *PJM Market Implementation Committee Briefs*.)
- Manual 39: Nuclear Plant Interface Coordination. Revisions clarify that nuclear operators must communicate any limiting conditions affecting interface requirements following notification of a grid-side event. The revisions, which include limits on the operability of offsite power sources, are intended to ensure that PJM and the transmission owner local control center have situational awareness of nuclear plant conditions.

## Members Committee

### Stakeholders Endorse Consent Agenda

Stakeholders endorsed by acclimation the committee's consent agenda, which included Operating Agreement and Tariff changes:

- Operating Agreement and Tariff revisions requiring solar generators to provide meteorological and forced outage data — previously only required from wind generators — in compliance with FERC Order 764. (See "Solar Forecast Is Coming," *PJM Planning and Tx Expansion Advisory Committees Briefs*.)
- Operating Agreement and Tariff revisions creating a method for compensating pseudo-tied generators and dynamic schedules, which are not eligible to submit meter correction data, as permitted for internal generators and tie lines. (See "Meter Correction Initiative OK'd," *PJM Market Implementation Committee Briefs*.)
- Operating Agreement and Tariff revisions related to annual revenue requirements for new black start units. Sets deadlines for the submittal and review of new black start units' capital, variable and fuel storage costs; policies for allocating costs to network service customers and point-to-point reservations. (See "New Black Start Units Will Have New Annual Revenue Require-

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# Load Blocks TO Effort to Extend Hiatus of PJM Transmission-Replacement Talks

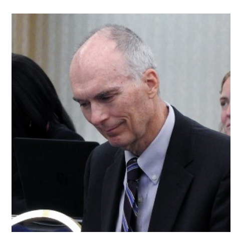
Continued from page 26

Godson motioned to continue the hiatus, and Fried offered a friendly amendment to extend it until FERC rules on the issue and reconsider options if nothing has changed by December. "I don't think our attorneys would sanction our involvement under a show cause order," Fried said.

Carl Johnson of the PJM Public Power Coalition said he appreciated the "intellectual honesty," but that he would oppose the motion because there are other issues on which the task force could be productive. Susan Bruce, representing the PJM Industrial Customer Coalition, and American Municipal Power's Lisa McAlister also opposed the proposal.

"AMP thinks there's valuable work to be done [before] a FERC order," McAlister said. "We're getting a piecemeal change process that's the result of, frankly, AMP being a very squeaky wheel. … We don't think that's the best procedural way for making these changes."

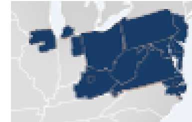
American Electric Power's Dana Horton said there are plenty of other issues to focus on at PJM that aren't under the auspices of a show-cause order. He supported extending the hiatus so stakeholders don't have to waste time on unproductive discussions. "We don't want to expend resources to just look at each other," he said.



Horton

The motion to extend the hiatus failed with 1.79 in favor in a sector-weighted vote that had a 3.335 threshold for passage.

**PJM NEWS**



# DC Circuit Rejects Challenge to PJM CP Rules

*By Rory D. Sweeney and Rich Heidorn Jr.*

The D.C. Circuit Court of Appeals last week denied eight challenges to PJM's controversial Capacity Performance market rules, potentially cementing fundamental changes to the RTO's capacity market that critics believe were hastily enacted and unjustifiably increase costs (16-1234).

CP was implemented following a blackout scare in January 2014 when the polar vortex dipped unusually low across the northern U.S. and created record-low temperatures. As much as 22% of PJM's fleet failed to operate when dispatched, despite being contracted through the capacity market.

The new rules introduced year-round performance requirements for capacity resources along with incentives to perform and steep penalties for failing to do so.

Critics of the new rules argued they would increase the cost to secure capacity by billions of dollars. After FERC approved the changes in June 2015, challengers petitioned the commission for a rehearing, which the commission denied.

Nine organizations challenged FERC's denial in court. The ensemble is a somewhat unusual partnership of environmental groups (the Natural Resources Defense Council, Sierra Club and Union of Concerned Scientists), representatives of utilities (the American Public Power Association, the National Rural Electric Cooperative Association and the Public Power Association of New Jersey), the Advanced Energy Management Alliance, which represents demand response resources, American Municipal Power, which represents both utilities and resources, and the New Jersey Board of Public Utilities.

## FERC's Reasoning Upheld

The ruling by Judges A. Raymond Randolph, Janice Rogers Brown and David B. Sentelle was unanimous. The court ordered the clerk to withhold issuance of the mandate resulting from the ruling to give the plaintiffs time to file petitions for rehearing before the three-judge panel or the full court.

Left to right: Judges A. Raymond Randolph, Janice Rogers Brown and David B. Sentelle

The court's decision points out that FERC acknowledged the increased capacity costs but cited a study that estimated the new rules would create an annual net savings of potentially billions of dollars starting in 2016. The fact that the study used a penalty that was higher than FERC approved was immaterial, the court found.

"The savings come from the penalty successfully increasing reliability," the court said in its decision. "Even with a lower penalty, the net savings may be substantial."

FERC "does not have to find net savings" to approve proposed changes, the court found, and higher costs can be warranted if they increase reliability. FERC said the revisions would do that and also help avoid energy price spikes.

## Year-Round Resource Requirement

PJM's requirement that all CP resources be year-round attracted opposition from nu-

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# MRC/MC Briefs

Continued from page 27

ments," *PJM Markets and Reliability Committee Briefs*.)

## Stakeholders Endorse Third Phase of PJM's Uplift Solution Despite Opposition

Members strongly endorsed the third phase of PJM's plan to address uplift, despite opposition from financial stakeholders.

Attorney Ruta Skucas, who represents the Financial Marketers Coalition, reiterated her clients' opposition to the proposal, which she said will substantially reduce up-to-congestion transactions. The proposal limits increment offers and decrement bids to "locations where the settlement of physical energy occurs," where they compete directly with physical assets or trading hubs, and where traders can take forward positions. Up-to-congestion transactions would be limited to hubs, zones and interfaces — locations that are large aggregates. (See *PJM MRC OKs Uplift Solution over Financial Marketers' Opposition*.)

The proposal was endorsed with 4.16 in favor in a sector-weighted vote, surpassing the 3.335 threshold.

PJM's Dave Anders explained that the RTO hasn't filed any of the endorsed uplift proposals yet because the dockets are likely be challenged, which means they will have to wait until FERC has a quorum again. Another consideration is avoiding the period between November and March of next year, when PJM plans to make its filing on five-minute settlements, he said.

"To the extent that we can get something filed with FERC and get approval by FERC before that to allow implementation before November, we would do that," he said. "If FERC would be not in a position to approve for then, we'd be looking for implementation afterwards."

The third phase of the solution isn't impacted by five-minute settlements, so it will likely be filed separately, CFO Suzanne Daugherty explained.

Independent Market Monitor Joe Bowring urged filing as soon as possible. "The fact that there's no quorum doesn't mean that they're not creating a queue, and it's better to be at the front of the queue than at the back of the queue," he said.

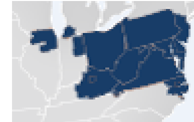
## Members Celebrate Ott's Birthday

Stakeholders celebrated the birthday of PJM CEO Andy Ott with a personalized cake.

In other news, Anders announced the RTO now has 1,008 members.

*— Rory D. Sweeney*

PJM NEWS



# DC Circuit Rejects Challenge to PJM CP Rules

Continued from page 28

merous groups.

NRDC, Sierra Club and UCS said that the requirement discriminated against seasonal generation such as wind and solar — despite the RTO's offer that winter-only resources could aggregate with summer resources — because aggregation imposed "transactional costs."

AMP, meanwhile, said aggregation should also be open to traditional resources.

The judges said none of the challenges persuaded them to question the commission's judgment. "The commission's policy decision to assess reliability through a year-round capacity commitment is the type of policy judgment to which we afford deference, and that deference is justified by the record," they said. "The law provides no basis to claim the commission cannot approve uniform performance requirements simply because those requirements will be easier to satisfy for some generators than for others."

### Demand Response

AEMA had problems with CP's impact on DR, challenging PJM's proposal to use separate formulas for calculating expected consumption during summer months and non-summer months.

The group said it supported the "peak load contribution" method for the summer, which is based on a DR customer's contribution to the five hours of the previous year when systemwide demand peaked. It opposed the "customer baseline load" method for non-summer months, which is based on the customer's contribution to the system's load for the four days of peak systemwide load during the most recent 45 days.

"Because it was reasonable for the commission to accept PJM's proposal to use the recent-peak method for non-summer months and any alleged departure from past practice was adequately explained, we defer to the commission's determination on this issue," the court said.

AEMA Executive Director Katherine Hamilton said the court rebuff means consumers will face reduced choices and higher prices because residential DR and renewable resources "could be forced out of the market altogether."

"In the recent auction, the amount of demand resources — both offered and cleared — fell by thousands of megawatts compared with previous years. PJM has now effectively ceded jurisdiction for monetizing these competitive products in the capacity markets, and it will be up to state commissions located in PJM to determine how these products will be operated going forward," she said in a statement. "As AEMA considers legal options moving forward, we will continue working within the PJM stakeholder process on wholesale competitive market issues and with state commissions on demand response solutions for consumers."

### Procedural Challenge

The court also rejected challenges by APPA, NRECA and PPANJ to PJM's filing of proposed changes to the capacity market under Federal Power Act Section 205 and its simultaneous Section 206 complaint proposing replacements for energy market rules it said were no longer just and reasonable.

PJM could not file changes to the Operating Agreement under Section 205 because it did not seek stakeholder approval of the changes.

The public power groups argued that the commission could not accept PJM's Section 205 filing as just and reasonable while simultaneously finding that the filing rendered the Operating Agreement unjust and unreasonable under Section 206. "In effect, FERC found that PJM had created the factual premise and legal basis for FERC to order a change in rates that PJM could not have unilaterally made," the groups said. "This bootstrapping of results is impermissible."

The court said the petitioners failed to "explain why PJM's Section 205 filings regarding the capacity market necessarily must complement existing energy market agreements to be just and reasonable" and cited "no precedent for their theory that the commission was required to act 'under Section 206 alone.'"

"We therefore see no reason why the commission was not entitled to approve changes under Section 206 in anticipation of the impacts of the Section 205 filing rather than wait for those impacts to be realized," the court ruled.

### Penalties Too Low

PPANJ and the New Jersey BPU contended the CP penalties for resources that fail to meet their capacity commitments during an emergency hour were too low to ensure performance.

The commission approved a penalty rate equal to one-thirtieth of the net cost of new entry per megawatt-hour of shortage. The petitioners said the 30-hour denominator — based on the number of emergency hours in 2013-2014 — was too high, resulting in a penalty that was too low.

"The commission had good reason to conclude that the formula results in a high enough penalty to encourage resources to meet their capacity commitments," the judges said. "The commission decided the penalty was also low enough to avoid introducing 'excessive risk' into the capacity market. Too high a penalty could discourage even reliable resources from entering the market. We defer to the commission's balancing of these competing concerns."

### Default Offer Cap

Also rejected was a complaint by the BPU and four organizations representing utilities that PJM's default offer cap, meant to reflect the CP penalties and bonuses, is too high. PJM would only include an offer above

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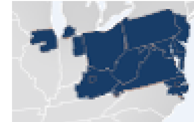
**"The law provides no basis to claim the commission cannot approve uniform performance requirements simply because those requirements will be easier to satisfy for some generators than for others."**

**DC Circuit**

## PJM NEWS



# DOE Approves Emergency Dispatch of Yorktown Units

By Rory D. Sweeney

PJM last week secured U.S. Department of Energy approval to dispatch Dominion Energy's recently shuttered Yorktown coal-fired plant to address potential reliability issues on Virginia's Middle Peninsula.

Dominion Energy

Dominion, which closed the plant in April to comply with an EPA mandate, said it anticipated the department's order and is prepared to restart both units at the plant as necessary.

Energy Secretary Rick Perry granted PJM's request for a 90-day window to dispatch the units as necessary to "maintain grid reliability," and the order can be renewed upon request indefinitely if the situation remains unchanged. PJM and Dominion are required to create a dispatch methodology and submit what dates the units are operated, along with estimated emissions and water usage, to the department.

"While this is not a long-term solution to the reliability issues, Dominion Energy supports PJM's action and the DOE decision, and will work to ensure the units' availability as required," Dominion spokesperson Bonita Billingsley Harris said in an emailed statement.

### Stalled Project

The order stems from Dominion's difficulty in gaining approval for the proposed Surry-Skiffes Creek 500-kV transmission line across the James River, which has for years faced opposition from local and environmental activists. Approved by the PJM Board of Managers in 2012, the transmission project remains stalled pending permit approval from the Virginia Marine Resources Commission (VMRC) and a waiver from the state Department of Environmental Quality for water quality certification. The U.S. Army Corps of Engineers issued a conditional permit earlier this month that requires approval from both agencies.

The project will additionally require a special-use permit from the James City County Board of Supervisors. Members of the public will have the opportunity to weigh in during both the VMRC and county permit hearings, Harris said.

Dominion estimates the line would take at least 18 months to construct after all permits are approved. The company had hoped to complete the project prior to closing the Yorktown units, which are among the few generators able to serve load in the populous but isolated North Hampton region.

While Dominion sought to shutter Yorktown by 2014 to avoid expensive emissions upgrades required by EPA's Mercury and Air Toxics Standards, PJM required the units to remain operational to maintain reliability on the peninsula in the absence of the proposed line. State and EPA approvals extended the shutdown deadline several years, but applicable extensions finally ran out on April 15 and Dominion closed the doors.

Dominion warned that failure to build the line before shutting down the units could result in blackouts, an assertion opponents dismissed as scare tactics. In February, the company provided PJM a regional remedial action scheme that calls for dropping service to approximately 150,000 customers in the event of an emergency in order to prevent potential voltage collapse from N-1-1 contingencies. (See *Opposition to Va. Tx Line May Trigger Unintended Consequences*.)

### No Surprise

The order didn't catch Dominion by surprise.

"When it became apparent we would not receive approvals in time to complete the new transmission line before the coal units had to be retired, we pursued an aggressive plan of equipment upgrades, enhanced inspections, maintenance scheduling and contingency preparations to protect energy reliability on the Virginia Peninsula until the permanent solution could be put in place," Harris said.

While the company was prohibited from running the Yorktown units after April 15, its contingency plans included keeping them in operating condition in case of an emergency, she added.

Despite its potential open-ended approval to run the units, Dominion said it remains committed to shutting them down and building the transmission line.

"This law protects PJM and Dominion from civil or criminal liability or citizen suit, but it is our intention to continue moving forward as quickly as possible to build and energize the transmission project limiting the time these units will operate to ensure the best environmental outcome," Harris said.

# DC Circuit Rejects Challenge to PJM CP Rules

Continued from page 29

the cap in the capacity auction if it determines it is cost-based.

The court rejected complaints the cap could increase capacity costs, saying "increased capacity prices are necessary" to encourage entry of new, reliable resources. "Resource owners need to be able to offer capacity at a higher price in order to recover the costs of improvements," it said.

### Unit-Specific Constraints

AMP challenged the imposition of penalties on CP resources that fail to perform because of unit-specific constraints, saying it was inconsistent with energy market rules, which require PJM to cover resources' costs if it schedules the them to run outside of their parameter limits.

"Given the different purposes of the capacity market and the energy market, there is no inconsistency in treating the operating-parameter limitations differently in the two markets," the court said.

## FERC NEWS

# After 10 Years, Time to Prune Reliability Standards, FERC Told

Continued from page 1

bility report, from which CEO Gerry Cauley recounted some key statistics in his opening remarks. (See NERC: Despite Solid 2016, Grid Threats Remain.)

"Bulk Power System reliability remains very high and continues to show year-over-year improvement," Cauley said. "Industry has been very responsive to our risk-based approach and has been shifting resources to fix the most critical challenges to reliability. … These standards have had a major impact on reducing risk. Over time, we've seen a dramatic decline in the number and severity of compliance violations."

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But Cauley and many other panelists said it was time for another "Paragraph 81" process, referring to a provision in the commission's March 2012 approval of NERC's Find, Fix, Track and Report process that directed the organization to identify requirements that do little to protect reliability and could be removed. FERC ended up approving the retirement of 34 such requirements (RC11-6, et al.).

"It may be time to focus again on streamlining the requirements to ensure the investment in compliance is commensurate with the reliability gains," Cauley said.

### Risk-Based Approach

Speaking on behalf of the Large Public Power Council, Steven Wright, general manager of the Chelan Public Utility District in Washington state, wanted to go a step further. The risk-based approach hasn't reduced Chelan's documentation requirements: Of the 1,236 requirements and sub-requirements applicable to the utility, only four qualify for self-logging, Wright said.

He suggested that entities be granted waivers from certain standards if the IRA indicates their implementation of them doesn't affect the grid.

Cauley disagreed with that idea, calling it an "optional menu." NERC's Regional Entities "legally have the discretion today to monitor and enforce whichever standards we feel suit an individual entity. And that's really the purpose of the Inherent Risk Assessment. … I think the regions could do a better job of explaining that and explaining what could be looked at.

"But I don't think it makes sense to take a North American set of standards and create sort of a little checklist matrix for each entity. The standards are the standards."

Wright also suggested that there be more incentives for entities' standard compliance, which Commissioner Colette Honorable pushed back on.

"I have a 16-year-old daughter, and she gets good grades. But I think she could get better grades," she said. "So do I reward her for … getting the grades she should be getting anyway?"

Wright did not directly respond to the question of carrot vs. stick, but he made clear he felt LPPC's members haven't gotten enough "bang for our buck."

"We are spending a lot of money" on IRAs and Internal Controls Evaluation, another RAI component, he said. "And I think it's a good thing because we're improving reliability, but if we can find efficiencies we should get them."

### 'Special Assessment' on Gas Dependence

Acting FERC Chair Cheryl LaFleur asked what the commission or NERC should be doing to account for the increasing reliance on natural gas pipelines for baseload power. She pointed out that FERC has no jurisdiction over the reliability of natural gas pipelines (which belongs to the Transportation Department's Pipeline and Hazardous Materials Safety Administration), but it does have jurisdiction over those who burn the gas.

"Should we be changing our planning standards in some way to take that potential loss of the pipeline into account or the gas storage" site? she asked. "Aliso Canyon brings that into the front of the discussion."

Cauley responded that NERC is working on a special assessment report on the issue. The organization has been analyzing key pipelines and storage facilities and the potential impact of losing them on the grid.

"It will be clear from this report, I believe, that you should be planning for the loss of a most critical, most impactful facility, including if it's on a gas system," he said. "I am concerned that you have certain reliability standards and expectations on an electric system and what I consider a foundational piece — the fuel deliverability piece — doesn't have an equivalent."

Patricia Hoffman, acting assistant secretary of the Energy Department's Office of Electric Delivery and Energy Reliability, suggested that grid operators do assessments to determine how dependent regions are on one fuel source.

### Cybersecurity

The threat of cyberattacks took up a sizeable portion of the daylong conference.

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# FERC NEWS


## Honorable Says Goodbyes

Continued from page 1

"And it wasn't!" interjected Honorable, whose term ends June 30. (See No 2nd Term for FERC's Colette Honorable.)

"And I equally hope that today, but I'm less sanguine that there'll be a lot of other times," LaFleur continued. "I think you've brought so much … to the commission, particularly with your focus on customers and your constant reminders about the need to work with our state colleagues. … I will really miss having you here."

Honorable thanked FERC staff at length and told LaFleur that "It's been an honor to work with you.

"This has been the highest honor of my professional career," she concluded. "And it's so much so because of the men and women I've done it with. So thank you so much."

**MARC Appearance**

At the Mid-America Regulatory Conference in Chicago earlier in the week, Honorable played it coy at a luncheon address to fellow regulators, friends and attendees. It was her only appearance during the conference, but it kept her long MARC attendance streak alive.

"I should have had a T-shirt made up: 'I haven't announced when I'm leaving, and I haven't announced what I'm doing,'" she said.


Honorable speaks at MARC | © RTO Insider

Honorable will spend at least the next two years in D.C. Call it returning the favor to her 16-year-old daughter, Sydney, who is still in high school.

"She loves it [in D.C.]," Honorable said. "I owe it to her. She was very good when I moved there."

Honorable was nominated by President Barack Obama in August 2014 to fill the remainder of former Commissioner John Norris' term. She was unanimously confirmed to the post by the Senate later in the year.

Pennsylvania Public Utility Commissioner Robert Powelson and Neil Chatterjee, senior energy policy adviser to Senate Majority Leader Mitch McConnell (R-Ky.), are awaiting a vote by the full Senate to fill two vacant Republican seats on the commission. The five-member body has been without a quorum since former Chairman Norman Bay resigned in February.

Powelson is president of the National Association of Regulatory Utility Commissioners, a post Honorable once held.

"I'm looking forward to when Rob joins us at FERC, or joins Cheryl," Honorable said, a sly comment some in the audience missed.

An Arkansas native, Honorable was named to the state's Public Service Commission in 2007. She chaired the PSC from January 2011 until January 2015, succeeding Paul Suskie, now SPP's executive vice president of regulatory policy and general counsel, and one of her "work husbands." (Her real husband died shortly before her FERC nomination.)

Acknowledging "uncertain times for regulators," Honorable had some words of advice for those in her profession.

"We absolutely must protect our ability to work independently, no matter who is in office," she said. "I want to urge you to stay true to that. I would have been shocked if the White House called and asked me to vote on something in a certain way. Keeping the lights on, reliably and safely, does not have a political or ideological bent."

Honorable's fellow regulators responded with a standing ovation, perhaps her last as a FERC commissioner.

She has no regrets about her decision.

"At the end of the day, I'm proud I kept the consumers first in my work," she said. "It doesn't mean I've been anti-business. In fact, I was shocked to read an article that described me as pro-business. It just shows I can work pragmatically by bringing together people from both sides of the aisle."

## Time to Prune Reliability Standards, FERC Told

Continued from page 31

NERC Chief Security Officer Marcus Sachs revealed that the organization had only learned about the most serious threat to date — malware known as CrashOverride — days before it was made public by two cybersecurity firms earlier this month. The program, which can control circuit breakers via supervisory control and data acquisition (SCADA) systems, was used last December to briefly cut power to about one-fifth of Kiev, Ukraine. (See Experts ID New Cyber Threat to SCADA Systems.)

Sachs recounted that NERC learned of CrashOverride on the afternoon of Friday, June 9. ESET, a Slovakian antivirus software provider, had contacted Maryland-based Dragos, asking it to review its findings before it publicized them on Monday. Dragos then contacted NERC, which worked over the weekend reviewing ESET's work and producing a report. Dragos also produced its own report over the weekend.

"If we didn't have those public-private partnerships already existing, we would have failed that weekend, and you would have had a huge media splash on Monday morning that none of us would have been ready for," Sachs said.

Many experts believe hackers based in Russia are behind the attacks on Ukraine, which Sachs said has been under "relentless assault" for the past couple years: Banking, railroads and Internet service providers have all experienced disruptions.

But while everything points to Russia, it is also possible individuals posing as Russians are behind the attacks, Sachs said.

Speaking to *RTO Insider*, Sachs pointed to the Solar Sunrise incident in 1998, in which two teenagers from California attacked Defense Department systems and led the military to believe they were from Iraq. "Just because it looks like a duck, smells like a duck, quacks like a duck — it may be a moose," he said.

There was considerable discussion about understaffing at the entities responsible for protecting against cyber threats. Many agreed that the supply of qualified cyberse-

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## FERC News

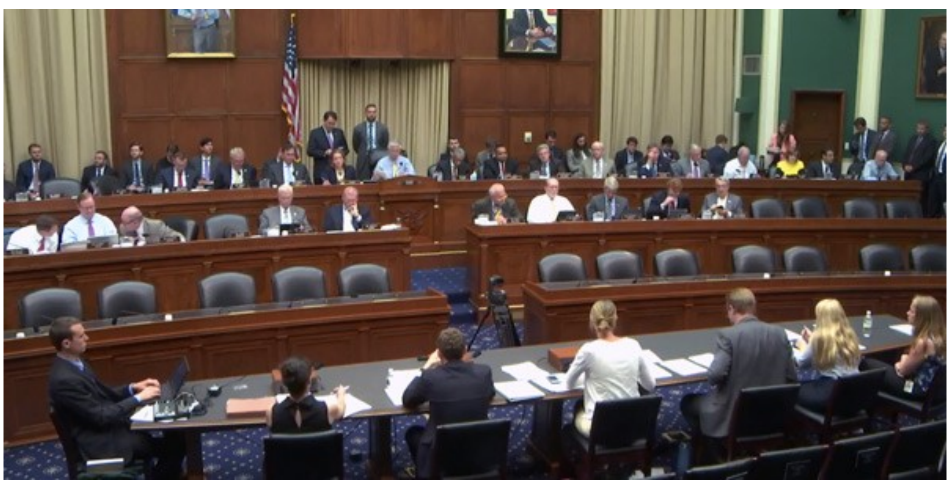
# House Panel OKs Bill Expanding FERC Hydro Authority

Continued from page 1

pipelines, electric transmission and grid security — to the full committee despite complaints from Democrats about the Republican-controlled process for drafting the bills and on the substance of some clauses.

The hydropower legislation modifies the definition of renewable energy under the Energy Policy Act of 2005 to include hydropower and designates FERC as the lead agency for federal authorizations, granting the commission discretion to extend preliminary permits and the time limits for construction.

"As we always strive to do, these bills have been drafted with bipartisan input, and in large part we're picking up where we left off with on last year's energy bill conference," subcommittee Chair Fred Upton (R-Mich.) said in his opening remarks.



House Energy and Commerce Committee Subcommittee on Energy

### Not a 'Murmur'

Ranking member Bobby Rush (D-Ill.) disagreed with Upton's take on the proceeding.

Rush said that despite coming to negotiate in good faith, two of the bills presented for the markup — the hydropower policy and the Promoting Interagency Coordination for Review of Natural Gas Pipelines Act (H.R. 2910) — "are vastly different from the discussion drafts that had been part of the staff negotiations."

Upton

Rush

The two bills did not reflect any of the changes sought by Democrats, such as not allowing aerial surveillance to supplant on-the-ground inspection of proposed project sites. They "instead moved in the opposite direction and are even more problematic for our side to accept," Rush said. He added that Upton had not responded to the Democrats' request for a hearing on the hydropower policy legislation with officials from the departments of Interior, Commerce and Agriculture.

"This is yet another instance where once again, Mr. Chairman, our side is left to wonder whether we will ever hear directly from the administration on any bill or topic in our jurisdiction," Rush said. "Where is the administrator of the EPA, and where is the Secretary of Energy? Six months into the Trump administration and we haven't heard a murmur from the administrator or the secretary, and it's high time that we hear from those in the administration who have responsibilities to this subcommittee and to the Congress."

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# Time to Prune Reliability Standards, FERC Told

Continued from page 32

curity workers is too small to meet the very high demand.

"At the state level, we're generally not staffed for this type of thing," New Hampshire Public Utilities Commissioner Robert Scott said. "We don't have the expertise."

"The electric utility, 30 years ago, was the place to go to out of college," said Greg Ford, CEO of Georgia System Operations, a cooperative that provides power to half the households in the state. "Today it's harder and harder to lure those college students."

"It's easier to find individuals who are familiar with cybersecurity when it comes to traditional [information technology] and Windows-based infrastructure," said David Ball, director of AEP Transmission Dispatching. "The more difficult skill set to find today is … a power-based background" and familiarity with SCADA.

"People with these type of skills are very marketable and they're very mobile," Scott agreed. "At the state level, we can't hope to attract those type of people."

Sachs pointed out, however, that middle and high schools are increasingly sponsoring competitive cybersecurity exercises and students are competing in "hack-a-thons."

"This is good news," he said. "And it's something we need to leverage. … Getting into cybersecurity is absolutely what we want these young kids to do."

"All I can say to that is 'Amen,'" Honorable replied.

## FERC NEWS


# House Panel OKs Bill Expanding FERC Hydro Authority

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### Minor Amendment

The subcommittee also discussed drafts of the Enhancing State Energy Security Planning and Emergency Preparedness Act of 2017; an amendment to the Federal Power Act related to qualifying a conduit hydropower facility (H.R. 2786); and the Promoting Cross-Border Energy Infrastructure Act (H.R. 2883).


Pallone

The subcommittee agreed to an amendment to H.R. 2786 — offered by the ranking member of the full committee, Rep. Frank Pallone (D-N.J.) — to reduce the public comment period on facilities from 45 days to 30, rather than the 15 days set out in the draft legislation, which Pallone thought insufficient. The proposed law also would lift the 5-MW cap on what constitutes a conduit hydro plant.

Other Democratic-sponsored amendments did not win acceptance, with the subcommittee dividing on party lines. Democrats voted to forward all the bills except for H.R. 2910.

Walden

Rep. Greg Walden (R-Ore.), chair of the full committee, said "We've learned that oftentimes dozens of agencies are involved in the permitting process, so it's time that we address these issues head-on and improve the federal licensing procedures and processes to ensure that we get these projects to market sooner for consumers."

The bill to streamline gas pipeline permitting substitutes "safety for expediency," Rush said. Republican members voted down his proposal to cut a section of the bill, "so that states, tribes and local community stakeholders can continue to play an important role in the pipeline permitting process."

Castor

Rep. Kathy Castor (D-Fla.) proposed another failed amendment that would have the Office of Management and Budget determine if the legislation would duplicate other federal efforts or result in wasteful government spending.

### More Dissent

Pallone said he was "deeply concerned" over the process the subcommittee had used for the markup.

"The draft released on Tuesday night [June 20] not only failed to address any of the concerns we raised, but actually went so far as to add new sections taken directly from provisions of last year's Senate energy bill that we had explicitly rejected," Pallone said. "And this does not bode well for making this a bipartisan process."

Pallone added that Upton had marked up changes on legislation on state energy security plans that Democratic members first saw Tuesday night and that was never the subject of a legislative hearing or member-level discussion. And the gas pipeline bill was a "completely new and different bill" from the one discussed in May, he said.

"I hope today's issues represent an aberration and not a new and unfortunate way of doing business," Pallone said.

Subcommittee Vice Chairman Pete Olson (R-Texas) mentioned that Tropical Storm Cindy the previous day had hit the nation's first LNG export terminal, Sabine Pass on the Texas-Louisiana border, and led to the evacuation of several offshore rigs in the Gulf of Mexico.

"These threats are real, and as cyber threats evolve, let's get this right," Olson said. While Texas isn't famous for hydropower, it is an important baseload power and should be developed without hindrance, he said.

"Lastly, on pipelines, we need these reforms. We've seen time and time and time again that the process takes too long and is way too messy. The better we are at getting infrastructure built, the better our economy is."

### Cross-border or Borderline?

Mullin

Also drawing opposition from Democrats was H.R. 2883, the draft bill authored by Markwayne Mullin (R-Okla.) to "establish a predictable and transparent process to permit the construction of cross-border pipelines and electric transmission facilities."

Pallone offered an amendment that would not restrict the purview of National Environmental Policy Act reviews to the border area, but have EPA look at environmental impacts across the whole length of such projects. The subcommittee divided 18-12 in rejecting the revision.


Green

Mullin and Rep. Gene Green (D-Texas) said the bill does not impinge on federal environmental reviews necessary under existing law, but heightens the focus on the border-crossing itself.

Rush also opposed H.R. 2883, saying the bill would shift the burden of proof to pipeline opponents to prove that a given project was not in the public interest.

The bill would "allow parties to push projects that are not necessarily in the public interest to move forward in the permitting process," Rush said.

"The new bill would make the process worse, less transparent, less inclusive and ultimately less effective ... and lead to greater controversy, increased litigation and longer delays."

# Gas Lobby Goes on Offensive vs. Coal, Nukes

*By Rich Heidorn Jr.*

| | Nat Gas | Coal | Nuclear | Wind | Solar | Pondage Hydro | Run of River Hydro | Demand Response | Storage |
|---|---|---|---|---|---|---|---|---|---|
| Generation | Relatively Advantaged | Relatively Advantaged | Relatively Advantaged | Relatively Advantaged | Relatively Advantaged | Relatively Advantaged | Relatively Advantaged | N/A | N/A |
| Dispatchability | Relatively Advantaged | Relatively Advantaged | Neutral | Relatively Disadvantaged | Relatively Disadvantaged | Relatively Advantaged | Relatively Disadvantaged | Relatively Advantaged | Relatively Advantaged |
| Security of Fuel Supply | Relatively Advantaged | Relatively Advantaged | Relatively Advantaged | Relatively Disadvantaged | Neutral | Relatively Advantaged | Neutral | Neutral | Neutral |
| Start Times | Relatively Advantaged | Relatively Disadvantaged | Relatively Disadvantaged | N/A | N/A | Relatively Advantaged | N/A | Relatively Advantaged | Relatively Advantaged |
| Ramp Rates | Relatively Advantaged | Neutral | Relatively Disadvantaged | N/A | N/A | Relatively Advantaged | N/A | Relatively Advantaged | Relatively Advantaged |
| Inertia | Relatively Advantaged | Relatively Advantaged | Relatively Advantaged | Neutral | Relatively Disadvantaged | Relatively Advantaged | Relatively Advantaged | Relatively Disadvantaged | Relatively Disadvantaged |
| Frequency Response | Relatively Advantaged | Neutral | Relatively Disadvantaged | Relatively Disadvantaged | Relatively Disadvantaged | Relatively Advantaged | Relatively Disadvantaged | Relatively Disadvantaged | Relatively Advantaged |
| Reactive Power | Relatively Advantaged | Relatively Advantaged | Relatively Advantaged | Neutral | Neutral | Relatively Advantaged | Neutral | N/A | N/A |
| Minimum Load Level | Relatively Advantaged | Neutral | Relatively Disadvantaged | N/A | N/A | Relatively Advantaged | N/A | Relatively Advantaged | Relatively Advantaged |
| Black Start Capability | Relatively Advantaged | N/A | N/A | Relatively Disadvantaged | Relatively Disadvantaged | Relatively Advantaged | Relatively Advantaged | N/A | Neutral |
| Storage Capability | N/A | N/A | N/A | N/A | N/A | Neutral | N/A | N/A | Relatively Advantaged |
| Proximity to Load | Relatively Advantaged | Neutral | Neutral | Neutral | Relatively Advantaged | Relatively Disadvantaged | Relatively Disadvantaged | Relatively Advantaged | Relatively Advantaged |

Legend: Relatively Advantaged; Neutral; Relatively Disadvantaged; N/A

Key reliability attributes | *API-Brattle Group study*

WASHINGTON — A key natural gas trade group released a study Thursday that contends it is not fuel diversity but the presence of "reliability attributes" that policymakers should seek for the good of the grid.

And how does natural gas-fired generation fare on that report card? Very well, thank you.

The study, done by The Brattle Group for the American Petroleum Institute, concludes that gas-fired generation is "relatively advantaged" in all but one of the 12 attributes it identified, which included the ability to provide ancillary services, fuel security and proximity to load. Gas excelled on every measure except for storage capability.

The next best alternative source was pumped hydro with 10. Nuclear and coal, the potential beneficiaries of policies favoring traditional "baseload" generation, fared far worse at five and four respectively, as did wind (one) and solar (two).

### Ancillary Services' Growing Importance

The report calls for RTOs and ISOs to further develop markets for ancillary services, which it said are becoming increasingly important because of the rising share of intermittent renewable generation.

"Policy and market design had not focused on ancillary services until relatively recently. After the provision of energy, generation resources historically had the capability to provide more ancillary services than systems required," the report says. "Renewables increase the uncertainty and variability in net load and make ramps larger, thereby increasing the ancillary service requirements. In addition, higher renewable penetration depresses energy market prices. This reduces margins earned by resources in the energy market and increases the need to compensate resources for the ancillary services they provide."

In a press briefing, API Chief Economist Erica Bowman said her organization wants "to push back against" state policies that seek to maintain coal and nuclear plants "at any cost." API absorbed the smaller America's Natural Gas Alliance (ANGA) in 2015.

API and its affiliates have been "100% against" policies providing state-backed funding streams for nuclear plants, spokesman Mike Tadeo said.

API said the report was not ordered to counter Energy Secretary Rick Perry's grid reliability study, which critics have said is designed to benefit coal and nuclear generation. Bowman added, however, that she hoped the Energy Department researchers "use [the findings] as a resource."

Perry told a House Appropriations subcommittee last week that the report would be released by the end of June, but a department spokesperson said later it would not be ready until July.

### Beyond the Reserve Margin

Bowman said grid operators' traditional reliance on reserve margins — the difference between installed capacity and peak load projections — is no longer sufficient.

"In reality — and NERC has also talked about this — that needs to transition to looking at these other attributes as well," she said.

Most of the grading on the 12 attributes is likely to be uncontroversial. Also included in the list were generation capability; dispatchability; start times; ramp rates; inertia; frequency response; reactive power; minimum load level; black-start capability; and proximity to load.

But Brattle's description of gas as "relatively advantaged" regarding the security of its fuel supply — along with coal, nuclear and pondage hydro — may come as a surprise to officials in PJM and ISO-NE, which have been encouraging gas generators to add dual-fuel capability.

Gas generators can lose their access to fuel during winter peaks, when heating load with firm contracts takes precedence.

The study concedes that — unlike coal and nuclear fuel — "natural gas is rarely stored in large quantities on site," adding "some natural gas-fired plants have the capacity to burn distillate oil stored in tanks on-site in the event of a natural gas supply interruption."

It also acknowledges that gas supplies "can be interrupted due to a lack of capacity when demand is very high" — singling out New England's pipeline capacity constraints — but says "firm supplies have very low probability of interruption."

Unmentioned in the study is that many gas-fired plants have interruptible contracts because operators say firm pipeline contracts are too expensive.

In its 10-K report for 2016, Calpine — North America's largest operator of natural gas-fired power plants — warned investors that pipeline constraints "could interrupt the fuel supply" to its plants in PJM, although "some" have dual-fuel capability.

Brattle defended the omission, saying the paper was about compensating units for their reliability attributes, not about the cost of interruptible contracts. "The authors note that cost and environmental attributes may also affect market design. This paper focuses solely on reliability attributes and on the appropriate principles for compensating resources that provide those reliability attributes."

### 'A Lot of Affordable Gas'

Bowman rejected the idea of maintaining

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# Gas Lobby Goes on Offensive vs. Coal, Nukes

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coal and nuclear plants as a price hedge in case gas prices rise from their current lows, insisting that the addition of natural gas and renewables has resulted in the most diverse generation fuel mix in history.

She cited a 2016 study by IHS that said the U.S. has 1,400 Tcf of natural gas recoverable at $4/MMBtu — a two-thirds increase over 2010 estimates. The U.S. consumed 27.5 Tcf in 2016.

"There is *a lot* of affordable gas out there," she said. "So I guess the real question is how much are you willing to pay for that hedge? I would argue that that would be a lot higher than looking at where natural gas resource affordability is today."

### Wind, Nuclear, Coal Groups Respond

Two competing trade groups weighed in with responses to the API/Brattle study.

"Decades of engineering experience demonstrates that a reliable electricity system needs a diverse portfolio of generation technologies, including nuclear and natural gas," said Maria Korsnick, CEO of the Nuclear Energy Institute, in a statement. "A close reading of the Brattle study reinforces the conclusion that grid reliability would be hopelessly compromised without nuclear energy, and we're at a loss to explain why API is advocating such a risky scheme."

Michael Goggin, senior director of research for the American Wind Energy Association, said the API-Brattle Group report findings are "largely consistent" with those of the Analysis Group in a report recently commissioned by AWEA.

"Both reports conclude that the increasingly diverse grid, with the addition of renewable and natural gas generators and the services they provide, is operating reliably and, importantly, that markets are the preferred way to ensure the grid continues to secure the services it needs to remain reliable at the lowest cost to consumers. Notably, neither report finds that 'baseload' itself is a grid service necessary for reliability."

Goggin disputed Brattle's designation of wind as "relatively disadvantaged" in frequency response, saying wind turbines "can provide frequency response that is an order of magnitude faster than conventional power plants, and today are meeting a large share of ERCOT's need for frequency response when system frequency is high."

He also said wind and solar plants "have excellent ability" to regulate reactive power — a characteristic Brattle rated as "neutral" — and said the report failed to grade the ability to ride through voltage and frequency disturbances. "Had API examined this, it would have found that wind plants, … thanks to their power electronics, far exceed the capability of conventional power plants to remain online following a grid disturbance," he said.

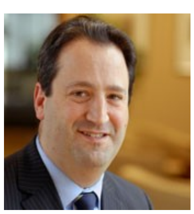
"Though the API-Brattle report's generation assessment downplays the significant reliability capabilities and contributions of modern wind turbines, we believe the commonalities between the reports are more notable," Goggin said.

Paul Bailey, CEO of the American Coalition for Clean Coal Electricity said "backing up more renewables with new natural gas-fired generation will not solve" the challenges facing the grid. "First, natural gas would have to be available at all times to back up more renewables. However, a significant fraction of natural gas supplies for electricity generation is based on non-firm contracts, which means there is no guarantee that gas will be available all the time. For example, approximately 40% of the gas is supplied under non-firm contracts in PJM and MISO."

Bailey said increased natural gas could make the grid less resilient. "On the other hand, coal plants are fuel-secure because there is a large supply of coal (an average of 90 days) at each plant," he said. "This is why FERC should adopt regulatory changes that properly value attributes, such as on-site fuel storage, that enhance grid resilience."

# Company Briefs

### Ralph LaRossa Elected COO of PSEG Power


LaRossa

Public Service Enterprise Group announced Friday that Ralph LaRossa has been elected president and chief operating officer of PSEG Power, effective Oct. 2, 2017.

LaRossa was elected president and COO of Public Service Electric and Gas in October 2006. He joined PSE&G in 1985 as an associate engineer and advanced through a variety of management positions in the utility's gas and electric operations. In January 2014, he was appointed chairman of the board of PSEG Long Island.

He succeeds William Levis, who in December announced his plans to retire. David M. Daly, who is currently president and COO of PSEG Long Island, was elected to succeed LaRossa in both his current roles.

More: *PSEG*

### Enel Acquiring EnerNOC for $300M

Energy software firm EnerNOC has agreed to be acquired for $300 million by Enel Green Power North America, an American subsidiary of Enel Group.

Under the deal, which is expected to close in the third quarter of 2017, Enel will pay $7.67/share, which is approximately 42% more than EnerNOC's share price at the close of the market on Wednesday.

After its stock prices fell in 2015, EnerNOC has been undergoing restructuring that has included multiple rounds of layoffs. At the end of 2016, it had 1,077 employees, down from 1,366 a year earlier, according to regulatory filings.

More: *Boston Business Journal*

### PSC Tells Mississippi Power to Abandon Coal at Kemper

Mississippi regulators voted Wednesday to have Mississippi Power's $7.5 billion Kemper plant abandon coal and operate as a natural gas facility.

By unanimous vote, the Public Service Commission agreed to instruct its lawyers to prepare a proposal by July 6 that would

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# Company Briefs

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revise the plant's operating license, remove responsibility from ratepayers for the plant's lignite coal technology and related assets, and involve no increase for ratepayers.

The vote came after years of missed deadlines and cost overruns for the facility.

More: *The Meridian Star*

## FirstEnergy's James Lash Retiring in Aug.


Lash

FirstEnergy has announced that James Lash, president of FirstEnergy Generation, will retire effective Aug. 1, 2017, after 28 years with the company.

Upon Lash's retirement, Chief Nuclear Officer Samuel Belcher will be the company's primary contact with the Nuclear Regulatory Commission, Institute of Nuclear Power Operations, Nuclear Energy Institute and other nuclear industry groups.

More: *FirstEnergy*

## Judge Blocks Merger of Waste Control Specialists, EnergySolutions

A federal judge Wednesday sided with the Justice Department in blocking a $367 million merger between EnergySolutions and Waste Control Specialists.

The department sued in November, claiming the merger would create a monopoly on radioactive waste disposal. WCS characterized the deal as essential to its long-term viability.

WCS has an application pending with the Nuclear Regulatory Commission to store nuclear spent fuel from across the country at its Texas facility. In April, it asked regulators to put the review on hold as it continued to lose money to the lawsuit.

More: *The Texas Tribune*

## Dominion Creating Habitats for Birds, Bees, Butterflies

Dominion Energy launched an effort last week to create more natural habitats for butterflies, bees, birds and other pollinators in Virginia and North Carolina.

Under its "Wings at Work" initiative, Dominion will plant pollinator-specific plants in appropriate habitats in electric transmission and distribution corridors. The company also will add 60 new acres of habitat to the 43,000 acres it already owns.

Dominion also is working to create sanctuaries for pollinators in the right of way along the Atlantic Coast Pipeline route.

More: *Dominion Energy*

## Cypress Creek Drops Solar Complaints Against Duke

Cypress Creek Renewables notified state regulators that it was dropping complaints alleging Duke Energy violated federal and state regulations by establishing a five-year power purchase agreement for larger utility-scale solar projects that made it impossible to obtain financing.

The complaints, filed with the North Carolina Utilities Commission against Duke Energy Progress and Duke Energy Carolinas, alleged Duke decided projects ranging from 5 to 80 MW would get the five-year PPA. Previously, Duke offered 10- to 15-year PPAs for such projects, according to the filings.

The dismissal notice, as well as a statement put out by Cypress Creek, did not say whether a settlement agreement was reached.

More: *Charlotte Business Journal*

## Dukes Withdraws Request to Use Chemicals Risky to Water

Duke Energy withdrew a request to add chemicals to reduce air pollution at several of its North Carolina coal-fired plants amid concerns about an increase in contaminants in drinking water.

After Duke began using calcium bromide in 2013 to wash coal at plants based near Charlotte, trihalomethane levels in drinking water rose close to federal and state limits.

Duke said it can meet air quality standards without adding halides (bromides are a type of halide) in its plant permits.

More: *The Charlotte Observer*

## Clean Coal Technologies Building Wyo. Coal Treatment Plant

Clean Coal Technologies has announced an agreement with Wyoming New Energy to build a 2 million-ton coal treatment facility in Wyoming's Powder River Basin.

Wyoming New Energy signed an agreement to raise $80 million in debt financing with investment bank Piper Jaffray to build the plant, which will be the first commercial facility employing Clean Coal's technology.

The technology, which was tested at a site in Oklahoma, allows the coal to be treated and dried without spontaneously combusting or immediately reabsorbing moisture from the air, according to the company.

More: *Casper Star-Tribune*

# ERCOT TAC Cancels June Meeting, to Hold Email Vote

ERCOT's Technical Advisory Committee has canceled its June meeting because of a lack of voting items.

The TAC's next scheduled meeting is July 27. The Board of Directors does not meet again until Aug. 8.

TAC Chair Adrianne Brandt, of San Antonio's CPS Energy, asked committee members to vote by email on a pair of revision requests, setting a 5 p.m. deadline Wednesday for responses:

- NOGRR170: Revises the Nodal Operating Guide to be consistent with NPRR824 language related to NERC Reliability Standards EOP-011-1 (Emergency Operations) and BAL-001-2 (Real Power Balancing Control Performance).
- RRGRR014: Conforms the Resource Registration glossary to the as-built release, which captured baseline updates before the approvals of RRGRR006 and RRGRR007. The RRGRR adds solar resource registration inputs omitted from the greybox tab for RRGRR009.

*— Tom Kleckner*

# FEDERAL BRIEFS

## FERC Announces Staff Changes at OEMR

Acting FERC Chair Cheryl LaFleur has announced three staff changes.

Jamie Simler, director of the Office of Energy Market Regulation, has retired and is being replaced effective immediately by Deputy Director Anna Cochrane. Jette Gebhart, senior legal adviser in OEMR, has been named acting deputy director of OEMR, also effective immediately.

More: FERC

## Report Counts 173 New Microgrid Projects Worldwide

Navigant Research identified 173 new microgrid projects worldwide and 1,842 microgrids operating, under development or proposed, in a report released last week.

The 1,842 microgrids represent 19,279.4 MW of capacity globally, according to "Microgrid Deployment Tracker 2Q17." That's an increase from Navigant's last report in December 2016 in which it counted 1,681 projects with a capacity of 16,552.8 MW.

North America remains No. 1 in terms of microgrids in operation, while the Asian Pacific has the most microgrid capacity under development and proposed.

More: Microgrid Knowledge

## Industry Study: Solar, Wind Pose No Threat to Grid Reliability

In an apparent pre-emptive strike against a Trump administration study, two renewable energy lobbying groups released their own report last week showing that market forces, rather than policies supporting renewable energy, are behind coal and nuclear plant retirements.

Advanced Energy Economy and the American Wind Energy Association commissioned the study after Energy Secretary Rick Perry in April ordered a report on whether policies favoring wind and solar are accelerating the retirement of coal and nuclear plants needed to ensure the reliability of the power grid. The deadline for completion of that study is later this month.

The study by the trade groups found no evidence that solar and wind are threatening the grid's reliability.

More: Reuters; Bloomberg

## House Passes Nuclear Energy Tax Credit Bill

The House of Representatives passed a bill last week lifting a requirement that nuclear facilities be placed into service by the end of 2020 to receive the 1.8-cent/kWh tax credit.

The bipartisan bill, passed on a voice vote, would cost $16 million over 10 years.

Under the legislation, government-owned utilities and nonprofit electric cooperatives could receive the credit and transfer credits to other partners on the facilities.

More: The Hill

## EPA 'Wipes Out' Scientific Board

EPA notified dozens of members of its Board of Scientific Counselors whose terms end in August that their roles advising the agency will not be renewed.

Members are appointed to three-year terms which, in the past, were traditionally renewed for another term if they wished to continue serving.

"It effectively wipes out the BOSC and leaves it free for a complete reappointment," said Deborah Swackhamer, the current chair of the board's executive committee and an emeritus professor of environmental health sciences at the University of Minnesota.

More: The Washington Post

## EPA Plans Buyouts, Early Retirements for 1,200 Workers

By early September, EPA plans to rid itself of more than 1,200 employees — about 8% of its current workforce — through buyouts and early retirements.

The Trump administration has proposed a 31% cut to EPA's budget, which is the largest percentage reduction of any agency. A hiring freeze presently is in place.

About 20% of the agency's 15,000-person workforce is currently eligible for retirement, EPA Administrator Scott Pruitt said.

More: The Washington Post

## Perry: $CO_2$ not the Main Force Behind Climate Change

Perry

Energy Secretary Rick Perry last week said he does not believe carbon dioxide emissions from human activity are the main driver of climate change.

Speaking on CNBC's "Squawk Box," Perry said ocean waters and "this environment that we live in" are primarily responsible. He went on to say that skepticism about scientific findings is a sign of a "wise, intellectually engaged person."

More: CNBC

# STATE BRIEFS

## MAINE

### Houses Passes Solar Bill, but not Enough Votes to Survive Veto

A bill that would keep net metering rules in place pending a cost-benefit analysis by the Public Utilities Commission passed 90-54 in the House on Wednesday but failed to achieve the two-thirds majority needed to overcome a virtually guaranteed veto by Gov. Paul LePage.

The bill, L.D. 1504, would essentially place on hold a decision by the commission to gradually phase out net metering. LePage vetoed sweeping solar energy policy changes last year, which set the stage for the commission's rules phasing out net metering.

The House and Senate adopted different versions of the bill last week without debate, and the bill faces additional votes in both chambers.

More: Portland Press Herald

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# State Briefs

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## MONTANA

### PSC Votes to Reduce Rates for Solar QFs

The Public Service Commission last week voted to cut guaranteed rates for solar qualifying facilities under the Public Utilities Regulatory Policies Act by 40%, making the state's incentives the smallest in the region, according to renewable energy advocates.

The changes, which apply to solar projects no larger than 3 MW, also include cutting contract lengths from 25 to five years, with an option to renegotiate for five more. who said solar developers would likely move on to other states as a result.

The PSC suspended guaranteed rates and contracts for small solar projects last year after NorthWestern Energy argued the incentives were too attractive and that it had seen a surge in solar hookup requests. FERC ruled the regulators wrongfully suspended the program in December, and last week's new incentives were an effort to retool.

More: Billings Gazette

## NEW YORK

### Green Bank Achieves $2.7M Profits for FY16/17

The New York Green Bank generated $2.7 million in positive net income during fiscal year 2016-2017, stemming from $291.6 million in investments in clean energy transactions across the state, Gov. Andrew Cuomo announced last week.

The positive net income surpassed the bank's expectations and was achieved one year ahead of schedule. The bank's overall portfolio is expected to reduce greenhouse gas emissions by 4.3 million and 6.4 million metric tons.

More: Gov. Andrew Cuomo

## OHIO

### Budget Bill Amendments Focus on Credit Ratings, Wind Setbacks

The state's budget bill reported out of the Senate Finance Committee last week with two amendments authorizing extra charges on ratepayers to allow utilities to maintain their credit ratings and relaxing property line setbacks for wind turbines.

The credit rating amendment, SC-5466, would allow the Public Utilities Commission to impose charges to help utilities maintain at least an investment grade credit rating.

The wind turbine amendment, SC-4927-1, would undo changes made in 2014 when a last-minute budget bill amendment tripled the property line setbacks for wind turbines on commercial wind farms. Under the present amendment, the property line setback would be 120% of the wind turbine height, and the required setback to the nearest habitable, residential structure would be 1,225 feet, instead of 1,125 feet.

More: Midwest Energy News

### Revision Proposed for Bill that Would Subsidize 2 Coal-Fired Plants

Responding to concerned opponents, the House Public Utilities Committee last week introduced a revision to a bill that would subsidize two coal-fired power plants.

Under the House Bill 239, Ohio Valley Electric Corp. would receive an income guarantee for times when the market price of electricity is less than the cost to operate its Kyger Creek and Clifty Creek plants. The money would come from a charge to ratepayers.

The revision, introduced by Rep. Rick Carfagna (R), provides that households would pay no more than $2.50/month and that the subsidy would expire in 2030.

More: The Columbus Dispatch

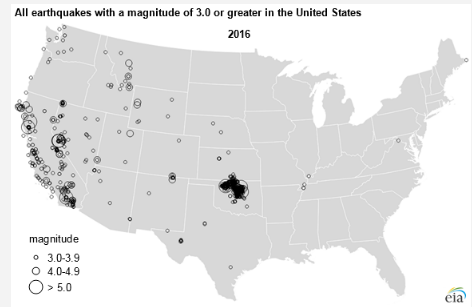
## OKLAHOMA

### Wastewater Injection Causing Up to 2 Quakes per Day

Increased underground injection of wastewater produced during extraction of oil and natural gas has caused the state to experience one to two low-magnitude earthquakes per day since 2014, with a few instances of higher-magnitude quakes between 5 and 6, according to the U.S. Geological Survey.

Before 2009, the state might have seen one to two low-magnitude earthquakes per year.

In the central part of the state, the rock underlying the formations where disposal water is being injected contains faults that are susceptible to the changing stresses caused by fluid injection.




Map shows all earthquakes with a magnitude of 3 or greater in 2016. | *EIA*

More: Energy Information Administration

## PENNSYLVANIA

### Philadelphia Becomes 100th City to Sign onto Clean Energy Initiative

Philadelphia announced last week that it will transition to 100% clean energy — a move that makes it the 100th city, and second largest, to sign onto the Mayors for 100% Clean Energy effort spearheaded by the Sierra Club.

Presently, energy used by buildings and industry in the city accounts for 79% of its carbon pollution.

More: Curbed

## VERMONT

### Public Service Board Changing its Name

The Public Service Board announced it will change its name to the Public Utility Commission effective July 1.

The board said the new name will more clearly reflect its current statutory responsibilities and reduce confusion about the difference between the board and the Public Service Department, which is a separate state agency.

More: Daily Energy Insider