RTO Insider
Your Eyes and Ears on the Organized Electric Markets
CAISO ■ ERCOT ■ ISO-NE ■ MISO ■ NYISO ■ PJM ■ SPP

ISSN 2377-8016 : Volume 2019/Issue 12 March 19, 2019

ERO INSIDER

Changing Grid Calls for New Models, Mindset, Officials Say

By Rich Heidorn Jr.

WASHINGTON — The changing resource mix and growth of distributed generation means planners must adopt new models and new mindsets, speakers said at NERC's biennial Reliability Leadership Summit on Thursday. The event attracted more than 120 RTO officials, utility executives and regulators at the Mayflower Hotel.

More than 120 RTO officials, utility executives and regulators gathered at the Mayflower Hotel in Washington last week for NERC's biennial Reliability Leadership Summit. | © *RTO Insider*

David Ortiz, deputy director of FERC's Office of Electric Reliability, said the growth of renewable generation and distributed resources requires planners to broaden their focus.

"Our general assumption that we can disaggregate this analysis into bulk [power system-] and distribution-level analyses that interact in well-defined and predictable

Continued on page 4

CERAWeek 2019 BY IHS MARKIT

EPA Administrator Andrew Wheeler addresses the luncheon audience during CERAWeek by IHS Markit. | © *RTO Insider*

New Mexico Moves Toward Clean Energy, EIM Participation

By Hudson Sangree

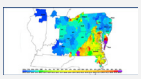
New Mexico's largest utility is still hoping to join the Western Energy Imbalance Market on schedule, despite a setback from state regulators, saying the planned move has taken on added significance after state lawmakers passed a bill requiring investor-owned utilities to get all their electricity from carbon-free sources by 2045.

"We are headed for a very high level of [renewable portfolio standard] similar to California," Todd Fridley, vice president of New Mexico operations for Public Service Company of New Mexico (PNM), told the EIM's *Regional Issues Forum* (RIF) in Albuquerque on March 11. "PNM is on board with this, and we're moving toward these goals."

Senate Bill *489* would raise New Mexico's RPS to 50% by 2030 and 80% by 2040, in addition to requiring 100% carbon-free energy by 2045 for IOUs. The measure has passed both houses of the state legislature and is awaiting signature by Gov. Michelle Lujan Grisham, who ran on a clean energy platform last year and championed the bill. If she signs it as expected, New Mexico would become the third state after California and Hawaii to establish a 100% clean energy mandate with a clear timeline.

Continued on page 15

Also in this issue:



10837 Deborah Drive ▣ Potomac, MD 20854 ▣ (301) 299-0375 ▣ info@rtoinsider.com
▣ www.rtoinsider.com ▣

RTO Insider

CAISO ERCOT ISO-NE MISO NYISO PJM SPP

Editorial

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

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

Art Director
Mitchell Parizer 718-613-9388

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

Associate Editor
Shawn McFarland 570-856-6738

CAISO/West Correspondent
Hudson Sangree 916-747-3595

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

MISO Correspondent
Amanda Durish Cook 810-288-1847

PJM Correspondent
Christen Smith 717-439-1939

SPP/ERCOT Correspondent
Tom Kleckner 501-590-4077

Subscriptions

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

Account Executive
Marge Gold 240-750-9423

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

2019 Annual Subscription Rates:

Plan	Price
Newsletter PDF Only	$1,750.00
Newsletter PDF Plus Web	$1,450.00

See additional details and our Subscriber Agreement at rtoinsider.com.

In this week's issue

Correction

A story in the March 12 newsletter (*Calif.: CCAs, Decarbonization Pose Reliability Challenges*) quoted California Public Utilities Commission President Michael Picker as saying the median size of generation projects with which community choice aggregators have contracted is 175 MW. The PUC later said Picker misspoke and that the correct figure is 1.75 MW.

ERO INSIDER

This is a preview of ERO Insider, a new publication providing exclusive coverage of NERC and the Regional Entities that form the Electric Reliability Organization. Pricing and other details will be coming later this spring. For now, email any feedback on our coverage to EROInsider@RTOInsider.com.

NERC Chief: No 'Appetite' for Expanding Authority

By Rich Heidorn Jr.

WASHINGTON — NERC CEO Jim Robb said Thursday he sees no "appetite" among policymakers for expanding the organization's authority despite rising concerns over the visibility of distributed energy resources.

Robb made the comments to reporters after NERC's daylong biennial Reliability Leadership Summit, where more than 130 regulators, utility officials, RTO executives and others gathered to compare notes on best practices, industry trends and emerging challenges.

The discussions turned repeatedly to the reliability challenges posed by a changing generation mix and the increasing volume of DERs, which are not under the operational control of regional grid operators.

"In the current model, [for] vertically integrated utilities, it's pretty clear who's accountable for generator performance, maintenance, testing … but that gets very fuzzy in the DER world," said John Stephens of City Utilities of Springfield Missouri. "How do we hold them accountable? How do we know our planning assumptions are valid for more than the next six weeks?"

David Morton, chairman of the British Columbia Utilities Commission, said he is concerned about distribution-level cybersecurity. Attacks "can happen in the distribution system also," he said. "… While NERC and FERC have … standards in place that seem to be working reasonably well on the transmission system we don't have similar assurance on the distribution system."

Talking with reporters after the conference, Robb was asked if he thought federal policymakers would someday look to expand NERC's authority beyond the bulk power system.

"I don't think there's a whole lot of appetite for that," he responded.

"I think visibility is very important. I think that's one of the issues that … can be done voluntarily. It doesn't necessarily have to be done through a standard or regulation — because nobody wants this issue, right? Nobody wants to be the [regulator] sitting on top of a major reliability event."

Robb said NERC has "maintained a fairly regular dialogue" with the National Association of Utility Regulatory Commissions and individual state regulatory agencies. "So, they're aware of the work we're doing that's applicable to them. That's one of the areas both sides have agreed we need to do more of as this line continues to blur and more and more of the resource sits on the distribution side of the house, or the sub-BPS."

NERC CEO Jim Robb speaking Thursday at the agency's biennial Reliability Leadership Summit at the Mayflower Hotel in D.C. | © *RTO Insider*

Confident on Cybersecurity

Robb also expressed confidence over the grid's ability to withstand cyberattacks, despite the *Worldwide Threat Assessment* released by U.S. intelligence agencies in January, which raised warnings about the ability of Russian and Chinese hackers to disrupt electrical service and natural gas pipelines in the U.S. (See *Senators Call for Urgency on Energy Cybersecurity*.)

"The system provides substantial protections in terms of a major cyber event. … It's built to withstand the loss of large assets," Robb said. "So, while I would never say zero [risk], I don't think this is something that we need to be worried about — something taking down half of the Eastern Interconnection."

How about blacking out a major city?

"Possibly more vulnerability there, but even then, it would be likely something that could be recovered from fairly quickly," Robb said.

The NERC chief said he agrees that China and Russia "are persistent threat actors."

"They are working very, very hard to build capabilities to penetrate the grid. Most of the vulnerabilities are on the enterprise side of the house — IT systems — not the operating systems. And we have very vigorous rules around firewalls and air gaps between enterprise systems and the operating systems. If somebody could even get into a company's enterprise system, their ability to translate that into something actionable on the control side of the system is substantially mitigated."

Asked whether fuel security is more of a concern than cybersecurity, Robb paused, then laughed.

"It depends on the day. Both are very, very important. The difference is that [with] cyber, you're dealing with a persistent threat, whereas fuel security is more of a random event, like any other reliability event. But there are clearly areas of the country that are getting closer and closer to the edge, related to fuel. We've heard about New England. We heard about the issues in Southern California. And we'll see more and more of that as the system becomes more and more reliant on natural gas and it becomes harder and harder to develop the gas infrastructure to support it." ■

ERO INSIDER

Changing Grid Calls for New Models, Mindset, Officials Say

Continued from page 1

ways is losing its validity," he said. "Studies of seasonal peak load and traditional measures of resource adequacy and capacity no longer provide a general representation of the reliability of the electric system."

'Natural Experiments'

David Ortiz | © RTO Insider

Ortiz said planners should learn from "the natural experiments that are taking place before us."

"We can't randomly assign solar panels to houses and then take a look [at the impact]. They're just there. But what we can do is pose and assess alternative explanations for observed facts. By doing this in a rigorous way, we can make sure our analysis of the situation is technically sound and is therefore a good basis for decision-making."

For example, he said, one could hypothesize that the lack of coordination between distributed energy resources and the BPS will cause operators to dispatch plants uneconomically. "We have all the data. We can take a look and determine whether or not that is correct," he said, posing a second hypothesis. "Or maybe, during times of high distributed energy resource output, transmission constraints will be relieved.

"In the past … it was possible to consider a handful of cases. If we're going to appropriately and effectively deal with the kind of changes that are coming, it's going to be necessary to consider not a handful of cases or hundreds, but potentially thousands of different scenarios spanning the complete space of uncertainties in generating resources, access to supporting infrastructure [and] contributions of distributed energy resources."

The shift will require "prioritizing insight over precision," Ortiz said, citing the aphorism, "All models are wrong, but some are useful."

"Models [can] highlight tradeoffs in system investments and approaches to solving problems such as transmission constraints, need for voltage support, integration of DERs, management of inverter-based resources, [greenhouse gas] and criteria pollutant emissions, and other factors. By doing so, planners can support a robust stakeholder process based on a common understanding of the various tradeoffs and then develop appropriate plans."

Mark Ahlstrom | © RTO Insider

Mark Ahlstrom, vice president of renewable energy policy for NextEra Energy, said the increasing sources of uncertainty may require a shift in system operations.

"We still don't seem to have the commitment to get into actual probabilistic system operations in terms of … dispatch," he said. "It keeps coming up. It's complicated. Its computational. But I think that's something we have to consider ... in the future."

The Impact of Inverters

Peter Brandien, vice president of system operations for ISO-NE, said planners need a "mindset change" as inverter-based resources grow.

"We used to get a lot of services we naturally took for granted from the rotating mass of the generators. … Now we're trying to [determine] exactly what those services are and put controllable devices on the system to mimic what we used to get from this rotating mass. … We need a mindset that we're almost protection control engineers on this big machine…

"We have to understand that this system probably needs to be tuned on a regular basis as the resources change. And I think until we accept that concept, then I fear we're going to run into problems and we're always going to be one event behind in addressing the problem."

Jim Robb | © RTO Insider

NERC CEO Jim Robb expressed similar concerns over the organization's response to the August 2016 Blue Cut wildfire, when 1,200 MW of solar disconnected from the grid. The October 2017 Canyon 2 fire resulted in the loss of more than 900 MW of solar. (See *NERC to Try Again on Inverter Rules*.)

"The sad thing about that was it took the Blue Cut fire and gigawatts tripping offline for us to realize that we really do have a problem … when I think every engineer knew that that problem was out there," he said. "But it took an event to mobilize us to start to deal with it."

Becoming Proactive

David Morton | © RTO Insider

David Morton, chairman of the British Columbia Utilities Commission, said regulators must change their "capacity" by adding engineering talent and "culture" through a willingness to take more risks. For its part, Canada is beginning to use regional modeling "to understand the potential economic benefits of reinforcing limited interregional interconnections," he said.

"There's a wealth of analysis of the many benefits of transmission. However, not all the benefits attributable to transmission are exclusive to the actual route or corridor in which it's constructed," he said. "There's often no one to speak, much less decide, on the merits of a given project on behalf of the entire regional market it will affect. Transmission planning and construction should anticipate development of generation resources and access to lower-cost resources in order to avoid significant economic congestion."

David Weaver | © RTO Insider

David Weaver, vice president of transmission strategy and planning for Exelon, sounded a similar theme, referring to offshore wind targets set by state officials in New York, New England and PJM. "With these really aggressive state goals, we need to get more proactive about what transmission investment is needed to be able to reliably deliver those renewable resources."

Weaver asked whether planners also need to consider the impact of climate change and sea level rise. "Do we need storm-hardening standards?" he asked. "Do we need to build our assets at higher elevations above sea level?"

Spotlight on the West

Many of the changes discussed at the summit are being felt most acutely in the West.

Rich Hydzik, senior transmission operations engineer for Avista, said he's seen changes he never expected.

Continued on page 9

ERO INSIDER

DOE's Walker Sees Big Cuts in Storage Costs

By Rich Heidorn Jr.

WASHINGTON — Assistant Energy Secretary Bruce Walker said Thursday that the Department of Energy is planning a megawatt-scale "Storage Launchpad" that he predicted will cut the cost of energy storage dramatically.

Walker told attendees of the NERC Reliability Summit that funding for the initiative, which will be assigned to one of DOE's 17 National Laboratories, is included in President Trump's proposed fiscal 2020 budget, which was released March 11.

"We are going to build a facility … where we can leverage our focus on chemistry. So we're looking at aqueous, non-aqueous redox equation-type batteries, zinc manganese oxide," Walker said. "We've made some significant breakthroughs already in that space. We believe we're going to be able to drive the cost down to basically 20% of what it is today over the next five years."

The *budget* proposes $5 million for the Storage Launchpad and $15 million "to accelerate the conversion of the National Wind Testing Facility site into an experimental microgrid capable of testing grid integration at the megawatt scale." The budget would cut funding for DOE's Office of Energy Efficiency & Renewable Energy by 70% and eliminate the Advanced Research Projects Agency-Energy. Congress rejected similar proposals last year.

Daniel Gabaldon, director and co-founder of Enovation Partners, a Chicago-based consulting firm that does the data analysis for Lazard's levelized cost of storage *report*, expressed some skepticism that a $5 million investment could produce such a dramatic return in battery technology but said DOE's investment would be "a really healthy development."

Although Enovation doesn't track the technologies cited by Walker for Lazard, Gabaldon said the prediction of an 80% reduction is in line with claims of early-stage companies pursuing alternatives to lithium-ion technology.

"We've seen very dramatic claims, and it would be certainly helpful for the suppliers, as well as potential buyers, to substantiate those claims," he said in an interview. "Whether it comes to pass, who knows?"

Gabaldon said federal funding is essential for early-stage technologies. The commercial success of lithium-ion batteries for short-duration uses is "sort of shading the forest floor [and denying light to] young shoots of new technologies that — given the right kind of support — could transcend what lithium-ion can do, especially for longer-duration applications, which in the long run will be really essential," he said.

Bruce Walker | © *RTO Insider*

Kelly Speakes-Backman, CEO of the Energy Storage Association, said "securing an 80% cost reduction on precommercial storage technologies could be possible in the next five years."

"Investing $5 million in this effort, while modest, is welcomed by ESA," she said in a statement. "Any investment in the energy storage industry translates into direct job growth here in the United States."

Bloomberg New Energy Finance's 2018 Outlook projects a 66% drop in lithium-ion battery pack prices by 2030, largely because of economies of scale.

Grid Resilience Model as a 'Platform'

In other remarks, Walker told attendees of the NERC conference that DOE's effort to develop a North American grid resilience model is progressing and that the department hopes to have a static model complete by October. DOE will then work with NERC, FERC, RTOs, DOE's power marketing administrations and industry to transition it to a real-time model.

"We will continue [working] on this until such time that we're able to make the real-time piece work and begin to automate the process with the critical infrastructure we've identified," he said.

Walker said the model will be a "platform" on which DOE can test use of the research and development produced by the department's National Labs.

One technology, he said, could leapfrog synchrophasors, which were introduced after the 2003 Northeast blackout. With sample rates of about 50 times a second, synchrophasors are too slow for "a system that's as dynamically changing and integrating renewables and dealing with different levels of harmonics and transients like we've never seen in the past, with the threat vectors that we're seeing," Walker said.

He said the department is drawing on previously developed fiber optic sensing technologies, which sample about 1 million times a second. "We probably don't need a million times a second, so what we're going to try and figure out [is] exactly what we do need to be able to see the harmonics and transients that we're actually seeing on the grid today."

Walker also promoted the March 28 *technical conference* DOE and FERC are hosting "to discuss security practices to protect energy infrastructure."

In January, Walker announced a $1 million Electricity Industry Technology and Practices *Innovation Challenge* seeking technologies to address vulnerabilities and threats, and mitigate energy sector interdependencies.

Walker said innovations in energy storage could change how the industry looks at reserve margins. "Reserve margins were put back when the system had fuel security and we anticipated two generators and two major transmission lines dropping off the system," he said.

"That formula doesn't work anymore because if I ever take out one of your [natural gas] pipelines, you're going to lose thousands and thousands of megawatts of generation. And so, you're automatically going to go into underfrequency load shed.

"We've got to do something about it. I know through our organization, which is very much focused on R&D, they look at me a little cross-eyed sometimes when I'm like, 'We don't have three years to solve this problem. We've got like three months.'" ■

ERO INSIDER

Green 'Moon Shot' not Possible, Physicist Tells NERC Forum

By Rich Heidorn Jr.

WASHINGTON — Physicist Mark P. Mills gave the NERC Reliability Leadership Summit a blistering and entertaining critique of green tech punditry, saying forecasts of a rapid shift away from hydrocarbons are delusional.

Mills, senior fellow at the conservative think tank the Manhattan Institute, said the big challenge for green technology is the scale of hydrocarbon use — 80% of world energy — and its superior energy density.

"If all of the hydrocarbons that we consume were actually in the form of oil … and we divide them up into barrels, those barrels would go from here in D.C. to [Los Angeles]," he said in a keynote speech. "And the barrels would grow in height at the rate we consume it by one Washington Monument every week. That by itself demonstrates how fatuous it is to talk about 'moon shots' to change a system like this. Putting a few people on the moon a few times is an amazing engineering achievement. [But] it's not a transformation of anything. Transforming and changing how society uses energy is like putting all of humanity on the moon — permanently."

Mills said those who predict Moore's Law-scale performance improvements in renewables are making a "category error" in conflating energy technology with digital technology. He cited as an example an International Monetary Fund working paper, "*Riding the Energy Transition*," on the potential of electric vehicles to cut oil consumption, which stated "Smartphone substitution seemed no more imminent in the early 2000s than large-scale energy substitution seems today."

"Putting a few people on the moon a few times is an amazing engineering achievement. [But] it's not a transformation of anything. Transforming and changing how society uses energy is like putting all of humanity on the moon — permanently."

–Physicist Mark P. Mills

"The biggest energy revolution in terms of how we use energy is unequivocally what we've done in computing. Nothing like this has every happened in the history of humanity," Mills said. "If today's iPhone had 1980s energy efficiency, that iPhone would be taking the electricity of a Manhattan office building. If a single data center operated at 1980 energy efficiency, one data center would require the entire output of the U.S. on the grid.

"But analogizing information-producing technology with energy-producing technology is a fundamental category error. It's much worse than comparing apples to oranges. It's even worse than comparing apples to ball bearings. The difference in the physics between information-producing and energy-producing is deeply profound. If energy systems could scale like computing systems, a single postage-stamp size solar array could power the Empire State Building."

"That … will … never … happen," he said, pausing for emphasis with every word. "It happens in comic books. It's science fiction."

Mills said the aspirational targets of green tech supporters is based on the notion that wind, solar and battery technologies can make 10-fold gains in efficacy.

"The last few decades, we have seen 10-fold gains in the fundamental efficacy of wind, solar and batteries. But another 10-fold [improvement] is not going to happen. Solar technologies are now approaching underlying physics limits."

Wind turbines are also closing in on Betz's law, which states that no turbine can capture more than about 60% of the kinetic energy in wind. "The best wind turbines are now pushing 45% efficiency. … It's a hell of an achievement," Mills said. "There's no 10x left. We're done."

Batteries have more headroom for improvements but still face fundamental limits, Mills said.

"There is 1,500% more energy available in a pound of oil than in the best pound of battery chemistry. That's a big gap. There's no physics known to close that gap. If you want hydrocarbon class energy density, you would invent oil.

"Now the electrochemistry of batteries is going to get a lot better. There's a lot of cool stuff on the horizon."

Mark P. Mills | © *RTO Insider*

But the cheapest batteries are currently six times the cost per kilowatt of natural gas generation, Mills said. Even if they reach the "aspirational goal" of two to three times gas-fired generation, batteries won't be able to replace gas-fired generation on cost.

Mills said there is actually more room for efficiency improvements in shale gas extraction, which he called "under-engineered" despite improvements in horizontal drilling and fracking. Mills has put his money where his mouth is: He is a strategic partner with energy-tech venture fund Cottonwood Venture Partners, whose *portfolio* consists entirely of companies serving the oil and gas industries.

He did not say whether he still holds to the views of the Greening Earth Society, a now-defunct petroleum industry-backed organization that *opposed* EPA's regulation of CO_2 as a pollutant, insisting it was "one of nature's most fundamental building blocks." Mills was among the group's scientific advisers.

Mills said policymakers concerned about climate change should support funding of basic science that can result in breakthroughs rather than looking for incremental improvements to existing technologies. "You didn't get the car by subsidizing the railroads," he said.

"The world has spent $2.5 trillion in 20 years on nonhydrocarbon energy forms. And the world has reduced its use of hydrocarbons as a percentage of consumption by 1.5 percentage points. And we use 150% more hydrocarbon than 20 years ago.

"My policy recommendation is … take most of the money that we're using to subsidize yesterday's stuff — and I mean wind turbines, yesterday's batteries — and put half of it back in the Treasury for deficit reduction and the other half give to basic science, because that would be a 10-fold increase for basic research." ■

ERO INSIDER

Feds Late to Act on Drone Threat, DHS Official Says

By Rich Heidorn Jr.

WASHINGTON — Former NERC executive Brian Harrell, now assistant director of the Department of Homeland Security's Cybersecurity and Infrastructure Security Agency, last week lamented the federal government's tardy response to the security threat drones pose to utilities.

While many utilities are using drones in storm response and in monitoring vegetation growth along transmission lines, drones equipped with explosives could threaten utility operations.

"This is not an emerging threat. It was emerging five years ago," Harrell told attendees of the NERC Reliability Leadership Summit on Thursday. "We're clearly cognizant of the fact that you do not own the airspace above your generating facilities, the airspace above … your transmission substations. And right now, the laws are such that the federal government isn't being as helpful as it should be."

Last July, Yemen's Houthi movement *claimed* it had used a drone to attack a Saudi Aramco refinery in Riyadh. The company acknowledged a fire at the plant but attributed it to "an operational incident." In August, explosive-carrying drones were used in an *attack* during a speech by Venezuelan President Nicolás Maduro.

Harrell, who formerly served as director of the Electricity Information Sharing and Analysis Center (E-ISAC) and director of NERC's Critical Infrastructure Protection Programs, said the federal government has only limited authority over drones but that DHS is preparing a report on security issues posed by the devices.

"I have strongly advocated that whatever recommendations come out of this report must impact, must touch, the private sector," he said.

A former security director for Duke Energy, Harrell also cautioned utilities on purchasing drones for their own use.

"If you are using foreign-manufactured drones at your facilities, you potentially are incurring risk. So be very, very mindful of that. … Data loss and prevention is [a real threat]."

In 2017, a leaked memo from Homeland Security's Immigration and Customs Enforcement bureau (ICE) *alleged* that Chinese drone-maker

Brian Harrell | © *RTO Insider*

DJI was "providing U.S. critical infrastructure and law enforcement data to the Chinese government." DJI, which has been *estimated* to hold a 70% global market share, *responded* that the report was based on "clearly false and misleading claims from an unidentified source."

Harrell said China is "the most active strategic competitor for cyber espionage against the U.S. government, our corporations and our allies. They are stealers of information. Whereas Russia is a ... nuisance in one sense, China is actually taking data for their own use." ■

ERO INSIDER

NERC Compliance and Certification Committee Briefs

General Counsel: Security more Important than Compliance

Charles Berardesco | © RTO Insider

WASHINGTON — After 12 years as the FERC-delegated Electric Reliability Organization, it's time for NERC to reconsider its approach, General Counsel Charles Berardesco told the Compliance and Certification Committee (CCC) last week.

"The way the grid operates is dramatically different from the way we thought about it. … We have to look at the changing nature of the industry and think about being more proactive about those changes," he said. "So, does everything go to a standard? … Is there another approach? Are assessments enough? Is it enough for NERC to just raise its hand and say, 'Whoa! Here's the issue. You should be worrying about this'? Do we need to do something in between?"

About 50 committee members and NERC staff attended the March 12 meeting at Edison Electric Institute (EEI) headquarters on Pennsylvania Avenue. (See related story, *NERC Survey Highlights Alignment, Transparency Concerns*.)

In addition to the routine "blocking and tackling" of consistently implementing its risk-based Compliance Monitoring and Enforcement Program (CMEP), Berardesco said, "We need to continue to enhance our expertise on assessing the grid's overall reliability. We need to continue to build better data streams and build analytic capabilities inside of NERC [with] the industry."

Berardesco noted that NERC's Regional Entities will be reduced from seven to six effective July 1 when the Florida Reliability Coordinating Council (FRCC) is scheduled to be merged into SERC Reliability.

"Those regions, for the first time, will be about the same size and the same scope. We also have some new leadership in the regions. So, I think it's an opportunity, a moment in time, to think about roles and responsibilities in a different way at the ERO to ensure we're actually using our resources most effectively and efficiently and focusing our efforts on reliability, not just process," he said. "I think what it means is thinking about the ERO as one organization, not seven different entities. And that's a lot of the work that's going to be going on in the next couple years at NERC."

About 50 utility and RTO officials and NERC staff attended the Compliance and Certification Committee meeting at Edison Electric Institute headquarters in D.C. last week. | © RTO Insider

Patti Metro, chair of NERC's Reliability Issues Steering Committee (RISC), also called for a re-evaluation, saying her committee is planning to "streamline and fine tune" its activities.

"We are under the impression it's time to step back and [review the effectiveness] and efficiencies when it comes to RISC," said Metro, senior grid operations and reliability director of the National Rural Electric Cooperative Association. "Is it time to step back and say, 'How much value is that exercise [providing? Should we be] continuing to do that type of report?'"

She noted that NERC's Reliability Leadership Summit, held March 14, "is very similar to the *technical conference* that the FERC does every summer. We hear the same topics, the same conversations, a lot of the same speakers speak in both of those events. And so, our [question] is, should we regroup, and do we have to continue doing that type of event?" (See related story, *Changing Grid Calls for New Models, Mindset, Officials Say*.)

The RISC will present a report on its plans at the NERC Board of Trustees' August meeting.

Berardesco said he had one message for members to take back to their companies.

"Security is a lot more important than compliance. We [NERC] can never do anything bad enough to you as would happen if there's an actual breach in security. … NERC is not your problem. Security is your problem, and I would just urge all of you to think about that in the context of how you interrelate with NERC. The sharing of information, which is so critical to making this system work better, should not be withheld because you're worried about a compliance risk."

EEI Security Chief Warns Against Complacency

Scott Aaronson | © RTO Insider

Scott Aaronson, EEI's vice president of security and preparedness, also warned against becoming complacent with achieving compliance. "If I put a 10-foot fence around everything … the adversary just brings a 12-foot ladder," he said. "So, let's not pretend that standards themselves equate to security."

"If we're not preparing for failure, we're going to fail. That is a sign, I like to believe, of maturity in this sector: That we are willing to talk about — not just all the things we are doing to prevent bad things from happening — but our effectiveness at response and recovery when the bad things come.

"Not if, but when: cyber, physical, storms, acts of war, acts of God. Zombie apocalypse. [We] don't care why: The power's out. What are we going to do about it?"

"We have a sense of urgency, both here at EEI and through the [Electricity Subsector Coordinating Council] to do more, do more, do more. Because we know that a war used to be started

ERO INSIDER

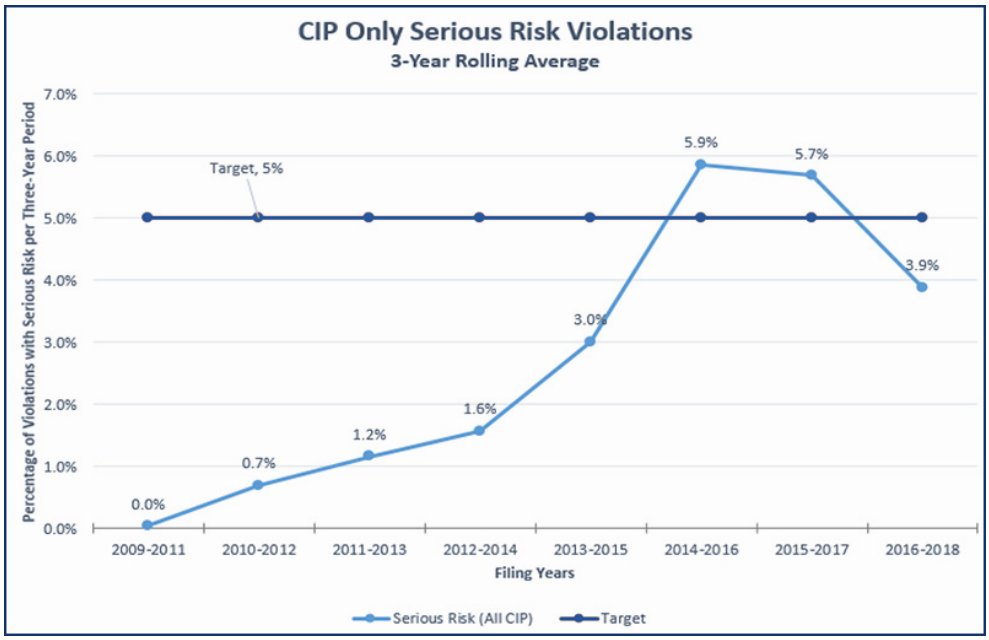
with a ballistic [missile] being fired downrange. It is far more likely today that a war is going to be started with strokes of a keyboard and attacks on critical infrastructure," he said. "We know we're a target."

Subcommittees to Merge

Jennifer Flandermeyer | © *RTO Insider*

CCC Chair Jennifer Flandermeyer, of Kansas City Power and Light, said members are moving forward with plans to eliminate the Compliance Processes and Procedures Subcommittee (CPPS) and merge its functions into the ERO Monitoring Subcommittee (EROMS).

"There are a number of reasons for [the merger] but primarily because the workloads tend to complement each other," Flandermeyer said. "The expertise needed for both of those subcommittees is similar, if not the same, and what CPPS was seeing in their work was feeding the ERO Monitoring Subcommittee, and what EROMS was seeing was actually providing input that was helpful to CPPS. So, there was a natural synergy there."



Self-reports accounted for more than three-quarters of noncompliance with NERC rules in 2018. | *NERC*

EROMS Chair Ted Hobson, of Florida cooperative JEA, will serve as chair until the FRCC seat is dissolved. Lisa Milanes of CAISO will be the vice chair.

"Our expectation is that we would have an approved scope document [for the combined committee] that's operational before the June [CCC] meeting," said CPPS Chair Matt Goldberg, of ISO-NE. ■

— Rich Heidorn Jr.

Changing Grid Calls for New Models, Mindset, Officials Say

Continued from page 3

"In the 15 years I've worked in system operations, I've never seen a coal plant [output] go up and down regularly. But I see them do it probably six months of the year now between day and night. And that is a big change," he said.

Rich Hydzik | © *RTO Insider*

He also cited California's excess daytime solar capacity. "If you'd have told me 10 years ago [that] we'd see big time power flow out of California almost year-round during certain hours of the day, I would never have believed it."

Mark Rothleder, vice president of market quality and renewable integration for CAISO, said that scheduling day-ahead resources on an hourly basis is no longer sufficient because of how much solar output can change within an hour.

"We're looking at going to a 15-minute granularity … in the day-ahead time frame. We already do it in the real-time [market], but we're finding it's increasingly necessary to do that in the day-ahead. We've got 7,000 MW of behind-the-meter solar; 12,000 MW on the grid side. So, we see those evening and morning ramps as a significant challenge."

Matthew Schuerger | © *RTO Insider*

Minnesota Public Utilities Commissioner Matthew Schuerger said the growth of distribution-level solar means his state needs to incorporate distribution planning into its integrated resource planning, "where they haven't traditionally been."

Planners also are having to look differently at how they procure reliability services. "When you planned for capacity, you got everything else: energy, voltage support, frequency response and ramping flexibility," Schuerger said. "We're moving out of that world."

Thad LeVar | © *RTO Insider*

One thing that won't be changing, said Thad LeVar, chairman of the Public Service Commission of Utah, is the IRP process itself.

LeVar said the proposed addition of a day-ahead market in the Western Energy Imbalance Market has "real potential."

But he said his state won't be signing up if it means the end of IRPs.

"I think I'm safe in predicting that Western states like Utah are not — at least in the near future — going to express an interest in joining an RTO that has authority over resource adequacy and system planning," he said. "The IRP model is going to continue to be a bedrock principal in the Western U.S. in the near term." ■

ERO INSIDER

NERC Survey Highlights Alignment, Transparency Concerns

By Rich Heidorn Jr.

WASHINGTON — NERC stakeholders continue to complain of inconsistent oversight between regions and want the Electric Reliability Organization to provide faster and more transparent enforcement, according to the results of the biennial ERO Enterprise Effectiveness Survey.

Ted Hobson, chief compliance officer for Florida cooperative *JEA*, briefed the Compliance and Certification Committee (CCC) on the results at its March 12 meeting at Edison Electric Institute headquarters. (See related story, *NERC Compliance and Certification Committee Briefs*.) Hobson, who said the results were not statistically different from the prior *survey*, focused on the "free form" comments by stakeholders.

Hobson said stakeholders were generally positive about NERC's risk-based Compliance Monitoring Enforcement Program (CMEP) but that some continue to complain of inconsistencies among Regional Entities.

"The approach and implementation of internal control evaluations seems to vary across regions," said Hobson, the chair of the CCC's ERO Monitoring Subcommittee (EROMS). "Our observation there was: Some regions are doing it; they're doing it fairly well and with some detail. And some regions, frankly, weren't even implementing it."

The CCC will recommend that NERC continue its collaboration with the committee's Alignment Working Group to resolve inconsistencies and expand outreach on alignment issues to small registered entities and trade groups.

Ken McIntyre | © *RTO Insider*

"We've had this since … the very first survey [in 2015], this whole issue of consistency," Hobson said.

Patti Metro, of the National Rural Electric Cooperative Association, expressed frustration with what she saw as a disconnect between the comments and NERC's efforts to improve the alignment among REs.

"I don't know if it's because they don't get the message from the people in their own organization that attend those meetings, because we communicate those things," she said.

Hobson said the responses indicate a lack of awareness of NERC's *Program Alignment Process*, an effort begun in 2017, and the *Recommendation Tracking* tool.

Confidence, Transparency

Hobson said some stakeholders also expressed a lack of confidence in audit teams, particularly those conducting critical infrastructure protection (CIP) reviews.

"Commenters expressed that CIP auditors were providing their interpretations of the standards, and the implication is they seem to vary across regions," he said. "The picture we get from the comments is that the [operations and procedures] audits generally are well organized; well formatted; pretty consistent. We know what to expect. The CIP audits, not so much. They vary too much across regions, and even in the same region, different audits."

One recurrent theme was that REs take too long to approve mitigation plans, confirm their completion and issue fines, particularly for low-risk issues.

Another was a desire for more transparency regarding enforcement activities, with respondents complaining that "not enough details are provided to entities to fully understand their violations," Hobson said.

There is also frustration that third-party tools such as Open Access Technology International (OATI) and *MKInsight* audit software "are cumbersome and not easily usable for registered entities, especially during an audit or violation mitigation process," Hobson said. Utilities use OATI's *webPortal* to submit data to NERC.

"People think they're more gauged to being useful to the region than they are the entities," he added. "I think that's true, but I think we are addressing that."

There also were complaints that the Organization Registration and Certification process

Ted Hobson | © *RTO Insider*

places a "high administrative burden" on small entities that is disproportionate to the low risk they pose to the bulk power system, Hobson said.

Hobson also discussed the CMEP technology tool *project*, an effort begun in 2014 to standardize the business processes of NERC and the REs on a single platform.

"People expect a lot from this new tool. So, we really need to work hard to get it right," he said. "I think we're doing that but there's a lot riding on this."

The first release of the software is set for September, NERC told the CCC. The organization has begun "conference room pilots" to get initial feedback from regional subject matter experts.

'Positive' Tone

After Hobson's briefing, the CCC approved a motion to communicate the survey results to the Enterprise-wide Risk Committee (EWRC).

Hobson acknowledged his briefing focused on the criticisms surfaced in the survey. "If you actually read the whole report in total, you'll find that it's got a positive tone to it. We do recognize the improvements and the good changes that have occurred," he said. "By definition, comments are going to be on the negative side. People that are happy with things simply don't answer."

Ken McIntyre, NERC's director of regulatory programs, said the criticisms were not new. "A lot of it we're already working on or aware of," he said. "None of this is a blind spot for us." ■

CERAWeek 2019 BY IHS MARKIT

Overheard at CERAWeek 2019

Perry Advocates for US Energy Exports

HOUSTON — Last week's 38th annual CERAWeek by IHS Markit brought together a record 4,300 global energy movers and shakers, including 35 ministers and other government officials, from more than 70 countries.

Panel discussions and speakers in more than 400 sessions focused on geopolitics, trade and costs, price volatility, environmental policy, disruptive technologies and the battle to attract the workforce of the future.

Rick Perry | © *RTO Insider*

Energy Secretary Rick Perry was a ubiquitous presence during the week. He and his staff held bilateral meetings with 10 countries and also met with power CEOs, LNG exporters and U.S. National Lab representatives. When Perry wasn't in meetings, he was glad-handing potential investors and customers for U.S. LNG and other petroleum products.

"I have the coolest job in the world. I have a front-row seat to some of the most astonishing examples of cutting-edge innovation," he said during his keynote address Wednesday. "We're approaching the dawn of a new American energy era, where we embrace new and smarter ways to reach our energy and environmental goals."

Perry drew mild twitters of disbelief when he noted Texas, the state he governed for 14 years, now produces 15% of its total energy from wind and solar resources, "more, percentage-wise, than our friends in Europe."

"We [the U.S.] expect to become a net energy exporter next year, and for the next 30 years," he said. "Thanks to innovation, we've got more than enough energy to share with the world."

Perry said the U.S. needs to emphasize innovation over regulation, referring to the administration's all-of-the-above energy policy that focuses heavily on petroleum exports. Central to that is increasing exports of LNG to energy-hungry markets in Latin America, Europe and Asia, many of whose energy ministers pleaded with him to keep the U.S. in the Paris Agreement on climate change.

"We would go into the [bilateral discussions], and they would say, 'How about [us] buying some of that LNG you guys got?'" Perry said, leaning over in his chair as if whispering to his moderator.

FERC Chair Neil Chatterjee (right) meets the press. | © *RTO Insider*

Meeting with the media after his keynote, Perry addressed the Green New Deal resolution being championed by freshman Rep. Alexandria Ocasio-Cortez (D-N.Y.). The resolution calls for, among other items, securing 100% of the nation's power demand through "clean, renewable, and zero-emission energy sources."

Naturally, the Green New Deal has drawn significant political and energy industry pushback.

"How we get there — is it this number or this number? — is where good negotiations start," Perry said. "I don't think [Ocasio-Cortez] should be castigated and pushed aside, just on the face of her comments, in that she wants to live in a place where's there's clean air and clean water. So do I. The question is, how do we get there?

"I hope to help her understand what we have done over the past decade with the shale revolution … what LNG has done, and how we can get that to China or India. How we can bring carbon capture or [other technologies] into countries where they don't have it," he said. "I think she and I would say those are both goals … places we can agree on, that we don't have to be disagreeable. I've been in this business for a spell, and I'd rather be agreeable."

Grid Resilience Still on FERC, DOE Dockets

FERC Chairman Neil Chatterjee said grid resilience is just one of several issues the commission is working to "power through" while it waits on a fifth commissioner to replace the late Kevin McIntyre and a Democrat to take Commissioner Cheryl LaFleur's seat when her current term expires at the end of June. (See *LaFleur Announces Departure from FERC*.)

Neil Chatterjee | © *RTO Insider*

The commission in early 2018 unanimously rejected the Department of Energy's Notice of Proposed Rulemaking that it order RTOs and ISOs to compensate coal and nuclear generators with 90 days of on-site fuel their full operating costs (RM18-1). At the same time, FERC opened its own resilience docket (AD18-7) and directed grid operators to respond to questions on how they assess resilience. (See *DOE NOPR Rejected, 'Resilience' Debate Turns to RTOs, States*.) The commissioners said they will use the responses to determine whether additional action is necessary.

"We have a keen understanding of the urgency of doing this analysis, but this is so, so significant and important," Chatterjee said during a media briefing in explaining there is no timeline for taking action. "This is about getting it done right, and doing this in a thoughtful and deliberate, evidence-based way.

"We have a rich and robust record before us. What are the attributes that are necessary to grid resilience? Once we make that determination, is there a long-term or short-term threat to grid resilience?" he said. "It's just a really, really complex undertaking, so important we are being very thoughtful and making sure we get it right. Whatever action we take must withstand legal scrutiny and present a record that is fact-based."

Chatterjee said Perry showed "leadership" by raising the issue of grid resilience.

"People are now talking about [grid] reliability and resilience in the same breath."

CERAWeek 2019 BY IHS MARKIT

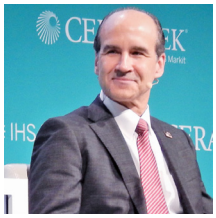
For his part, Perry said he has "thrown a lot of Jell-O at the walls to find a solution the majority of us can support."

"Yes, there are ways to generate power that is cheaper than coal and nuclear. With the prices of natural gas today, you can generate your electricity substantially cheaper than certainly coal or nuclear," he said. "Gas is cheaper, but it's interruptible. Are you willing to take the chance to save money on this side, with the chance to losing power over here?

"Is the money spent on baseload electricity worth it?" Perry asked. "I happen to think it is, to have an all-of-the-above energy structure. This is a really fascinating conversation we need to have. We are looking for the answer to a question that vexes us right now."

DOE Trying to Make CCS 'Sexy'

A panel debating carbon capture and sequestration agreed it's not a sexy field right now, but help could be on the way.



Mark Menezes | © RTO Insider

DOE Under Secretary of Energy Mark Menezes took advantage of the moment to *announce* $30 million in funding opportunities for two front-end engineering design (FEED) studies for carbon dioxide capture systems. The projects will support FEED studies for CO_2 systems on both coal and natural gas power plants.

"We're looking for scale-up technologies," Menezes said, saying the funds can be used for both retrofitting existing units and designs on new facilities. "All the new generation is natural gas or renewables. We need to take away minimizing economic incentives for the CO_2 we produce every day. For so long, we've been pointing the finger at who's responsible. We've got to stop that and understand it's in the global interest to do something with these [generation] byproducts."

Pratima Rangarajan, CEO of OGCI Climate Investments, followed Menezes' announcement with one of her own: the organization's annual Carbon Capture, Utilization and Storage Investments Day in September, at a date to be announced.

"We're inviting the DOE to participate," Rangarajan said. "We don't think we can [make carbon capture a reality] without carbon capture storage in the United States. We need to stop [CO_2] from going into the atmosphere, just like we do with plastic bottles so they don't go into the ocean. We have to show it's another way to have a low-carbon energy source that can create jobs and be an energy source, even if it's not sexy."

Stanford University professor Sally Benson called for a five-fold increase in CCS, saying a lack of governmental subsidies has stunted the sector's growth. Many are waiting for the IRS to issue guidance on its *Carbon Oxide Sequestration Credit*, for those facilities using carbon-capture equipment "originally placed in service at a qualified facility before Feb. 9, 2018."

"Why the resurgence of carbon capture sequestration now?" Benson asked. "For some people, it's the financial incentive. For others, it's, 'Oh my God! This is really scary! Change is really upon us.'"

McNamee, Chatterjee Laud LNG Project's Approval

Bernard McNamee | © RTO Insider

FERC Commissioner Bernard McNamee, who joined the commission in December, said the commission's recent order approving the Calcasieu Pass LNG export terminal showed some things still work in D.C. (See *LaFleur Sides with Republicans on LNG Terminal as Glick Dissents*.)

"It's a great opportunity … to export the abundance of natural gas that we have. Everyone talks about so much dysfunction in Washington, but I thought it was also a great example that we were able to come together and compromise to make this work," said McNamee, who was joined by fellow Republican Chatterjee and LaFleur in the 3-1 decision. (Democratic Commissioner Richard Glick dissented.)

"We have to determine whether [an order] is consistent with the public interest, but there are a lot of issues that go with that," he said. "We have to take a hard look at the environmental issues … these are all important things that have been delegated to the government to make sure they're in the public interest."

Chatterjee credited McNamee and LaFleur with negotiating a computation of greenhouse gas emissions as the commission approved its first LNG project in two years. FERC has 12 more proposed LNG projects before it.

"I'm optimistic because the biggest speaking point in negotiations had been around greenhouse gas emissions," Chatterjee said. "Now that we have the greenhouse gas question answered and a framework in place, I'm really optimistic it will enable us to approve some of the projects in front of us."

NRG's Gutierrez a Fan of Competitive Markets

Mauricio Gutierrez | © RTO Insider

NRG Energy CEO Mauricio Gutierrez may be a states' rights advocate when it comes to environmental policy, but not when it comes to competitive markets and the grid.

"States have absolutely every right to determine their environmental policy. If they want to have a renewable portfolio standard, or a clean energy standard for their constituents, they have absolutely that right," he said during a Thursday media briefing.

"Where I have a different opinion is they can't do it at the expense of competitive markets. Competitive markets work, and they work very well," Gutierrez said. "We have to define the attributes we want from the grid and let competitive forces determine the best way to meet those attributes. American history has told us that competitive markets are the most efficient way to provide consumer benefits. I think that's the same in the electric markets." ■

— Tom Kleckner

FERC Commissioner Bernard McNamee (3rd from left) participates in a CERAWeek panel discussion with (left to right) IHS Markit's Daniel Yergin, Emerson Electric CEO David Farr and Enterprise Products CEO A.J. Teague. | © RTO Insider

CERAWeek 2019 BY IHS MARKIT

Murkowski & Manchin: Ds, Rs Can Work Together on Climate

By Tom Kleckner

HOUSTON — Sometime in the future, pigs may fly, the moon might turn blue and bipartisanship could break out in D.C. Until then, there's the Senate Energy and Natural Resources Committee (ENR), led by Chair Lisa Murkowski (R-Alaska) and ranking member Joe Manchin (D-W.Va.).

"We like each other. Being a Democrat and a Republican does not interfere with our job," Manchin said during an appearance at the CERAWeek by IHS Markit energy conference March 11. "We represent our states and do what's best for the country."

"I always wonder when did energy become a partisan issue, and why does it have to be partisan? It used to be a regional issue," said Murkowski, who has chaired or served as the committee's ranking member for the past 10 years. "I like to think we can show the leadership in Congress that we should be working together in key areas."

"Stand down on the rhetoric," she continued. "I want to set a tone that is bipartisan, that is welcoming … where there is a safe space for dialogue that leads to pragmatic solutions."

Murkowski and Manchin appeared together on a CERAWeek panel days after publishing an *op-ed* in The Washington Post that called for "responsible" action on climate change. "There is no question that climate change is real or that human activities are driving much of it," they wrote, taking a position their constituents might consider heresy.

The op-ed was a follow-up to the ENR Committee's hearing on climate change the week before. (See *Senate ENR Committee Discusses Climate Change*.)

The column did not mention Manchin's staunch support for West Virginia coal mining, nor Murkowski's *backing* of oil drilling in the Arctic National Wildlife Refuge, policies that contribute to carbon emissions. Nor did it make any concrete policy proposals. They suggested only that the solution to climate change is unleashing American ingenuity, saying that the U.S. "must continue to lead the world in the development of new and improved technologies."

"If we're going to talk the talk about how we innovate our way to a lower-carbon economy, let's make sure we facilitate and foster these really great ideas," Murkowski said, referring to CERAWeek's exhibit halls filled with the latest

Sen. Lisa Murkowski (R-Alaska) | © RTO Insider

Sen. Joe Manchin (D-W.Va.) | © RTO Insider

in energy technology. "It's like dream stuff out there. This is what we need to advance a lower-carbon economy. Is it the government's role to take every great idea and underwrite it? Absolutely not, but we can wisely help facilitate their development."

President Trump's proposed 2020 budget would cut funding for the Department of Energy's Office of Energy Efficiency & Renewable Energy (EERE) by 70% and eliminate the Advanced Research Projects Agency–Energy. Congress rejected similar proposals last year.

"We come from communities with challenging environments. We have to reduce emissions in a way that does not leave the community worse off," Murkowski said. "Let's try to dial down some of the rhetoric out there. Let's stop the messaging and the name-calling and the finger-pointing. Instead, let's decide what are some of the paths forward."

Manchin said coal and other fossil fuels still need to be part of the energy mix. "You're not going to eliminate fossil fuels, so you better find the solution or next generation. There has to be a balance," he said.

Murkowski and Manchin both took shots at the proposed Green New Deal. Manchin referred to the resolution as a position statement, while Murkowski bemoaned its use as a political wedge. Senate Majority Leader Mitch McConnell (R-Ky.) intends to put the measure up for a vote to get the Senate on the record.

The Green New Deal has "created even more of a divide when we should be coming together to address the problem," Murkowski said. "Now is not the time to put everyone in their corners and have them come out fighting with rhetoric. I find it distracts from the solutions. If you don't like the Green New Deal, what is your plan?"

During both his press briefing and panel appearance, Manchin referred to a competing *op-ed* penned for CNBC by former Energy Secretary Ernest Moniz, who served under President Barack Obama, and Andy Karsner, who headed EERE during George W. Bush's administration. Moniz and Karsner refer to a "Green Real Deal" that ensures a "wise and just transition to a low-carbon economy" and minimizes "stranded physical assets … workers and communities."

"They say we're not getting there as fast as we want, but we're getting there as fast as we can politically," Manchin said.

Murkowski worked for years with former ENR ranking member Maria Cantwell (D-Wash.) to craft a new energy policy to update the last sweeping energy bill, the Energy Policy Act of 2005.

"The energy bill is coming; we have not given up that," Murkowski said. "When you think what has happened in the energy space, with LNG terminals, renewables, batteries … when you think how much we've done and how we've done it with the anchor of policy that hasn't been enacted … there's so much that is not fresh."

But this time may be different, Murkowski said.

"You're seeing others, not just Democrats, opening up the conversation, which you didn't see five years ago," she said. "How we move forward with it is going to be important. We're putting together a conceptual plan. Saying you're either for this or you're part of the problem, that's not the way to get started.

"The more we push people off in either lane here, it will be hard for people to get to the center to come up with solutions that gain political support. Let's be practical about this." ■

CAISO/WECC News

Judge Sides with PG&E over FERC in PPA Dispute

By Hudson Sangree

A U.S. district court judge last week sided with PG&E Corp. in declining to withdraw the utility's jurisdictional dispute with FERC from bankruptcy court.

The *ruling* was a win for PG&E and a rebuff to FERC, which contended it had "concurrent jurisdiction" with the bankruptcy court over power purchase agreements that the company could seek to modify during its Chapter 11 reorganization.

Judge Haywood Gilliam Jr., of the U.S. District Court for the Northern District of California in San Francisco, on March 11 denied motions by FERC, NextEra Energy and other PG&E contractors to withdraw the case and send it to a federal trial court. The petitioners argued the case hinged on provisions of the Federal Power Act, which the bankruptcy court could not decide. PG&E contended the case could be adequately dealt with under bankruptcy law and need not involve larger questions of federal law.

In his ruling, Gilliam cited a recommendation by Bankruptcy Judge Dennis Montali, who is overseeing PG&E's reorganization, that the PPA issue be left for him to decide.

In his view, Montali wrote to Gilliam, "all that needs to be done is consider the plain language of Section 365 of the Bankruptcy Code. There you will find the answer to the question of whether FERC can decree that [the code section] must be construed to permit FERC to second-guess the bankruptcy court and impose its own decision on that court."

Calpine's Russell City Energy Center is one of the power plants at the center of the jurisdictional dispute between PG&E and FERC. | *Calpine*

The case — and the adversary proceeding PG&E initiated within the context of its broader bankruptcy proceeding —stemmed from two FERC orders issued in late January just prior to the utility's bankruptcy filing (*EL-1935*, *EL19-36*). In response to petitions from NextEra and Exelon, the commission declared it shared authority with the bankruptcy court over any wholesale PPAs that PG&E might seek to modify. (See *FERC Claims Authority Over PG&E Contracts in Bankruptcy*.)

On the day it filed for bankruptcy, PG&E confirmed in court papers that it hoped to rescind some costly PPAs. (See *PG&E Wants to Undo Contracts, Revamp Biz in Bankruptcy*.) PG&E said it has 387 PPAs with 350 companies worth about $42 billion. Those PPAs represent 13,668 MW of contracted capacity, it said.

PG&E quickly sought injunctive relief from Montali to prevent generators from seeking FERC relief. Montali must still rule on the injunction, which he told Gilliam he intends to do soon.

Gilliam agreed that resolution of the PPA issue would not necessarily involve the consideration of non-bankruptcy law. Moreover, Gilliam wrote, Montali had already received PG&E's motion for a preliminary injunction against FERC along with opposing briefs from the commission, NextEra and other generators that had intervened in the case.

The most efficient use of judicial resources would be to let Montali decide the matter, Gilliam wrote. ■

CAISO/WECC News

New Mexico Moves Toward Clean Energy, EIM Participation

Continued from page 1

"The Energy Transition Act is a promise to future generations of New Mexicans," Grisham said in a news release. "When we were presented the chance to move toward cleaner sources of energy, we took it, boldly charting a course to a carbon-free future, permanently centering our commitment to lower emissions and setting an example for other states. Crucially, this legislation does not leave our neighbors in San Juan County behind, as we will provide millions for trainings and economic development."

The measure could speed the closure of the coal-fired San Juan Generating Station in northwestern New Mexico. PNM is the largest owner of the plant and has said it intends to close it by 2022, despite protests from workers and local officials.

While planning to leave coal behind, New Mexico has experienced a boom in oil production in the Permian Basin area in its southeast.

At the same time, developers are moving to install thousands of megawatts of wind generation in the hills and plains southeast of Albuquerque. The area experiences some of the strongest and most reliable winds in the U.S. (See *Tx Path Uncertain for Massive New Mexico Wind Farm*.) Solar is also a growing industry in the Land of Enchantment.

By joining the EIM, PNM is hoping to take advantage of the real-time market's ability to easily trade electricity produced from wind, solar and other resources across state lines in the West.

New Mexico's Public Regulation Commission unanimously approved a measure in December that would have smoothed the way for PNM to join the EIM by permitting it to recover about $21 million in costs. But after two new members were sworn in to the five-member commission, the PRC vacated its December order and decided to rehear the case. (See *State Regulators to Re-examine PNM's EIM Membership*.)

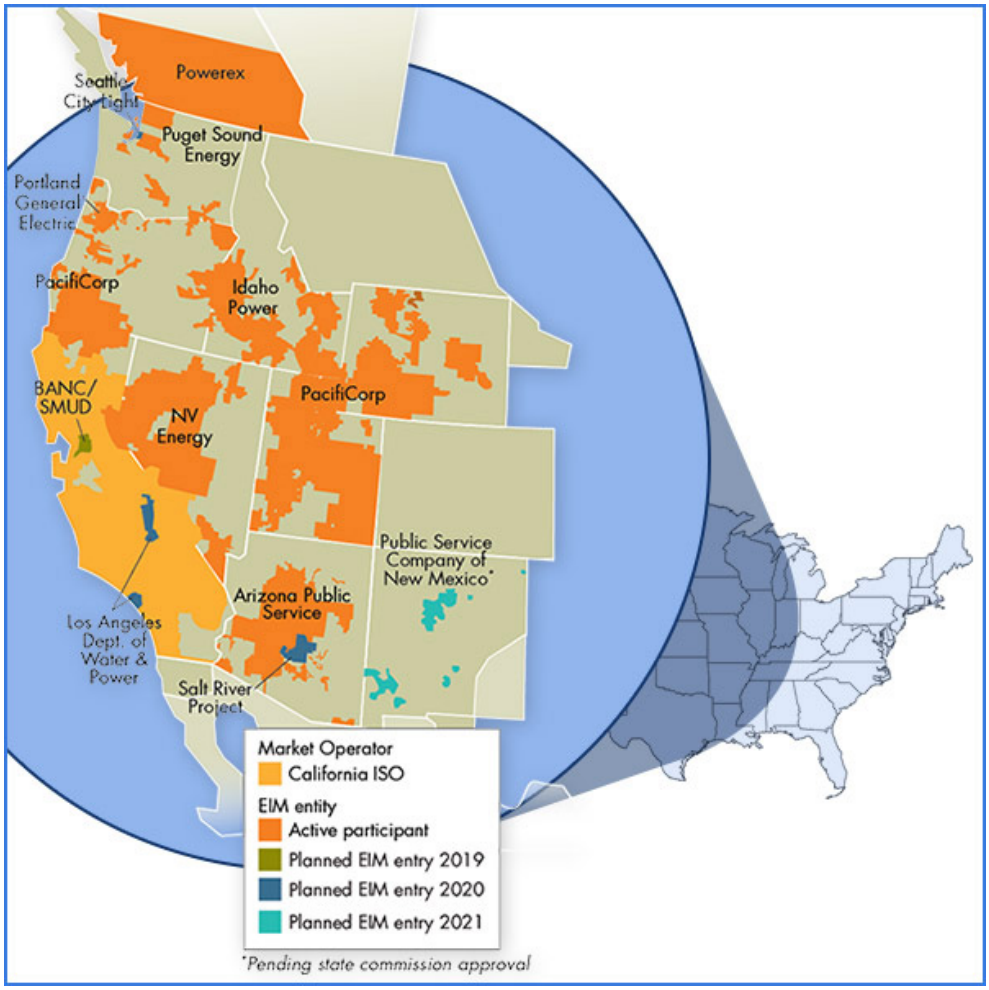
Fridley told the RIF that it will be a close call as to whether PNM can stay on its timeline to join the EIM by spring 2021. It needs PRC approval by April 1 to do so, he said.

The commission will likely vote on the issue before the end of March, he said.

Fridley said PNM is unwilling to move forward on joining the EIM without a decision by the PRC because of the costs. On the other hand, not moving ahead by April 1 could bump PNM out of CAISO's queue for joining the market. Having to wait another year would mean New Mexico would miss out on approximately $17 million in predicted annual benefits, he said.

"If we don't have a decision, that's going to jeopardize the schedule, but we believe it will be approved," Fridley told the RIF. ■

New Mexico is moving toward a clean energy future and away from fossil-fuel generation such as the coal-burning San Juan power plant. | *PNM*



Public Service Company of New Mexico wants to join the Western EIM by 2021. | *CAISO*

CAISO/WECC News

CAISO RC Oversight Committee Elects Leaders

By Hudson Sangree

CAISO's RC West Oversight Committee held its first monthly meeting Thursday at ISO headquarters in Folsom, Calif., as the grid operator prepares to assume the reliability coordinator role for most of the West this year.

Among the committee's first orders of business was to elect a chair, Michelle Cathcart, vice president of transmission system operations with the Bonneville Power Administration, and a vice chair, Steve Cobb, director of transmission and generation operations at Arizona's Salt River Project.

The election was an important step "because we really would like to make sure we're hearing clearly from you, our customers, on how we should be operating this RC," Phil Pettingill, CAISO's director of regional integration, told those in the room and on the phone. "That'll really set things up for us going forward."

Cathcart and Cobb have been serving in their roles for some time but were officially elected by committee members without opposition on Thursday.

RC West, as it's now called, has secured agreements from 39 entities in the Western Interconnection, including Arizona Public Service, PacifiCorp and Seattle City Light. Its footprint stretches from the Canadian border into northern Baja California, and from the Pacific Ocean to the Rocky Mountains.

CAISO, SPP and BC Hydro will take over RC services from Peak Reliability, which decided to roll up its RC operations, on a staggered schedule throughout 2019. (See *RC Transition Fraught with Pitfalls, WECC Hears*.)

CAISO plans to become the *RC* for its current territory in California and Mexico on July 1. BC Hydro will become the RC for most of British Columbia on Sept. 2. CAISO will then take over for many areas outside its footprint on Nov. 1, while SPP will take responsibility for other parts of the West on Dec. 3.

Michelle Cathcart and Steve Cobb were elected chair and vice chair, respectively, of the RC West Oversight Committee. | *CAISO*

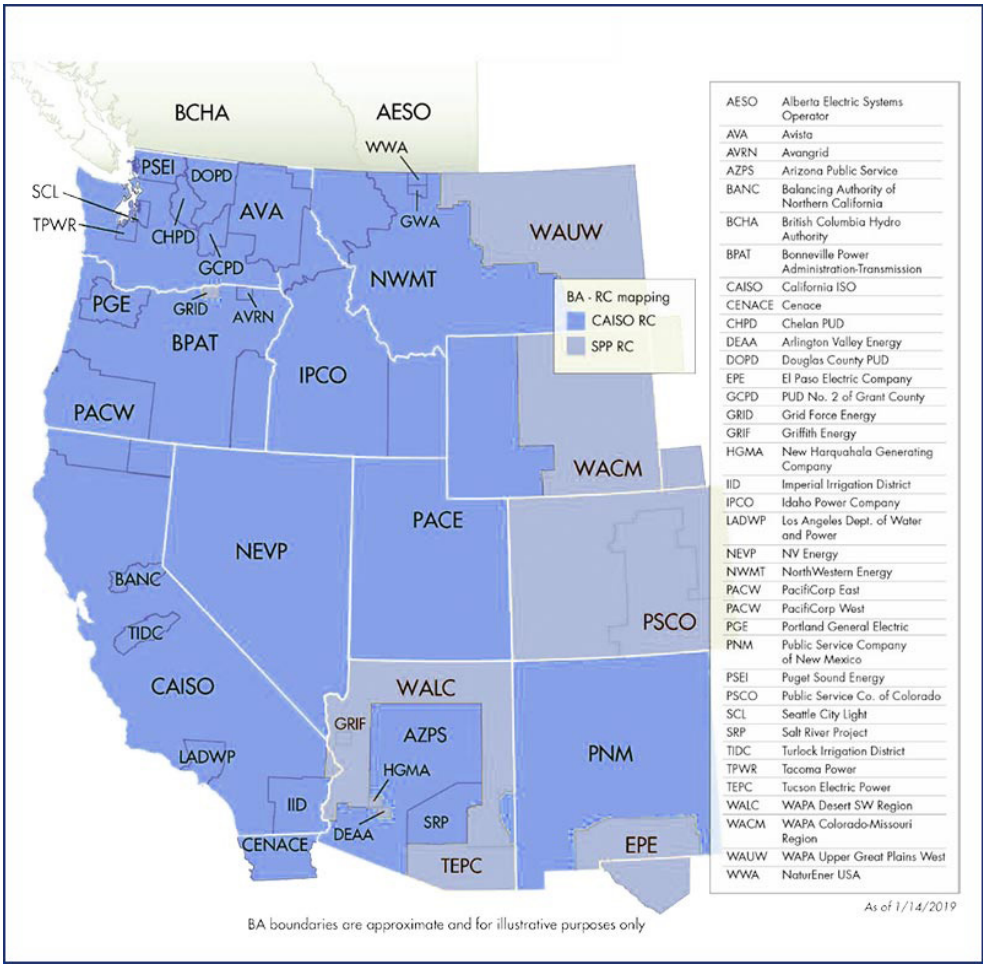
RC West has hired 18 reliability coordinators from Peak Reliability, CAISO, MISO, PJM and ERCOT, among others. CAISO set up around-the-clock control centers in Folsom, adjacent to the ISO's main control room, and at a separate location in Lincoln, Calif., which is also in the Sierra Nevada foothills near Sacramento.

CAISO reliability employees will start shadowing Peak staff on May 1. The ISO is undergoing an RC certification process by the Western Electricity Coordinating Council that is expected to last until Oct. 1.

The RC West Oversight Committee's members include representatives from balancing authorities and transmission operators throughout CAISO's RC territories. Its purpose is to provide input and guidance to CAISO's RC management team on matters related to the RC function including operational issues, policies and procedures, and new tools or staffing that significantly affect the budget and costs for RC services.

The committee is planning to meet monthly throughout 2019. Its next meeting will be a webinar on April 17 followed by an in-person meeting May 21 in Folsom. The committee has its own *webpage* on CAISO's site.

"We're pleased that the ISO's RC West is achieving targeted milestones and on track to begin operations later this year," CAISO CEO Steve Berberich said in a news release upon the committee's formation last month. "We welcome the participation from balancing authorities and transmission operators throughout the western United States, Canada and Mexico, and view this as a positive example of regional collaboration." ■



CAISO is slated to take over RC responsibilities for most of the West this year. | *CAISO*

ERCOT News

Texas Public Utility Commission Briefs

Rayburn Country's Move to ERCOT Approved

The Texas Public Utility Commission last week formally *approved* Rayburn Country Electric Cooperative's request to move 96 MW, or about 12% of its load, and associated transmission facilities from SPP into the ERCOT system. The commission set an integration date of Jan. 1, 2020, during its March 13 open meeting (Docket *48400*).

At the same time, the PUC denied Rayburn and Lone Star Transmission's request to transfer ownership of a 10-mile, 138-kV transmission line and associated rights from Rayburn to Lone Star.

The PUC put off a final decision during its Feb. 7 open meeting. (See "PUC Puts off Final Decision on Rayburn Country," *Texas Public Utility Commission Briefs: Feb. 7, 2019*.)

Rayburn owns and operates 367 miles of transmission lines in Texas, 207 miles of which are in ERCOT. The cooperative will integrate 130 miles of 138-kV lines into ERCOT, with a remaining 30-mile 138-kV circuit staying in SPP.

The co-op late last year reached an unopposed settlement with commission staff, Oncor and Texas Industrial Energy Consumers that approved the transfer. The agreement also denied the Lone Star purchase of the transmission line.

Southwestern Electric Power Co. has served Rayburn's SPP load through a power supply agreement with the co-op since the 1990s. The contract with SWEPCO will terminate at the end of 2019.

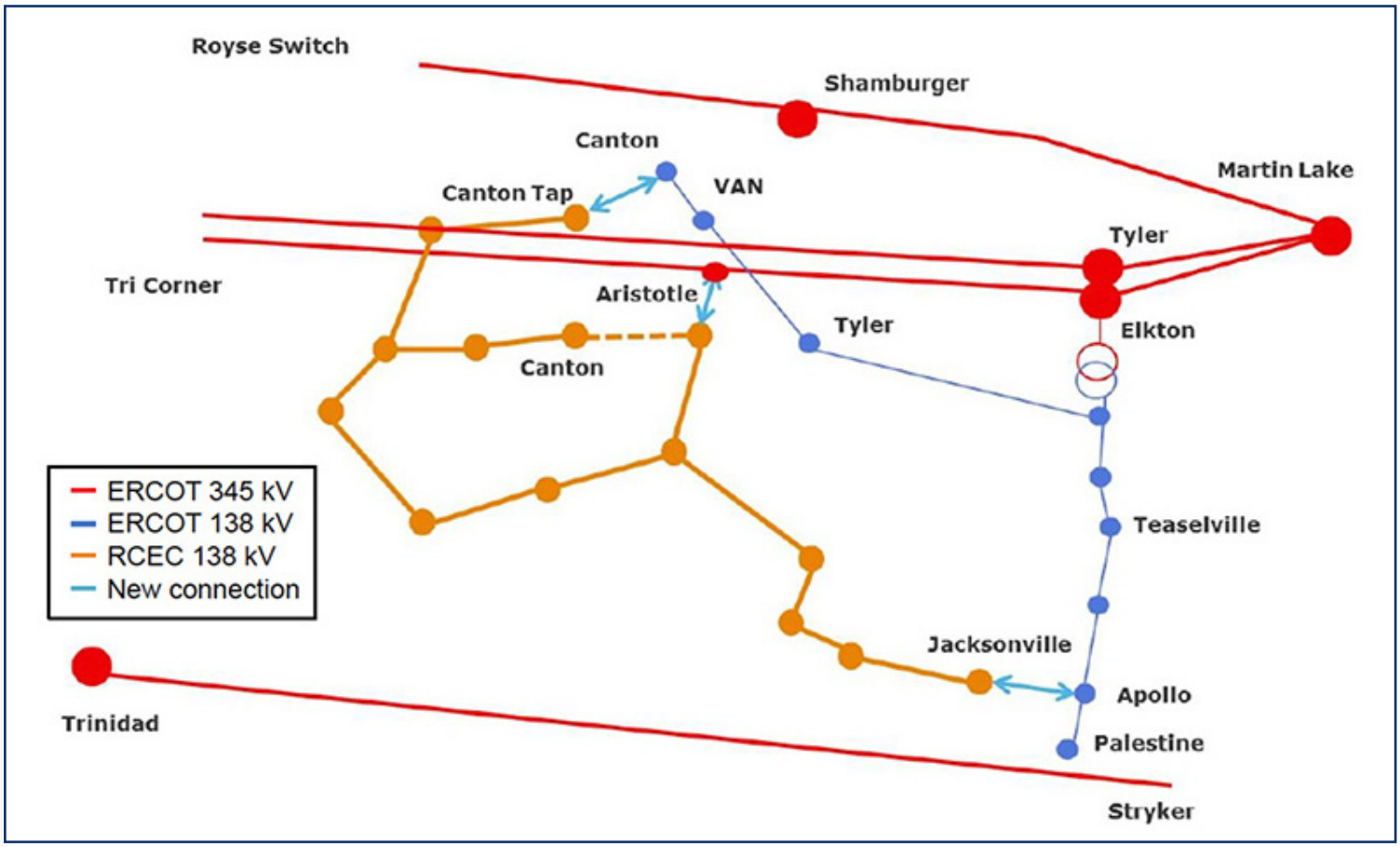
ERCOT has estimated it will cost $31.7 million to integrate Rayburn's load with the other 88% (approximately 710 MW in 2017) that is already part of the grid operator's system. Rayburn will make annual hold-harmless payments of $4.5 million for five years to ERCOT wholesale transmission customers through a wholesale transmission service credit rider.

PUC to Intervene in FERC Dockets

Following an executive session, the commission agreed to intervene in four FERC dockets:

- *ER19-1124* and *ER19-1125*, both related to MISO's Tariff modifications expanding, modifying and clarifying the identification and cost allocation of transmission facilities providing regional and local economic benefits within the RTO's footprint.
- *ER19-1156*, which adds to MISO's Tariff a cost allocation methodology for the RTO's share of certain interregional economic projects with PJM or SPP.
- The Louisiana Public Service Commission's complaint against Entergy and its operating companies that alleges the company's joint account sales of energy to third-party power marketers and other nonmembers of the Entergy System Agreement from Entergy Arkansas' Grand Gulf Retained Share violated the agreement (*EL19-50*). ■

— Tom Kleckner



ERCOT's integration of Rayburn Country Electric Cooperative | *ERCOT*

ISO-NE News

Overheard at ISO-NE Consumer Liaison Group Meeting

Power Sector Transformation Hinges on Public Policy, Flexibility

PROVIDENCE, R.I. — Offshore wind will soon be comparable in scale to other renewable energy resources such as onshore wind and solar, participants at the quarterly meeting of ISO-NE's Consumer Liaison Group heard last week.

Jeffrey Grybowski | © *RTO Insider*

New England never had natural gas or oil and has always had to pay for energy imports, but the region's luck is changing with offshore wind, said Jeffrey Grybowski, co-CEO of Ørsted US Offshore Wind.

"Offshore wind has no size constraints like there are onshore," Grybowski said. He cited the ever-growing size of commercial wind turbines as proof: Siemens (8 MW), Vestas (10 MW) and General Electric (12 MW).

"Each one of these manufacturers tries to one-up the other," he said. "The projects are getting larger, reducing costs, and Ørsted is now working on a 1.2-GW project off the U.K."

The lucky break for the region is that big load centers along the Northeast coast match the location of the highest offshore wind generation potential, Grybowski said.

"In addition, New England super-peak days in winter coincide with what are normally the highest production times for offshore wind here," he said.

On the solar front, Acadia Center *projects* the region, combined with New York, will have 24 GW of distributed solar installed by 2030, plus about 12 GW of utility-scale solar.

Erika Niedowski | © *RTO Insider*

"The economics of siting solar farms is driving developers to large, flat, forested sections of land, and this isn't Kansas," said Erika Niedowski, the center's Rhode Island director and policy advocate.

According to the state's Energy Plan, Rhode Island could develop more than 1,800 MW of solar by 2035, compared to the current 105 MW. "But we need to be developing clean energy with a balanced approach, with environmental considerations," Niedowski said.

Jeffrey Grybowski, co-CEO of Ørsted US, addresses ISO-NE's quarterly Consumer Liaison Group meeting in Providence, R.I., on March 14. | © *RTO Insider*

Douglas Gablinske, executive director of the Energy Council of Rhode Island, joked about the increasing resistance among New Englanders to any kind of new energy infrastructure: "I'll introduce a new acronym to the sector, NWN, for 'nobody wants nothing.'"

Douglas Gablinske | © *RTO Insider*

Market Policy Debate

Anne George, ISO-NE vice president for external affairs, *profiled* the RTO's activities and explained its work to enhance energy security. Prior to filing a long-term solution with FERC later this year, the RTO plans to immi-

Anne George | © *RTO Insider*

nently file an interim proposal for compensating generators for maintaining fuel inventories during winter, she said. (See related story, "RTO's Interim Winter Fuel Proposal Rejected," *RTO Insider Reporter Admitted to NEPOOL*.)

Under the proposal's two-settlement structure, resources would be paid or charged for deviations between the inventoried energy purchased in a forward position for the entire winter season and the spot settlement rate — representing energy maintained during each trigger condition.

ISO-NE estimates the voluntary program will have direct costs of $112 million to $158 million a year. George noted that "the markets work together, so though this will be a payment through the energy market, when that's dealt with in the capacity market the net cost is likely to be a lot less than that."

The New England Power Pool Participants Committee on Wednesday rejected the RTO's interim proposal, which would cover capacity commitment periods 14 (2023/24) and 15 (2024/25). Despite the proposal receiving

ISO-NE News

less than 33% vote in favor, the RTO will move ahead with its filing. Members also rejected a proposal by energy services firm Energy New England (ENE) that would have limited compensation to oil and certain natural gas, demand response and electric storage resources.

Meg Lusardi | © *RTO Insider*

Meg Lusardi, executive vice president of PowerOptions, the largest energy-buying consortium in New England, also questioned the RTO's reasoning.

"The interim program ... we refer to it as winter reliability on steroids," Lusardi said. "The program failed to win passage at NEPOOL, though how that will affect decision-making at FERC is hard to say."

PowerOptions signed on to a *study* by Synapse Energy Economics last May that showed the RTO's January 2018 fuel security *analysis* to have been too conservative, which resulted in overplaying the risk of rolling blackouts, she said.

"There are cost impacts to customers with all of these market mechanisms that are going on, and it is complicated," Lusardi said. "We all know that Mystic is being paid to run for 2022 to 2023, and maybe for 2023 to 2024, and this has been approved. The estimated cost for that is $200 million a year, so customers are going to have to take on that cost."

George also mentioned that the RTO's enhanced storage participation rules go into effect April 1, 2019. In February, FERC accepted Tariff revisions that enable batteries and other emerging storage technologies to more fully participate in the region's wholesale electricity markets. (See *FERC Accepts ISO-NE Storage Tariff Revisions*.) But still pending before the commission is the RTO's December 2018 filing that demonstrates full compliance with FERC Order 841.

Grid Transformation

Jonathan Schrag | © *RTO Insider*

Transformation of the Rhode Island power sector extends beyond grid modernization, *said* Jonathan Schrag, deputy administrator of the state's Division of Public Utilities and Carriers.

"The larger power sector transformation ... includes the work that the Office of Energy Resources is leading on procurement of clean energy resources ... and the work that our Public Utilities Commission is leading on guidance for the way we do performance incentive mechanisms," Schrag said.

The transformation also includes work his agency is taking on in collaboration with OER on non-wires alternatives, he said.

"We're not just technology-agnostic, but hostile to any particular one" being pushed over any other, Schrag said.

Since the state deployed the bulk of its advanced meters between 1999 and 2003, most "are aging out now," requiring state officials in the next few years "to make some critical choices around a very large distribution system asset."

One strategy for the state is not so much "to promote electrification, but to optimize it," he said.

Timothy Hebert | © *RTO Insider*

"Rate design is a big deal," *said* Timothy Hebert, COO of ENE, which serves municipal power companies. "What's driving cost structures for customers is really changing. Around some of the new strategies that are being employed — distributed generation, storage — we've seen a lot of interest at the municipal utility level in developing electric vehicle programs."

Regarding EV charging, Synapse's Paul Peterson noted ISO-NE performed a 2016 economic study that showed one scenario with 3 million EVs in New England by 2030.

The RTO modeled the EVs to charge at night, "ran the model, and the problem was now the peak occurred at night," Peterson said. "So then they told the model to charge the EVs at off-peak hours, and there was virtually no change to peak demand in the model, with or without the EVs, and the actual electrical energy used is not terribly significant."

Data cannot be talked about enough, as there are so many additional layers of information to look at these days, Hebert said.

"We have a lot of different things happening ... a dance going on every day." ■

— *Michael Kuser*

ISO-NE News

RTO Insider Reporter Admitted to NEPOOL

But Bylaws Bar Disclosures of Meetings

The New England Power Pool voted Wednesday to admit *RTO Insider* correspondent Michael Kuser as an End User member under strict rules that prevent him from reporting publicly on what he hears in meetings.

The organization acted in response to FERC's Jan. 29 order ruling that it has jurisdiction over NEPOOL's membership rules and that barring journalists from joining was unduly discriminatory (ER18-2208-001). NEPOOL asked FERC to reconsider the order last month. (See *NEPOOL Seeks Rehearing on Press Ban Order*.)

The stakeholder group had sought to amend the NEPOOL Agreement to bar members of the press from joining after Kuser, an electric ratepayer in Vermont, applied to join in March 2018.

In its *vote* Wednesday, NEPOOL's Participants Committee conditioned Kuser's admission on compliance with its *bylaws*, which were rewritten in June 2018 in response to his application.

NEPOOL said the revisions were intended to codify a longstanding practice barring disclosure of meeting proceedings to nonmembers.

But they also appear to carve out an exception for members who are not members of the press.

Section 5.6(a)(ii) states that:

"Attendees may use the information received in discussion, and may share the information received within their respective organizations or with those they represent, provided those who receive such communications are not press and also are aware of and agree to respect the nonpublic nature of the information. In no event may attendees reveal publicly the identity or the affiliation (other than sector affiliation) of those participating in meeting discussions…"

Members who violate the provision, the bylaws state, will have their attendance privileges revoked.

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

Many of NEPOOL's meetings are held at the Westborough, Mass., DoubleTree Hotel. | *Google*

RTO's Interim Winter Fuel Proposal Rejected

In other action Wednesday, NEPOOL stakeholders rejected ISO-NE's interim proposal for compensating generators for maintaining fuel inventories during winter.

The proposal, which would cover capacity commitment period 14 (2023/24) and 15 (2024/25), received less than 33% vote in favor, with most support from the Generation, Transmission and Publicly Owned sectors.

Members also rejected a proposal by energy services firm Energy New England that would have limited compensation to oil and certain natural gas, demand response and electric storage resources. It failed with less than 40% support, with most backing from the Supplier, Publicly Owned and End User sectors.

The votes were no surprise: Both proposals had also fallen short at NEPOOL's Markets Committee meeting the week before. However, an ISO-NE spokeswoman said the RTO would be filing its proposal with FERC regardless of the outcome of the stakeholders' votes. (See *ISO-NE Steady on Fuel Plan Despite NEPOOL Rebuff*.)

ISO-NE's plan is intended to prevent otherwise economic resources from retiring because they are not fully compensated for their winter energy security attributes. The RTO describes it as an interim measure until it completes development of a market-based compensation scheme for energy security.

The Participants Committee agenda had teed up a potential vote on proposals concerning the treatment of energy efficiency resources under the Pay-for-Performance capacity rules. However, no motion was made on the issue, according to NEPOOL.

At the March 5-6 Markets Committee meeting, members had rejected a proposal by the New England Power Generators Association to address a disconnect in the calculation of PfP penalties during scarcity conditions in off-peak hours. ■

— Rich Heidorn Jr.

MISO News

MISO Floats Draft Storage-as-Tx Rules

By Amanda Durish Cook

Invenergy

MISO last week released draft Tariff *language* that would allow energy storage resources to compete for projects in the RTO's annual Transmission Expansion Plan (MTEP).

The provision would allow storage-as-transmission assets (SATA) to pursue consideration in all classes of RTO transmission projects, including baseline reliability, market efficiency and multi-value projects, as well as market participant-funded upgrades.

During a Planning Advisory Committee meeting Wednesday, MISO Director of Planning Jeff Webb said the RTO would work with stakeholders on full Tariff revisions through May.

The rules would apply only to storage assets functioning strictly as transmission. Those assets would be able to bid for all transmission project types and be eligible for any associated MTEP cost allocation methodologies. MISO had originally proposed that SATA only be allowed to solve transmission reliability needs but changed course last month at the urging of stakeholders. (See *MISO Opens Storage Proposals to All Tx Project Types*.)

However, some stakeholders from the Transmission Dependent Utilities sector still contend that storage should be restricted to solving just reliability needs.

"Our feeling is that this is a significant expansion of the [original] scope," WEC Energy Group's Chris Plante said. "Expanding this to market efficiency projects is perhaps a bit much in the first phase of this."

"The reason we're doing this is stakeholders implied it was discriminatory to carve out reliability services from the FERC policy statement," Webb said, adding that he didn't think it appropriate for MISO to "call the shots" on the types of transmission projects available to storage.

MISO currently has "at least one" battery up for evaluation in MTEP 19 to solve a reliability issue, Webb said.

"I think it's going to be challenge," Webb said of the SATA modeling and selection process. "I think it's a reality that we may never select a storage facility, and by that I mean [meeting] the planning, modeling and evaluation process. … We're going to have to have a compelling reason to provide cost-based recovery, cost allocation to a storage device that can also provide market services."

The draft language also notes that MISO is not yet detailing how a storage asset could function as both transmission and generation. "Subsequent phases of policy development will address those issues necessary to permit mixed-mode operation of providing both transmission and market services," MISO said. Webb called the language a "temporary prohibition" and said future discussion would focus on how SATA could also maintain a market presence.

Load-shedding Considerations

But some members asked if MISO would leverage fully charged SATA during a maximum generation event to avoid shedding load.

"I think that's an extremely interesting question. I think MISO would be doing a disservice if they didn't take advantage of that," WPPI Energy's Steve Leovy said. "I think we should use fully charged batteries to avoid load shedding whether they formally have the title of … SATA."

"I'll have to think about that," Webb responded. "What we would not want to do is use the resource as a generation asset to relieve a resource adequacy issue." He said MISO would probably use the asset merely to resolve transmission constraints in order to keep the lines between generation and transmission distinct.

No non-TO Authorization

MISO's draft proposal also stipulates that SATA can be owned only by those designated as transmission owners. It did not address last month's proposal by DTE Energy to allow non-TOs' storage assets to be eligible for cost recovery for providing transmission services. (See "Non-TO-owned SATA?" *MISO Opens Storage Proposals to All Tx Project Types*.)

After the February discussion, PAC leadership determined that DTE's request raised complicated and out-of-scope cost-recovery questions. They directed the topic to the Steering Committee, where new topics in the stakeholder process are assigned to corresponding committees.

"We were really interested in seeing the follow-up to that discussion," Clean Grid Alliance's Rhonda Peters said.

"This has other elements beyond even treating storage as traditional transmission or generation. People can disagree with that assessment on our part," Webb said. ■

MISO News

MISO Details Fast-track Queue Options

By Amanda Durish Cook

MISO last week confirmed that it will work with stakeholders to develop a fast-track option in its interconnection queue to accelerate the process for projects that can demonstrate readiness for development.

The RTO's effort will focus on creating an expedited definitive planning phase (DPP) to move projects into generation interconnection agreements (GIA) faster than in the existing three-phase process.

In what was an about-face for MISO, staff last month expressed receptiveness to a fast-track queue option for shovel-ready projects. (See *MISO Pondering Fast-track for 'Shovel-ready' Generation*.) Last year staff were resistant to wind developers' pleas to create such an option even as the queue pipeline surged to a total of 90 GW. They instead urged stakeholders to await the results of MISO's 2016 queue overhaul, which created the current three-phase design. The RTO also contested a request and later FERC complaint by EDF Renewable Energy to speed up the queue with a special lane for ready projects. (See *FERC Again Denies MISO Wind Developers' Queue Complaint*.)

MISO's queue now contains about 420 projects worth a combined 70 GW, after interconnection customers withdrew 43 projects in January, with renewable resources accounting for about 90% of the queue. The average project takes a little more than 500 days to work its way from application to interconnection approval.

Although MISO has signaled readiness for a proposal, it says several design details need to be worked out. Resource Interconnection Planning Manager Neil Shah said the move would be heavily shaped by stakeholder input.

"We're all open ears on this," Shah told stakeholders during a March 12 Interconnection Process Working Group meeting.

Shah said MISO, which deferred fast-track discussion in 2017 based on lukewarm response from interconnection customers, has since received "a handful" of new requests for an expedited DPP. Devising a fast-track option now would be a "proactive" move, he said, adding that MISO's current provisional GIA process has limitations, with customers completing the process without a permanent GIA in place.

"We heard the process is not meeting needs for shovel-ready projects," he said.

Shah foresees an expedited DPP that can be scaled in three to six months for select projects: "That's what I envision. Obviously, they should be ready to provide all the evidence that they're ready."

He said project owners would have to "submit evidence of viability at the time of request" to use the expedited process.

However, MISO staff said they have not yet determined exactly how to measure project readiness.

But the RTO is considering multiple requirements for entering the expedited DPP, Shah said, including higher queue fees, more certain environmental permitting, cash as security and a method for covering the risk of queue restudies.

MISO also said projects opting for the expedited process will still be responsible for the full cost of necessary network upgrades.

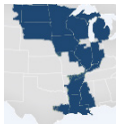
'Queue-jumping?'

Entergy's Yarrow Etheredge asked MISO to look into the possibility of project owners using the expedited process to "game" the interconnection queue.

Shah agreed and asked if stakeholders would have "queue-jumping concerns" if the expedited option becomes available to all interconnec-

| *MISO*

MISO News



tion customers. He also asked whether they would prefer either a megawatt cap or a limit of the number of projects an interconnection customer can request.

"If it's available to all customers, is it queue-jumping?" Shah asked stakeholders. He added that if MISO crafts stringent enough requirements, it may not have to worry about limits.

"If there's two queues, one for shovel-ready projects, and one for speculative projects, it might not be queue-jumping," Etheredge said.

"Excellent point," Shah replied.

Shah also asked for written stakeholder input until April 2. MISO staff will review the feedback and return with more discussion at the May 14 meeting of the Interconnection Process Working Group.

Measures to Accelerate Existing DPP

MISO says it is also developing a plan to reduce its regular, three-phase queue design and GIA process. The current DPP alone is approximately 355 days, which the RTO is proposing to reduce to 265 days, with Phase 1 cut from 140 to 80 days, Phase 2 staying roughly the same at about 80 days and Phase 3 slimmed from 135 days to about 105 days. MISO will also attempt to reduce the timeline allotted to negotiate GIAs from 150 days to about 100 days.

Arash Ghodsian | © RTO Insider

"We looked back in the history of queue reform. We've gone through a number of process improvements. … After reassessing the queue … we thought maybe we can look at a different angle to gain efficiencies to reduce the timeline," MISO Manager of Resource Interconnection Arash Ghodsian said.

To achieve the reductions, MISO said it will start generation modeling before Phase 1 of the DPP begins and complete voltage and thermal studies internally rather than outsourcing them. Ghodsian said MISO found it can complete the study quicker than it takes a third party to develop study models. The RTO also expects less complicated Phase 3 modeling and system impact studies after already moving to reduce the number of late project dropouts by increasing site control deposits and milestone fees. (See *MISO to File Queue Changes Before Year-end*.)

Ghodsian also noted that reduced time spent on GIA negotiations is an obvious spot to seek efficiencies, given that 57% of projects that sign interconnection agreements do so under the full timeline outlined in the Tariff.

But stakeholders said multiple project applications currently in the queue claim the same patch of land for building generation, which could complicate early modeling. MISO staff agreed that certain steps must be taken before the RTO holds scoping-level calls as part of the queue application process.

"Those things must be addressed before we start analysis. I agree we're seeing some of this today," Ghodsian said. He said MISO's queue improvements proposed last year should help "quality control" the project applications.

"There's going to be a lot of back-and-forth going on. We're going to have checkpoints," Ghodsian said of drafting the models. He also called MISO's proposed timeline "a starting point" and asked for written stakeholder input through April 2.

"This is just a proposal; we would like to hear your thoughts on these changes," Ghodsian said. ■

MISO News

MISO Going Back to the Futures for MTEP 20

Stakeholders Call for More Renewable Representation

By Amanda Durish Cook

MISO says it will rely on the same set of futures for the third straight year when it evaluates transmission projects in its 2020 Transmission Expansion Plan (MTEP 20) — but some stakeholders are eager for a rewrite of the scenarios.

The RTO announced the decision at a Thursday workshop on MTEP 20 futures development after proposing last month to recycle the futures with limited demand, capital cost, fuel price, retirement and renewable data revisions. But some members have argued that MISO's limited fleet change future is no longer a likely scenario, and others have asked for more integration of the RTO's ongoing, multiyear renewable generation study. (See "MISO Proposes Virtually Unchanged MTEP 2020 Futures," *MISO Planning Week Briefs: Feb. 12-13, 2019*.)

MISO in 2017 created four future scenarios for use in MTEP planning, including:

- limited fleet change, in which the fleet remains relatively static with coal units retiring at the end of their useful life;
- continued fleet change, in which the grid develops according to the trends of the past decade;
- accelerated fleet change, driven by a strong economy that increases demand and motivates carbon regulations and increased renewable use; and
- a future in which distributed and emerging technologies become more widely used.

Veriquest Group's David Harlan questioned whether the scenarios still capture the "bookends" of possibilities in the future. He pointed out that MISO could approve a major transmission project that looks useful under all four futures but proves not to be as beneficial as expected.

"There is a fairly large appetite to think about updating futures for the next cycle," Harlan said. He also asked for MISO to provide more transparency into how it assembles futures assumptions.

The Union of Concerned Scientists' Sam Gomberg said the futures "continue to underestimate the pace of renewable generation deployment across the region."

In written *comments* submitted to MISO, the UCS said, "In particular, the limited fleet change future presents an unreasonably low assumption. … While we agree with MISO's assertion that there have been no significant changes to state or federal policies to warrant new futures narratives, other significant drivers of renewable deployment have emerged in recent years and continue to accelerate renewable energy penetration levels."

But NextEra Energy said, "Extensive updates to the base data are warranted."

"The most significant economic changes have been cost reductions and technological improvements for wind, solar and battery storage generation. This has fundamentally changed the long-term value proposition of these technologies," NextEra said. The company also pointed to 10 MISO utilities that have significant renewable or carbon reduction goals.

On the other hand, DTE Energy and American Transmission Co. said MISO's plan to merely refresh its futures' base data for MTEP 20 was appropriate. WPPI Energy said didn't see an urgent need to revamp the futures for MTEP 20, but it asked MISO to plan an extensive retooling for 2021.

Consultant Roberto Paliza questioned whether MISO was properly considering recent climate change studies, electric vehicle expansion, corporate promises to get energy sourced from renewables and several utilities' decarbonization commitments in the next decades.

There's a "new potential reality," he said. "I'm concerned that major transmission expansion will be made without focus on future possibilities that are not covered by these futures."

"Today that hasn't been hard-baked into the futures, but it's an important conversation to have," agreed MISO Planning Manager Tony Hunziker.

Hunziker said that even though MISO's goal is to reuse the MTEP 19 futures for 2020, the RTO could incorporate some minor changes if "there's critical mass on agreement" and it has the manpower, technical capability and time to make them.

But Minnesota Public Utilities Commission staff member Hwikwom Ham said the main uncertainty is load growth, more so than retirements and renewable penetration.

MISO will hold another workshop on the subject next month and expects to finalize MTEP 20 futures sometime in June. ■

| © RTO Insider

MISO News

MISO Considering Slimmed-down MTEP Report

By Amanda Durish Cook

MISO plans to revamp its annual Transmission Expansion Plan (MTEP) report to emphasize the justifications and analyses behind the list of proposed projects while removing some planning process narratives.

Jesse Moser | © *RTO Insider*

Director of Strategy Jesse Moser said that the streamlined MTEP report will focus more sharply on the business cases for transmission projects.

"We think some of these changes will make the report more user-friendly with a few resource efficiencies along the way," Moser told the Planning Advisory Committee on Wednesday.

MISO's last five MTEP *reports* have typically stretched to about 200 pages.

"Over time — I think the first MTEP report was MTEP 03 — it's grown and grown to include everything related to our transmission planning process," Moser said. He said the report currently includes "a lot of repetitive, boilerplate" descriptions of the planning process that could be relocated to MISO's website. He added that some compliance-necessary language must remain.

Moser said last year's report included a late addition of load shape forecast changes, which "wasn't necessarily tied to transmission projects being approved in that cycle" and ultimately delayed the PAC's vote to recommend the report.

Instead of detailing the planning process, MISO could create a more exhaustive executive report that explains industry trends and summarizes important stakeholder decisions in the year, he said.

MTEP 18 full report cover | *MISO*

MISO is also proposing to scrap the report's first draft review before the PAC that historically takes place in early August. The committee would get its first look in September under the proposed changes.

"What we've found historically is that it's pretty early in the process and we're still wrapping up the report. Sections of the report vary in terms of completeness. We'll have a more complete product for review," Moser said.

Moser said one less review would also cut down on stakeholders' workload.

Consultant Roberto Paliza asked if stakeholders found the current report "tedious or impenetrable," or if MISO staff are introducing the change independently.

"This is our initiative. We've had this in mind for several cycles now," Moser replied.

But some stakeholders said the existing format provides a good historical — and preserved — record of reasons behind transmission project decisions.

"The problem of including website links is they're volatile," Paliza said. He pointed to MISO's 2017 website redesign where, in some cases, web pages and previously accessible information were lost. "I think it provides a very important memory of what went on in the system of MISO."

Other stakeholders said they were concerned the new schedule excises an entire month of stakeholder feedback and compresses the time allotted for stakeholder review from four months to three.

But staff said putting an incomplete draft report forward for review creates more confusion than necessary.

"When you get the report, it should be substantially complete," Director of Planning Jeff Webb said.

"I think it's probably good for the stakeholders and the board to have a very focused MTEP report," PAC Chair Cynthia Crane said.

However, Crane asked for a more detailed discussion on what exactly would be removed from the report.

Moser said he would return to the April PAC meeting with more specifics. He also said the move will be discussed before the Board of Directors this week to outline what a more streamlined report might look like. ■

NYISO News

NYISO Business Issues Committee Briefs

Approves ICAP Manual Revisions

RENSELAER, N.Y. — NYISO's Business Issues Committee on Wednesday approved revisions to the Installed Capacity (ICAP) Manual regarding external to rest of state deliverability rights (EDRs).

Ryan Patterson, a NYISO capacity market design associate, told the committee that EDRs in general function similarly to unforced capacity deliverability rights (UDRs), warranting updates to the ICAP Manual to include references to EDRs in several sections that mention UDRs.

The revised sections concern maximum allowances for ICAP provided by resources outside the New York Control Area, excluding resources using UDRs and EDRs, with revisions adding an additional table to show the EDR megawatts awarded.

The proposed changes also would provide the processes for requesting, using and offering megawatts associated with EDRs, parallel with those for UDRs, as well as establish the process for requesting EDRs.

One revision fixes a broken website link, which now links to the correct section and has the correct cross reference, which led one stakeholder to ask if all the ISO's manuals have been checked for link faults since the grid operator updated its website in December.

Mark Seibert, NYISO manager of member relations, said document links continue to be updated as part of the ongoing review associated with the new website.

OKs New Zone J Operating Reserves

The BIC approved establishing operating reserve demand curves that assign a $25/MWh value to the proposed reserve requirements for Zone J (New York City), similar to the approach taken with the implementation of the Southeast New York (SENY) reserve region. (See "New Zone J Operating Reserves," *Imports/Exports Top Talk at NYISO Carbon Pricing Kick-off*.)

The Zone J reserve requirement would necessitate procuring 500 MW of 10-minute reserves and 1,000 MW of 30-minute reserves.

Ashley Ferrer, NYISO energy market design specialist, *told* the BIC that the ISO is not proposing to revise the Zone J requirement during thunderstorm alert (TSA) events in order to ensure timely implementation of the curves for June.

The ISO has recognized that activating special case resources in its emergency demand response program to protect Zone J reserves represents a $500/MWh action, which implies that a $500/MWh demand curve price for Zone J reserve products could, in the longer term, be an appropriate value to consider.

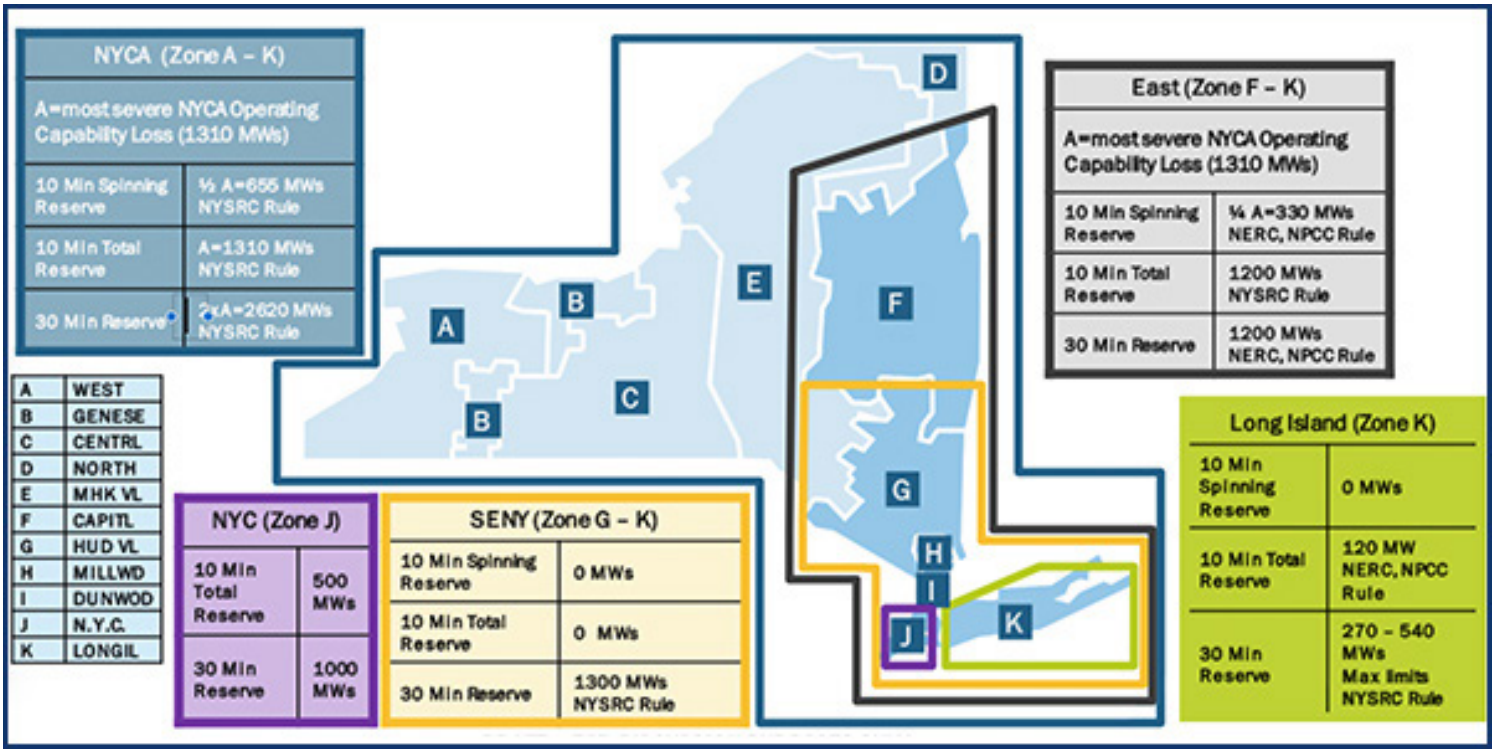
However, use of a such a steep demand curve price, absent further evaluating the appropriate reserve requirements during TSA events, could result in unnecessarily high pricing outcomes during such events, Ferrer said.

TSAs are called when actual or anticipated severe weather conditions lead the ISO to reduce transmission limits into SENY.

Assuming Management Committee approval in March, the ISO would submit the proposal to the Board of Directors in April and file Tariff revisions with FERC, seeking approval to implement it in June.

Clarifying TCC Credit Calculation

Sheri Prevratil, the ISO's manager of corporate credit, *informed* the BIC that there are three existing historic fixed price transmission congestion contracts (HFPTCCs) with start



A new Zone J (New York City) operating reserve requirement will necessitate procuring 500 MW of 10-minute reserves and 1,000 MW of 30-minute reserves. | *NYISO*

NYISO News

dates that do not match the first day of a capability period. NYISO identified the issue while developing software to use the market clearing price to calculate the credit requirement for fixed-price transmission congestion contracts (TCCs).

The ISO proposes to clarify in the Tariff how to calculate the holding requirement for HFPTCCs with start dates that do not align with the beginning of a capability period by using the proposed enhancements previously approved by stakeholders, Prevratil said. (See "Committee Approves Repricing TCC Credit Requirement," *NYISO Management Committee Briefs: Jan. 30, 2019*.)

The Management Committee will consider the proposed incremental clarifying revisions on March 27.

NYISO, PJM Revising JOA for Tie Line Issues

NYISO and PJM are targeting an April stakeholder meeting to discuss revisions to their joint operating agreement, ISO Principal Economist Nicole Bouchez told the BIC in presenting the monthly Broader Regional Markets *report*.

The ISO and PJM last September filed with FERC a joint request for waiver of the JOA to permit them to add the East Towanda-Hillside tie line as a market-to-market (M2M) flowgate.

The requested waivers enable PJM to temporarily conduct redispatch operations to control flows to the more restrictive rating on the NYISO side of the line without violating its Tariff while the grid operators work to develop a permanent solution.

The commission granted the waiver in November after both grid operators jointly *responded* to one stakeholder protest that it was a "broad, unlimited waiver," Bouchez said. (See "NYISO, PJM Win JOA Waiver Request," *NYISO Business Issues Committee Briefs: Dec. 12, 2018*.)

The ISO filed its first quarterly report with FERC addressing progress made toward developing JOA revisions to address the tie line issue, as required by the commission.

Natural Gas Prices down 122% in Feb.

NYISO locational-based marginal prices averaged $33.51/MWh in February, down by about 48% from January and only slightly from the same month a year ago, Bouchez said in delivering the monthly operations *report*. Year-to-date monthly energy prices averaged $44.93/MWh, a 38% decrease from a year ago.

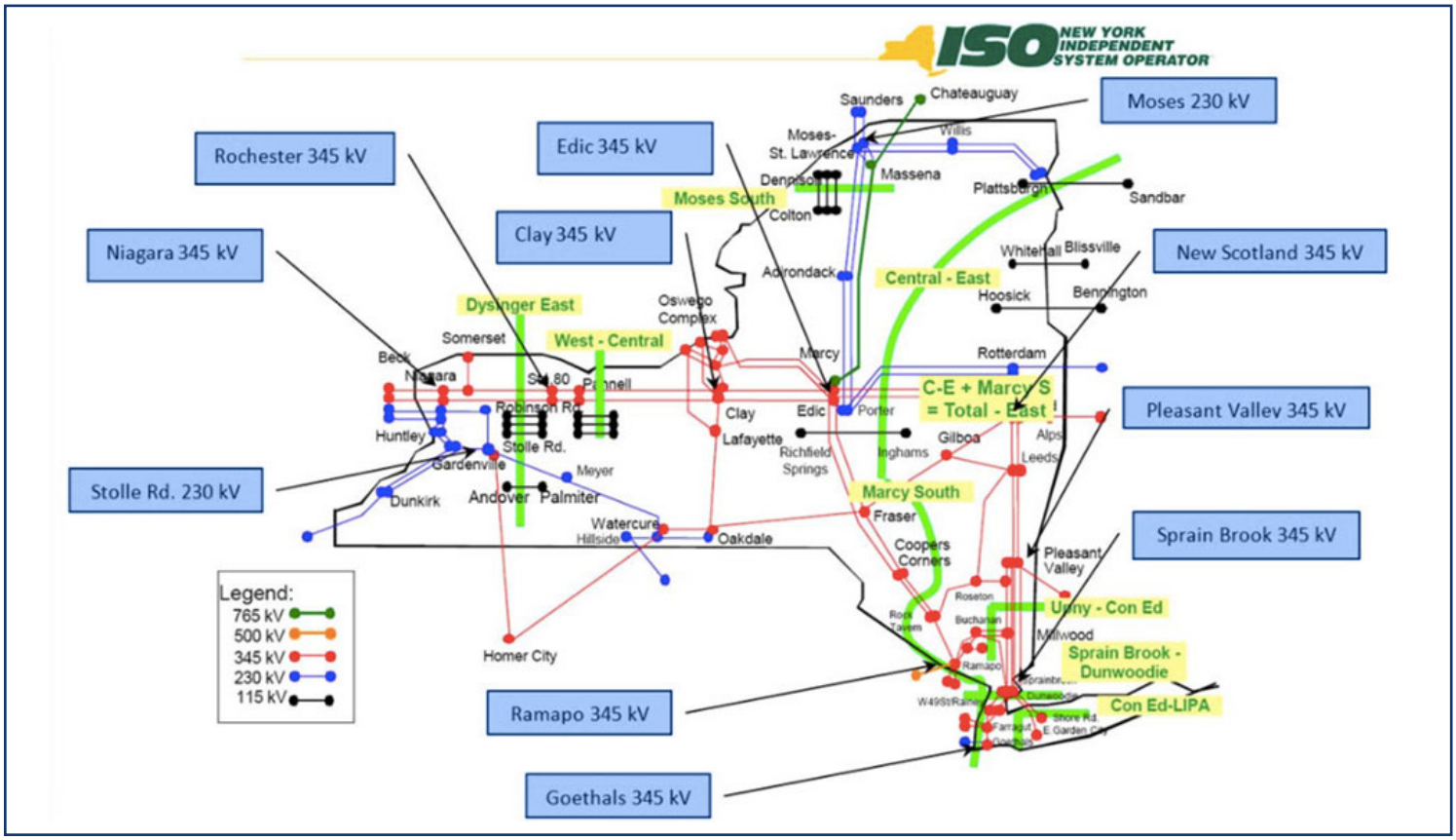
Day-ahead and real-time load-weighted LBMPs came in lower compared to January. Average daily sendout was 436 GWh/day in February, compared with 449 GWh/day in January 2019 and 426 GWh/day in February 2018.

Transco Z6 hub natural gas prices averaged $2.75/MMBtu for the month, down 122% from January and 12.4% from a year ago.

Distillate prices were up about 2.4% year over year and gained from the previous month, with Jet Kerosene Gulf Coast averaging $14.21/MMBtu, up from $13.25/MMBtu, while Ultra Low Sulfur No. 2 Diesel NY Harbor rose to $14.02/MMBtu, compared with $13.20/MMBtu.

The ISO's 11-cents/MWh local reliability share in February was down from 32 cents the previous month, while the statewide share climbed slightly to -55 cents/MWh from -57 cents in January. ■

— Michael Kuser



NYISO and PJM are working to address issues on the East Towanda-Hillside tie line near the New York-Pennsylvania border, which was recently designated as a market-to-market flowgate. | *NYISO*

PJM News

Monitor Says PJM's Capacity Market not Competitive

By Christen Smith

Unsound rules for calculating default market seller offer caps and other persistent structural flaws made PJM's capacity market uncompetitive in 2018, the RTO's Independent Market Monitor said Thursday.

"The offer cap is six times too high," Monitor Joe Bowring said while presenting the annual *State of the Market* report. "The math doesn't work the way PJM has it. The offer cap is way too high, permitting uncompetitive results."

Bowring's statements echoed the Monitor's FERC filing that requests the commission reconsider Capacity Performance assumptions, contending that PJM sellers continue to exercise too much market power. (See *Monitor Asks FERC to Cut PJM Capacity Offer Cap*.) Bowring suggests implementing a new market rule that mitigates those factors or reducing the number of performance assessment hours (PAH) used to calculate the minimum offer price rule (MOPR).

"The offer cap is too high because of the use of the wrong number of PAH," he said. "We suggest implementing a sustainable market rule instead of MOPR … most units, even though they are being subsidized, would clear with truly competitive prices."

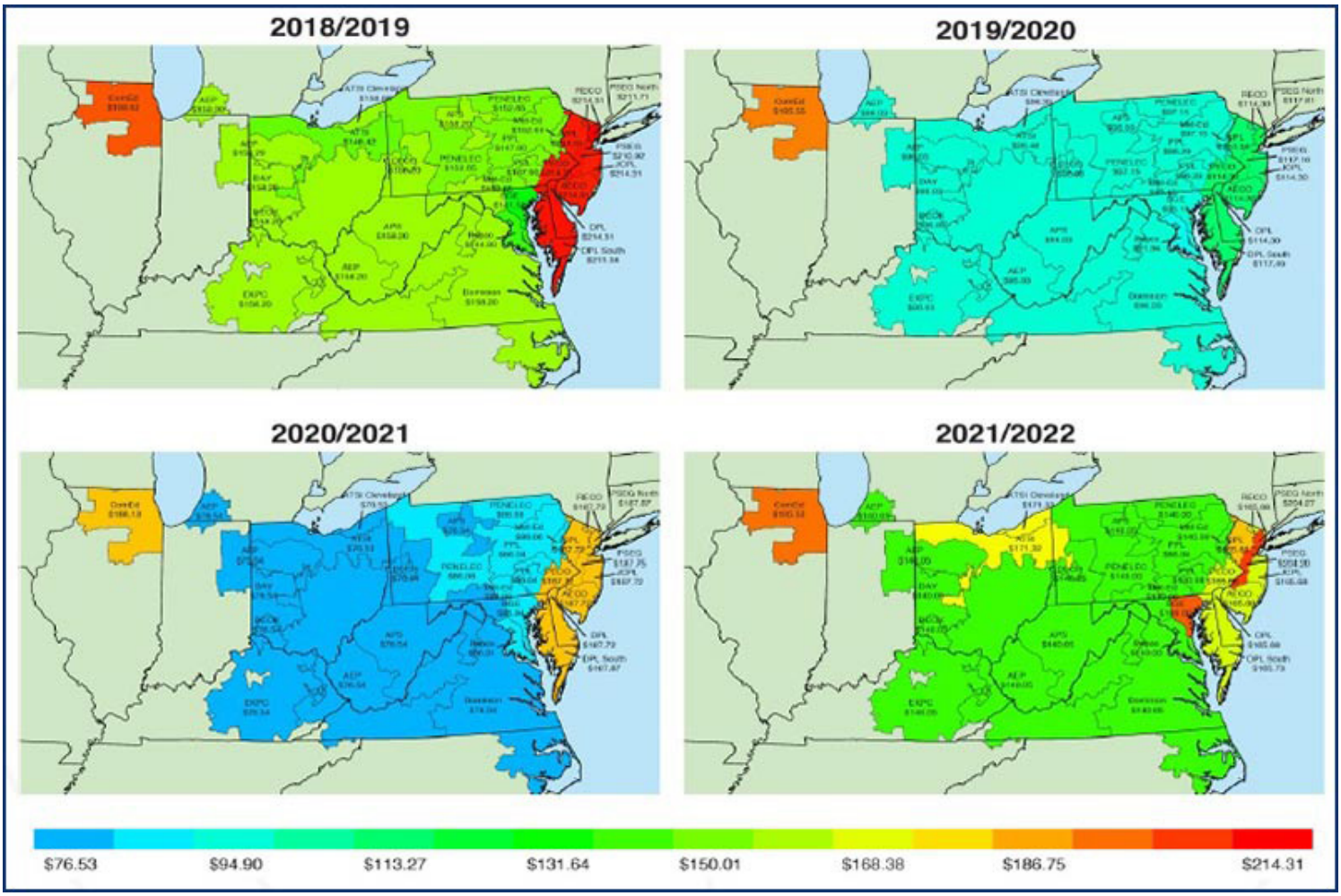
The Monitor evaluated the capacity market design as "mixed," citing several features of the Reliability Pricing Model that threaten competition, including a definition of demand response that permits inferior products to substitute for capacity, issues with replacement capacity, the definition of unit offer parameters, the inclusion of imports that are not substitutes for internal capacity resources and the definition of the default offer cap.

Bowring said DR should be removed from the capacity market entirely and redesigned to facilitate customers' response to prices. Payments should be immediate, and the offer cap should mirror that for generation, he said.

Gas Outpaces Coal in Energy Market

Gas-fired energy output exceeded coal in PJM's market last year for the first time, Bowring said. Despite this, LMPs rose 23.4% and the fuel diversity index increased. Still, the Monitor characterized PJM's energy market as being "competitive" in 2018.

Load spiked 4.3% — the biggest increase since 2012 — on account of frigid temperatures in January and other weather-related events in 2018, according to the report. PJM's energy sources remain relatively balanced among gas (30.9%), coal (28.6%) and nuclear (34.2%), with renewables accounting for a small, but



Capacity prices | *Monitoring Analytics*

PJM News

growing share of less than 3%.

"Energy prices have increased quite significantly," Bowring said. "Even though gas and coal have crossed lines, coal is still a significant presence in PJM and is still setting the price about 25% of the time."

The Monitor also suggests PJM prioritize a stakeholder process to clearly define criteria for operator approval of real-time security-constrained economic dispatch cases used to send dispatch signals to resources. The RTO should also implement a rules-based approach to pricing in order to minimize operator discretion, Bowring said.

"It's at the core of the energy market and the rules aren't clear how the market is run," he said.

Energy uplift charges increased 56.5% last year, with combustion turbines and combined cycle gas units receiving $109.3 million and $20.3 million in credits, respectively — more than half the $198.5 million allocated last year. The Monitor wants to eliminate day-ahead operating reserve credits, include regulation offsets in the calculation of balancing operating reserves and calculate the need for balancing credits and lost opportunity cost credits on a daily basis for a $47.4 million reduction in credits overall.

'Unsurprising' Nuclear Retirement Signals

Three of PJM's 18 nuclear facilities face revenue shortfalls through 2021, a natural reaction to competition, Bowring said.

"We have plenty of capacity," he said. "We don't need any particular unit to be reliable. If they can't compete, they can't compete. The fact that a unit is going to retire is not a surprising thing in a competitive market."

The three facilities — Davis-Besse, Perry and Three Mile Island (TMI) — each operate just one reactor, which is the source of their financial strain, the Monitor said. The remaining multi-unit facilities, including the subsidized Quad Cities in Illinois, will remain profitable. Even without zero-emission credits, Quad Cities would cover its costs for the next three years, Bowring noted.

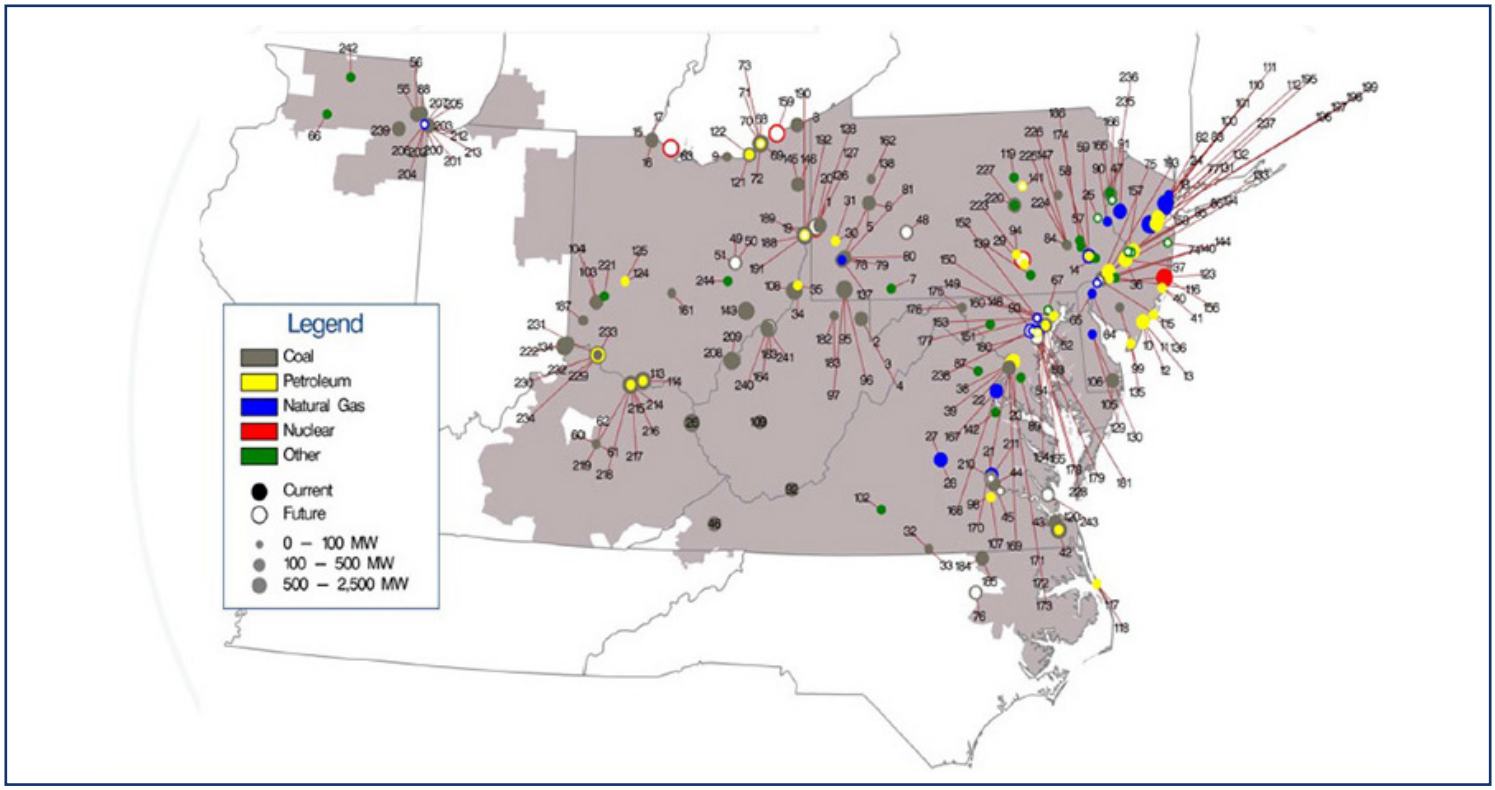
Bowring said ZECs could upset PJM's competitive markets as Pennsylvania considers subsidizing TMI and its other nuclear plants after Exelon scheduled the plant for early retirement in September. (See *PA Lawmakers Unveil $500M Nuke Subsidy Bill*.)

"Providing subsidies is a bad idea," he said. "It's contagious."

In addition, 24 coal-fired units with 12,017 MW of output are at risk of retirement as newer, more efficient technologies take over, the report pointed out. ■

	Surplus (Shortfall) ($/MWh)		
	2019	2020	2021
Beaver Valley	$8.68	$6.05	$5.39
Braidwood	$4.99	$3.67	$2.19
Byron	$4.97	$3.65	$2.18
Calvert Cliffs	$8.97	$6.79	$6.03
Cook	$5.29	$2.61	$2.16
Davis Besse	($3.97)	($6.70)	($6.52)
Dresden	$6.03	$4.66	$3.14
Hope Creek	$5.57	$4.97	$4.03
LaSalle	$4.99	$3.67	$2.19
Limerick	$5.65	$5.03	$4.08
North Anna	$8.55	$6.14	$5.48
Peach Bottom	$5.44	$4.83	$3.90
Perry	($2.53)	($5.07)	($5.00)
Quad Cities	$3.56	$2.32	$0.90
Salem	$5.55	$4.95	$4.00
Surry	$8.39	$5.97	$5.32
Susquehanna	$3.41	$1.56	$1.06
Three Mile Island	($8.91)	($10.74)	($11.20)

Nuclear unit annual forward surplus | *Monitoring Analytics*



Unit retirements across PJM since 2011 | *Monitoring Analytics*

PJM News

Courts Misread Hughes on Nuke Subsidies, Supreme Court Told

By Rich Heidorn Jr.

Exelon's Byron Generating Station's two nuclear reactors in Illinois produce more than 2,300 MW of electricity.

Merchant generators' Hail Mary pass for a U.S. Supreme Court review of Illinois and New York nuclear subsidies has won support from PJM's Independent Market Monitor and others, who said lower courts have misinterpreted precedent on federal jurisdiction.

The Electric Power Supply Association asked the court in January to review rulings by the 2nd and 7th U.S. Circuit Courts of Appeals that the subsidies did not intrude on FERC's jurisdiction over wholesale markets. The deadline for filing amicus briefs in response to EPSA's petition for certiorari was March 11. (See *EPSA Asks Supreme Court to Review ZEC Rulings*.)

Exelon joined Illinois and New York officials in saying the court should leave standing the states' zero-emission credit programs. EPSA was supported by the Monitor, PJM industrial customers, the American Petroleum Institute and a group of economists.

The Supreme Court hears a small percentage of the cases on which it is petitioned. But the stakes of a ruling could have impacts beyond New York and Illinois. New Jersey and Connecticut have also approved nuclear subsidies and Pennsylvania regulators introduced a subsidy bill on March 11. (See *Pa. Lawmakers Unveil $500M Nuke Subsidy Bill*.)

'Artful Description'

EPSA's supporters said the appellate courts misinterpreted the Supreme Court's 2016 ruling in *Hughes v. Talen*, in which the court unanimously rejected Maryland's contract-for-differences with a natural gas plant.

The court also provided state regulators guidance for crafting their programs in the future, saying it rejected Maryland's initiative only because it was tied to PJM capacity prices. "So long as a state does not condition payment of funds on capacity clearing the auction, the state's program would not suffer from the fatal defect that renders Maryland's program unacceptable," the court said.

Monitoring Analytics, PJM's Monitor, said the appellate courts were mistaken in upholding the ZEC programs based on the *Hughes* ruling.

"Legislators can easily contravene FERC's authority over wholesale rates by artful description or avoiding description of the mechanism rather than transparent statutory language. An explicit tether like that appearing in *Hughes* is easily avoidable, as the ZECs programs at issue here illustrate," the Monitor *wrote*.

The Monitor said failing to overturn the appellate rulings "may effectively end federal control over the interstate wholesale power markets, contrary to the jurisdictional framework in the Federal Power Act. The record shows that FERC has gone out its way to accommodate the states. How have the states accommodated FERC? If anything, petitioners understate the risk. The public will be ill served if regulation through competition survives in name only."

Seven economists, including consultant Roy Shanker and Harvard's William Hogan, agreed.

"The courts of appeals sought to distinguish the ZEC subsidies adopted by Illinois and New York from the contract-for-differences subsidy adopted in Maryland. From an economic point of view, however, those distinctions are without substance," they *wrote*. "As with the Maryland program, the ZECs pay favored generators a subsidy based on their wholesale market participation, thereby guaranteeing them a price that is different from the price set in the auction. Although there are differences in the details of the price-setting mechanisms employed by the subsidy programs, those differences are largely irrelevant to their basic design and purpose."

The economists also said the ZEC programs may not support carbon-free electric generation, as their supporters contend.

"There is no assurance that the generating resources that the nuclear generators will displace are carbon-emitting: on the contrary, the distorted market may discourage entry of clean energy sources and thereby perpetuate carbon emissions," they said. "It also may discourage conservation, and indeed encourage greater consumption, due to lower wholesale prices, resulting in greater amounts of generation from less 'clean' resources."

A group of industrial consumers disagreed with the lower courts' likening of ZECs to renewable energy credits. "ZECs are calibrated to backfill the difference between wholesale market revenue and the claimed revenue requirement of particular uneconomic nuclear units," *said* the PJM Industrial Customer Coalition, the American Forest & Paper Association, the Illinois Industrial Energy Consumers and the Electricity Consumers Resource Council. "While RECs are traded on an open market among various market participants, ZECs are state-mandated payments from customers in that state to specific qualifying nuclear units."

The American Petroleum Institute also *called* for a Supreme Court review of the New York program, calling it "incompatible with federal energy policy governing wholesale markets."

Exelon, States Respond

Exelon Generation, the largest nuclear operator in the U.S., *said* the court should leave the circuit court rulings alone, citing what it said are procedural problems with EPSA's petition.

"FERC, the states and all eight judges to have considered the question agree: There is no

Continued on page 31

PJM News

PJM MRC/MC Preview

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

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

Markets and Reliability Committee

Consent Agenda (9:10-9:20)

Members will be asked to endorse the following manual revisions:

B. *Manual 13: Emergency Operations*: Updates *language* to align with both NERC EOP-004-4 and OE-417 reporting requirements in Attachment J, relating to disturbance reporting.

C. *Manual 20: Resource Adequacy Analysis*: Periodic cover-to-cover *review* includes minor grammatical corrections and updated language to reflect implementation of Capacity Performance. Removes references to demand resource factor and deletes sections 5 and 6, which relate to demand-response reliability target analysis procedures and limited-availability resource constraint procedures, respectively.

D. *Manual 37: Reliability Coordination*: Periodic cover-to-cover *review* that includes minor grammatical updates and annual changes to transmission owner designations. Adds PJM's Reliability Plan to attachment A and updates appendix D to include AMP Transmission as a TO.

1. Deficiency Cure Periods (9:20-9:30)

PJM will ask stakeholders to endorse changes to *Manual 14A: New Services Request Process* and the Tariff that would give customers 10 days to fix minor errors in interconnection requests whether they submit their application on the first or last day of the new services request window. (See "Quick Fix for Queue Filing Errors Endorsed," *PJM PC/TEAC Briefs: Feb. 7, 2019*.)

It would be effective with queue AF1, which opens April 1.

2. Fuel Security Problem Statement and Issue Charge (9:30-10:00)

PJM will seek endorsement of its *plan* to address potential fuel security threats, even though stakeholders called the proposed 12-month timeline for drafting Tariff changes too aggressive last month. (See "Stakeholders Urge Slower Timeline on Fuel Security," *PJM MRC/MC Briefs: Feb. 21, 2019*.)

Stakeholders will be asked to endorse a *problem statement* and *issue charge* centered on ensuring grid reliability during times of extreme stress. It would create a senior task force reporting to the MRC with a schedule calling for a task force recommendation by September and a FERC filing in December.

PJM drafted the problem statement as part of a three-phased approach for ensuring the resilience of its generation portfolio. Staff completed the Phase 1 analysis in December, saying that while no imminent risk currently exists, the RTO should explore proactive, market-based mechanisms for retaining or procuring fuel-secure resources. (See *PJM Begins Campaign for Fuel Security Payments*.)

The D.C. Office of the People's Counsel has drafted an alternative *problem statement* and *issue charge* that would have stakeholders evaluate "energy" security rather than PJM's focus on "fuel" security and would provide education on the roles of DR, renewable resources and energy storage in ensuring energy security. It also would require the RTO to provide a probability level of risk for all options and mandate a "rigorous cost-benefit analysis" for any rule changes.

Members Committee

1. Meeting Locations (1:25-1:55)

Members will vote on a proposal to move future MRC and MC meetings to PJM's Conference and Training Center in Valley Forge, Pa.

Katie Guerry of Enel X proposed the location changes during the Feb. 21 MC meeting, saying the center provides stakeholders cost efficiencies, as they have access to PJM staff and resources while they are there. (See "Stakeholders to Consider Retiring Wilmington as Meeting Site," *PJM MRC/MC Briefs: Feb. 21, 2019*.) ■

— *Christen Smith*

Courts Misread Hughes on Nuke Subsidies, Supreme Court Told

Continued from page 30

pre-emption," Exelon said. "Petitioners cry that ZEC programs will destroy FERC's markets, but that is belied by FERC's own words. FERC and the United States told the court that FERC 'has the means and the authority to confront' any 'effects' on its markets from ZEC programs, and that 'the Federal Power Act does not pre-empt' such state programs."

Exelon noted that FERC is considering market rule changes to accommodate state programs while insulating wholesale markets. "Judicial intervention now would disrupt FERC's effort to use the scalpel of regulation, rather than the chainsaw of pre-emption," it said.

The Illinois Power Agency and Illinois Commerce Commission *insisted* the 7th Circuit's ruling upholding the state program was consistent with *Hughes* and other precedents under the FPA.

"Petitioners' argument disregards key differences between the two programs that firmly support the 7th Circuit's conclusion that the ZEC program falls comfortably within the states' authority over power generation and does not invade FERC's authority to regulate rates for wholesale sales of electricity," they said. "Put simply, ZEC payments for generating emission-free electricity do not set the price for any wholesale sale of that electricity."

The New York Department of Public Service agreed. "Because ZECs are awarded for production without regard to sales, they will not change how eligible plants sell their output," it *said*. "They will not induce a generator to sell in a wholesale auction instead of by contract or at retail. Nor will they change the bidding behavior of a generator that opts to sell in a wholesale auction. When a nuclear plant sells its output in a wholesale auction, it does so as a price taker because it cannot readily turn off and on in response to short-term price fluctuations." ■

PJM News

PJM to FERC: Hurry Up with Auction Guidance

By Christen Smith

PJM urged FERC last week to expedite guidance on the RTO's upcoming Base Residual Auction as stakeholders prepare for deadlines on two different sets of rules (*EL16-49*).

The March 11 informational filing came days after PJM's Jeff Bastian walked the Market Implementation Committee through the upcoming schedule in what he called a "parallel path" to the Aug. 14 auction, for delivery year 2022/23. Sellers had to confirm whether they will be offering resources with "actional subsidies" by Sunday — a deadline stakeholders said was unreasonable. (See *Capacity Market Sellers Anxious over Uncertain PJM Auction Rules*.)

FERC last summer granted PJM's request to delay the auction in response to the commission's ruling requiring the RTO to revamp its minimum offer price rule (MOPR) to address price suppression from rising state subsidies for renewable and nuclear power (*ER18-2222*). PJM filed its proposed MOPR changes Oct. 2 and said a FERC ruling by Friday would have kept the August schedule on track.

As of press time, FERC has not responded in either docket. Bastian had said on March 6 it seemed no direction from the commission was imminent.

Jeff Bastian, PJM | © *RTO Insider*

Stakeholders pressed PJM to file an additional waiver delaying the auction again, but the RTO preferred to prepare for two different scenarios: moving ahead with existing Tariff provisions in the absence of FERC guidance and also requiring sellers to file based on PJM's proposed rules.

"To avoid a 'self-fulfilling prophecy' of frustrating the ability of PJM to implement the substitute Tariff provisions it served up to the commission in this proceeding, PJM believes that for the moment, it is prudent to continue to require submittals under both the new proposed and existing Tariff provisions," PJM said in its March 11 filing.

The RTO went on to say FERC's inaction grows more problematic every day.

"A timely comprehensive ruling by the commission is clearly needed as we approach the August BRA and the various preparatory deadlines for submittals by market participants leading up to the August auction," PJM said. "However, in the interim and at least for the present upcoming deadlines, PJM believes it prudent to continue, as it has done in other instances, to proceed down a path requiring submittals under both the existing market rules as well as the PJM proposed market rules."

PJM pointed out that while it has previously conducted auctions in the face of pending Section 205 filings and Section 206 complaints, "it has not conducted an auction when there has already been a commission finding that its existing capacity market rules are unjust and unreasonable with no established just and reasonable replacement rate in place — as is the circumstance PJM finds itself in now." ■

SPP

SPP Seams Steering Committee Briefs

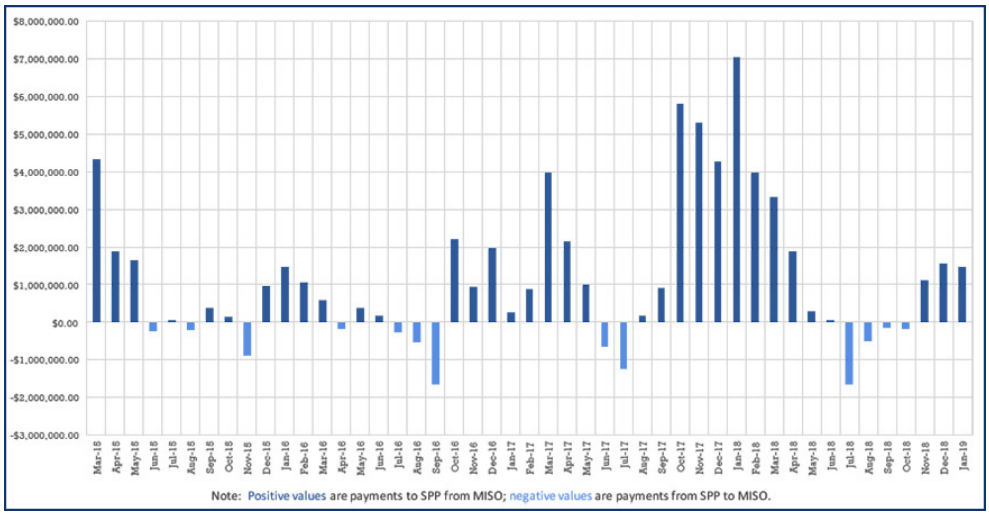
RTO to Develop Single Final CSP Portfolio

SPP staff last week told stakeholders that it will have to make decisions on potential interregional projects in the 2019/20 coordinated system plan (CSP) with MISO without knowing the results of MISO's final approval process.

Timing differences between the RTOs' approval processes may result in SPP's final CSP portfolio including an interregional project that assumes some level of cost sharing with MISO that is not eventually approved, SPP Interregional Coordinator Adam Bell said during the Seams Steering Committee's Wednesday conference call.

Bell said developing a single final portfolio that is the most optimal and cost-efficient for SPP keeps open potential cost sharing with MISO.

The RTOs' staff and stakeholders last month recommended conducting a CSP that will study six possible sites for interregional transmission projects. Should the MISO-SPP Joint Planning Committee approve the proposal, the RTOs will begin working on the CSP's scope. (See *MISO, SPP Seek Coordinated Plan in 2019*.)



January's market-to-market update | *SPP*

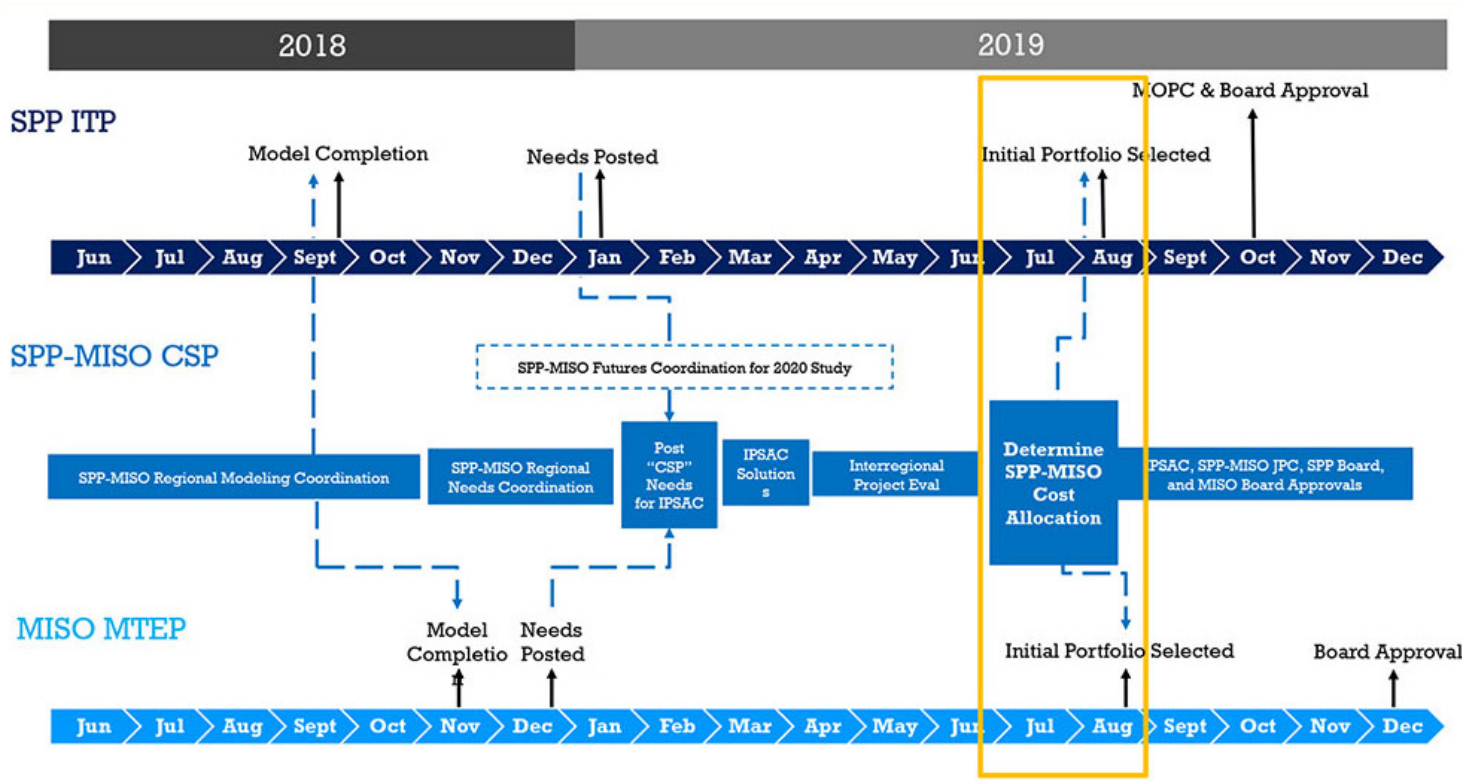
M2M Payments Above $1M 3rd Straight Month

SPP recorded its third straight month of more than $1 million in market-to-market (M2M) payments in January, pushing distributions in its favor to $55.2 million.

Permanent and temporary flowgates on the SPP-MISO seam were binding for 181 and 310 hours, respectively. That resulted in a $1.5 million distribution from MISO to SPP.

The two RTOs began the M2M process in March 2015. Distributions have flowed in SPP's direction 22 of the last 28 months.

— Tom Kleckner



MISO, SPP coordinated system plan calendar | *SPP*

Company Briefs

PG&E Likely to Hire TVA CEO, Overhaul Board

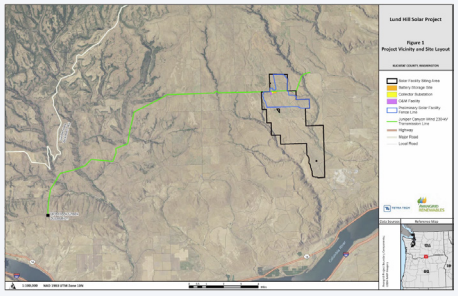
PG&E Corp. will likely hire Tennessee Valley Authority CEO **Bill Johnson** as its new chief executive as early as next week, both Bloomberg and *The Wall Street Journal* reported last week, citing sources familiar with the matter.

TVA in November announced Johnson would retire from his position in April. While he is the front-runner for the job, his new role hasn't been finalized and other candidates were still being interviewed to ensure he was the best choice. PG&E's previous CEO, Geisha Williams, resigned in January, just two weeks before the California utility filed for bankruptcy.

Along with the choice for CEO, PG&E is expected to announce a complete overhaul of its board of directors. The company has made offers to 10 new independent board candidates. A trio of activist investors has been working with PG&E to change its management, according to regulatory filings made Friday and to people familiar with the matter. Three hedge funds — Abrams Capital Management, Knighthead Capital Management and Redwood Capital Management — together own 9.8% of the company's stock, the filings said.

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

Avangrid, PSE Sign PPA for 150-MW Solar Project



Avangrid Renewables will sell the power from what would be the Pacific Northwest's biggest solar power plant to Puget Sound Energy, the companies announced last week.

PSE said the energy from the proposed 150-MW Lund Hill Solar Project, in central Washington about 8 miles north of the Columbia River, will supply its customers in Green Direct, a program that allows government entities and corporations to pay for energy produced "from dedicated, local, renewable energy resources."

The project is sited partly on 480 acres of land that Avangrid will lease at $300/acre from the state. The companies said they expect the plant to go into operation sometime next year.

More: *Portland Business Journal*

Report: After 2018 Dip, US Solar Installations to Rebound

The U.S. installed 10.6 GW of solar photovoltaic capacity in 2018, a 2% drop from the previous year, according to a report from Wood Mackenzie released last week.

But the firm predicted that installations will grow by 14%, to 12.1 GW, this year thanks to lower equipment prices that helped to revive a slew of delayed projects.

Despite the Trump administration's tariffs on imported panels, U.S. solar module prices have fallen because of improved technology and unforeseen oversupply in China, which cut incentives for installations. Utility-scale developers in the U.S., meanwhile, are seeking to capture tax credits for installations that will begin to step down gradually next year.

More: *Reuters*; *CNBC*

Duke Seeks to Recoup $125M for Abandoned Lee Nuke Project

Duke Energy Carolinas is asking for permission to charge its South Carolina customers roughly one-quarter of the preconstruction costs of the abandoned $11 billion Lee Nuclear Project in Cherokee County as part of its $168 million rate hike request with the state Public Service Commission.

The utility is seeking to recover $125 million over 12 years, which is South Carolina customers' share of the estimated $558 million the utility has spent so far on the abandoned project.

If approved, residential customers would pay an average of 12% more starting this June. A typical customer would see a monthly increase of about $15.57, according to the utility. The proposal would also increase the company's residential basic facilities charge from $8.29/month to $28 — a 238% increase in the flat fee — effective June 1.

More: *Spartanburg Herald-Journal*

AEP Launches Contest for Cleantech Startups

American Electric Power has launched a contest for startups with technologies that could help solve its various future grid challenges, with the potential for investment and real-world deployments as the prize.

Through April 7, AEP's IlluminationLab program is taking applications from startups with solutions in four key technology categories: customer experience, grid optimization, electric mobility, efficiency, and operations and maintenance, as well as a "wildcard" category for unexpected entries.

From this pool of applicants, AEP will pick up to 20 teams to attend a May "bootcamp" where they can work with AEP executives "to define a clear use case for collaboration." Teams will then advance to a 10-week proof-of-concept program to build the test case for their technology with some of the company's top R&D executives, where they "will access data, gather insights and aim to test their products/services in live customer environments."

More: *Greentech Media*

Federal Briefs

FERC: Solar, Wind Lead in New January Capacity

More solar and wind capacity was installed in January than that of natural gas, according to FERC's monthly *Energy Infrastructure Update*, released last week.

According to the report, 18 units of new solar capacity (631 MW) and four units of new wind capacity (519 MW) each beat new natural gas capacity (one unit at 465 MW) in January. No new capacity additions were reported for any other sources.

Renewables (biomass, geothermal, hydropower, solar and wind) now account for 21.23% of total available installed U.S. generating capacity, according to FERC.

More: *Solar Industry*

Shell Urges Trump Admin to Tighten Methane Leak Rules

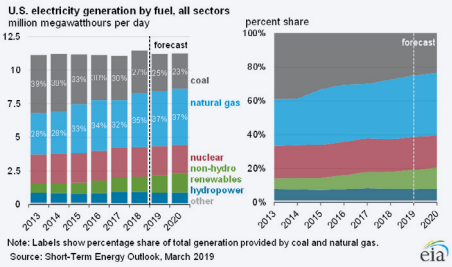
Royal Dutch Shell urged the Trump administration last week to tighten restrictions on greenhouse gas emissions from oil and gas production, instead of weakening them as planned.

Speaking to Reuters at CERAWeek by IHS Markit, Shell Oil President Gretchen Watkins called on EPA to tighten rules to plug methane leaks. "We don't usually tell governments how to do their job, but we're ready to break with that and say, 'Actually, we want to tell you how to do your job,'" Watkins said. She urged EPA "to put in a regulatory framework that will both regulate existing methane emissions [and] future methane emissions."

The Trump administration in September proposed weakening requirements for repairing leaks in drilling operations in a step to roll back an Obama-era policy intended to combat climate change.

More: *Reuters*

EIA: Coal Production, CO_2 Emissions Expected to Fall



The U.S. is estimated to produce 694.9 million short tons of coal in 2019, the Energy Information Administration said in its monthly Short-Term Energy Outlook last week, cutting its estimate from a month ago by 3.8%.

The 2019 production would be 7.8% lower than the 753.7 million short tons produced in 2018, while 2020 production is estimated at 663.7 million short tons. Coal is expected to make up 24.7% of U.S. power generation in 2019 and 23.4% in 2020, down from 27.4% in 2018. Coal exports are projected to be 100.7 million short tons in 2019 and 93.3 million short tons in 2020, down from 115.6 million short tons exported in 2018, which was the second highest total on record.

EIA also said that, after rising by 2.9% in 2018, U.S. energy-related carbon dioxide emissions will decline by 1.6% in 2019 and by 0.5% in 2020. The agency attributed the 2018 spike to extreme weather and the expected decline to an expected return to more normal patterns, as well as natural gas and renewables making up a higher share of electricity generation.

More: *Energy Information Administration*; *S&P Global Platts*

NRC Approves 20-year License Renewal for Seabrook

The Nuclear Regulatory Commission last week approved NextEra Energy's application for a 20-year license extension of the Seabrook plant in New Hampshire, permitting the plant to operate until 2050.

The commission also approved an amendment to NextEra's previous license extension application, filed in 2010, to address concrete degradation caused by alkali-silica reaction (ASR), a chemical process that causes small cracks in concrete. Massachusetts Attorney General Maura Healey had asked the commission to wait until a final decision is issued by the Atomic Safety and Licensing Board on concrete degradation at the plant before granting another license extension.

NRC spokesman Neil Sheehan noted that the commission's Advisory Committee on Reactor Safeguards concurred with staff's conclusion that, while some of the plant's structures are degraded, they remain fully capable of performing their functions through 2050. Issuing the amendment and the renewed license would not prevent NRC officials from making any changes to the Seabrook license that may be required as a result of the hearing process, he said.

More: *The Salem News*

TVA Defends Coal Ash Cleanup to Tenn. Congressmen

The Tennessee Valley Authority last week defended its relationship with a contractor accused of subverting safety precautions and sickening workers during the cleanup of a massive coal ash spill.

In a letter to two Tennessee congressmen, TVA CEO Bill Johnson said that to the utility's knowledge, Jacobs Engineering "did not have a history of safety lawsuits or test tampering" when it was hired to oversee the cleanup. Johnson was responding to a letter from Rep. Tim Burchett (R) and Rep. Steve Cohen (D) asking what TVA knew about Jacobs' safety record and how the utility responded to worker health complaints.

Jurors in November found that Jacobs was culpable for causing the workers' medical problems, ranging from high blood pressure to cancer. According to the lawsuit, more than 40 cleanup workers have died and more than 400 are sick.

More: *The Associated Press*

State Briefs

BRITISH COLUMBIA

BC Hydro: Drought on Island Raises Water Supply Concerns

Vancouver Island is in a winter drought after two months of unusually dry and cold weather, BC Hydro said last week.

A utility spokesperson said winter started wet and mild, but frigid conditions at the end of January "locked up" available moisture in snow and ice. That has created drought-like conditions in watersheds serving the Sooke, Port Alberni, Comox Valley and Campbell River regions.

The Puntledge River system in the Comox Valley is already in conservation mode in order to provide enough water for downstream fish habitats, the utility said. Hydrologists say the water supply forecast for this time of year has reached a record-breaking 50-year low.

More: *The Canadian Press*

CALIFORNIA

Ventura County: SCE Lines Caused Thomas Fire

Power lines owned by Southern California Edison sparked the Thomas Fire, according to a report released last week by the Ventura County Fire Department.

Based on witnesses' statements, video evidence and SCE equipment retrieved from the Anlauf Canyon Road origin area, investigators determined power lines owned by the utility arced and made contact with each other in high winds. This caused "molten aluminum particles" to fall to the ground, where dry vegetation caught fire, according to the report. Those flames went on to merge with a separate fire reported an hour later in the area of Koenigstein Road and Highway 150, the report states.

SCE said it has fully cooperated with fire officials throughout the investigation but that its own findings about the Anlauf Canyon Road fire suggest there could be another cause. The utility, however, has said it believes its equipment was associated with the ignition point on Koenigstein Road.

More: *Ventura County Star*

IDAHO

PUC Approves Decrease to RMP Efficiency Surcharge

ROCKY MOUNTAIN POWER

The Public Utilities Commission approved a decrease in a surcharge that funds Rocky Mountain Power's efficiency and conservation programs, from 2.7% of a customer's total monthly bill to 2.25%.

That equates to a decrease of about $5 annually for the average residential customer. The utility requested approval to decrease the rider after its demand-side management-related expenses came in lower than projected in 2016 and 2017.

In its order approving the change, the commission said it will help align revenues and expenditures, and "represents a reasoned and gradual approach that continues to encourage cost-effective DSM programs while reducing customer bills."

More: *The Jefferson Star*

MARYLAND

Alternative Rate Plan Bill Advances, Despite PSC, OPC Opposition

The House Economic Matters Committee last week unanimously passed a bill that would allow utilities to include different factors affecting ratepayer costs in their rate filings, including the strength of energy markets, the utilities' financial stability, and weather and climate.

The bill is being heavily lobbied for by the state's utilities, including Baltimore Gas and Electric, PEPCO and Delmarva Power. Late last month, all five members of the Public Service Commission, along with the Office of People's Counsel, testified against the bill to the Senate Finance Committee.

The sponsor of the Senate version of the bill, Finance Committee Vice Chair Brian Feldman (D), said the legislation merely modernizes the rate-setting structure and aligns the state with 38 others that have already adopted some form of this regulatory system. BG&E said the legislation provides consumers "with more transparency and predictability on their energy costs."

More: *Maryland Matters*

Bill to Up RPS to 50% by 2030 Survives After Surprise Vote

Del. **Rick Impallaria** (R) surprised his colleagues in the House Economic Matters Committee when last week he voted against a resolution that would have killed a bill increasing the state's renewable portfolio standard to 50% by 2030.

As a result of his vote, and the absence of Del. Ned Carey (D), the resolution failed on Wednesday. The next day, the Senate Finance Committee approved the Clean Energy Jobs Act on an 8-3 vote. Impallaria was the only Republican on the House committee to vote against the resolution (in other words, for the bill). All other Republicans on the House committee, along with a few Democrats, voted for it.

Top-echelon House leaders feel the legislation needs another year to marinate before the General Assembly will be comfortable enough to pass a more robust RPS, which could result in slightly higher utility bills in the short term. Some lawmakers are suggesting that they should wait for the completion of a study on the history and potential of the state's RPS before acting on new clean energy legislation.

More: *Maryland Matters*; *The Baltimore Sun*

MINNESOTA

Utilities Push Back Against 100% Clean Energy Proposal

Several of the state's electric utilities last week pushed back against Gov. Tim Walz's

proposal to require 100% carbon-free electricity in the state by 2050.

Minnesota Power, Great River Energy, Minnkota Power Cooperative and Dairyland Power Cooperative all said they oppose the governor's plan, introduced as a bill by Rep. Jamie Long (D), in its current form. The legislation has an uphill battle, as it would need support in the Republican-controlled Senate.

Besides the energy mandate, the bill also would make clean energy a priority as utilities plan for the future and would expand the state's energy conservation efforts. The utilities said the target is infeasible without significant advances in technology.

More: *Minnesota Public Radio*

MONTANA

GOP Lawmakers Again Try to Save Colstrip with Revised Bill

Republican legislators are taking another run at bailing out Colstrip Power Plant, capping some costs but still obligating NorthWestern Energy customers to a 30-year repayment plan of the utility's $407 million investment in the plant.

The new legislation, SB 331, introduced last week, comes after Sen. **Tom Richmond** announced that he would abandon his previous attempt to save at least a portion of the four-unit coal-fired power plant. The earlier proposal allowed NorthWestern to buy a larger share of Colstrip and then pass all future costs onto its customers.

SB 331 does the same but would prevent NorthWestern from billing its customers for more than $40 million in operating costs accumulated over five consecutive years. It still binds customers to a 30-year payment plan in order to guarantee NorthWestern a full return of the $407 million it's already paid for 30% ownership of Unit 4. Those payments would continue even after Colstrip shuts down before the end of its useful life, which the bill recognizes as inevitable.

More: *Billings Gazette*

NEVADA

State to Join US Climate Alliance

Gov. **Steve Sisolak** last week announced that the state would join the U.S. Climate Alliance, a coalition of states pledged to uphold the U.S.' commitment under the Paris Agreement on climate change.

A bill in the state Senate, dubbed the Carbon Reduction Plan, would hold the state to the targets set by the international agreement, which President Trump said he intends to pull the U.S. out of next year. Among the requirements in the bill are that the state reduce its emissions from 2005 levels by 28% by 2024 and by 45% by 2029, and achieve net zero emissions by 2050.

"Climate change is an immediate threat to our environment and to our families, and while the federal government fails to act, states are leading the charge in curbing our carbon footprint," Nevada Conservation League Executive Director Andy Maggi said. "Taking action now will not only show the nation that climate action is possible but also grow Nevada's clean energy economy and improve our public health."

More: *KTVN*

NORTH CAROLINA

Bill Would Allow EV Charging Stations to Resell Electricity

A bill introduced in the General Assembly last week would allow electric vehicle charging stations to resell electricity originally purchased from a utility, instead of charging customers by time of use.

"Every electric vehicle model consumes electricity at a different rate," said Stan Cross, CEO and co-founder of Asheville-based Brightfield Transportation Solutions. "So, when a Tesla and a [Nissan] Leaf pull up to a charging station, and both plug in with a time-based pricing model, the Tesla driver will pay less and the Leaf driver more for the same amount of electricity delivered."

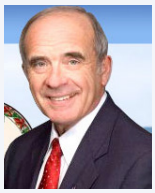
The bill is sponsored by Rep. **John Szoka** (R), who said he was "eager to get the bill passed and signed" before the state starts using its share of funds received from Volkswagen as part of a settlement in which the company agreed to pay billions for cheating on tailpipe pollution tests. Szoka said he's wary of devoting public dollars to services he believes the free market could provide.

More: *Energy News Network*

VIRGINIA

Northam Vetoes Bill Barring State from Joining RGGI

Gov. Ralph Northam (D) last week vetoed a pair of bills that would have prohibited the state from joining the Regional Greenhouse Gas Initiative and a similar coalition designed to slice emissions from vehicles and other transportation sources.



Both bills, introduced by Del. **Charles Poindexter** (R), would have required two-thirds majority votes from the General Assembly to allow the state to join the compacts. They both passed by extremely narrow margins on nearly party-line votes. Republicans have a 51-49 edge in the House of Delegates and a 21-19 advantage in the Senate.

The state is in the process of joining RGGI.

More: *Energy News Network*

RTO Insider

Your Eyes and Ears on the Organized Electric Markets

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

If You're not at the Table, You May be on the Menu

RTO Insider provides independent and objective reporting on RTO/ISO policymaking. We're "inside the room" alerting you to decisions — months before they're filed at FERC.

If those decisions impact your bottom line, you can't afford to miss them.

Every issue includes the latest on:

- RTO/ISO policy: CAISO, ERCOT, ISO-NE, MISO, NYISO, PJM, SPP
- Federal policy: FERC, EPA, CFTC, Congress, Supreme Court
- State policy: State legislatures and regulatory commissions

For more information, contact Marge Gold (marge.gold@rtoinsider.com)