RTO Insider

Your Eyes and Ears on the Organized Electric Markets

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

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PG&E Stock Plummets amid Wildfires, Shutoffs

By Hudson Sangree

Pacific Gas and Electric's stock price fell to a record low Monday as a huge wildfire its equipment is suspected of starting last week continued burning mostly uncontrolled in Sonoma County, Calif., amid mass evacuations and power shutoffs to 940,000 customers in Northern and Central California.

PG&E began restoring power Monday to some of its customers as winds died down, but additional public safety power shutoffs (PSPS) are expected Tuesday and Wednesday as another weather system with high winds descends on the utility's service territory. It would be the third such event in the past week.

By Monday morning, the Kincade Fire, in the hills above Sonoma County wine country, had grown to more than 66,000 acres, with only 5% containment, as thousands of firefighters battled the blaze. It had destroyed nearly 100 structures while threatening 71,000 more, state fire officials said. No deaths have been reported as of press time.

The fire started Wednesday night, possibly beneath a PG&E transmission line that had remained energized, in keeping with the utility's PSPS protocol, utility said.

"Those transmission lines were not de-energized because forecast weather conditions, particularly wind speeds, did not trigger the PSPS protocol," PG&E said in a news release. "The wind speeds of concern for transmission lines are higher than those for distribution."

PG&E filed a report with the California Public Utilities Commission on Thursday detailing the incident beneath a line that transmits electricity from The Geysers, a sprawling geothermal field about 70 miles north of San Francisco.

About 9:20 p.m. PT Wednesday, "PG&E became aware of a transmission-level outage on the Geysers #9 Lakeville 230-kV line, when the line relayed and did not reclose," the report said. "At approximately [7:30 a.m.] on Oct. 24 …

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Energy Transition, Meet Kentucky

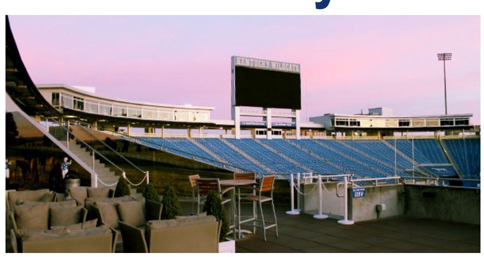
By Michael Brooks

LEXINGTON, Ky. — FERC Chairman Neil Chatterjee's EnVision Forum, held last week at the University of Kentucky, was a unique energy conference in several ways, from the diverse lineup of speakers to the wide variation in panel topics.

Perhaps most unique, however, was its location.

It wasn't just the fact that it was held in a university football stadium. Or that lunchtime dessert featured bourbon-frosted bread pudding.

For his inaugural annual event Oct. 21, Chatterjee chose his home state, a place dependent on coal mining for its economy and coal-fired plants for most of its power, with 75% of its electricity generated by coal last year, according to the U.S. Energy Information Administration. It's the fifth largest coal producer in the U.S.,



EnVision Forum attendees arrived early in the morning at the University of Kentucky's Kroger Field. | © RTO Insider

and about one-fifth of all operating U.S. coal mines are located there, according to EIA.

And judging by several of the panels at the conference, the state doesn't care too much about the national conversations in the electricity industry: the increasing penetration of renewables, the threat of climate change and the need to modernize the grid.

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ERO Insider

ERO Insider's website is now live! Here are just a few of the stories we published this week:

Merlo Out at NERC

NERC Previews Supply Chain Survey

FERC: Room for Improvement on CIP Compliance

Check it out at *www.ero-insider.com*

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In this week's issue

Counterflow

By Steve Huntoon

Waste Not, Want Not

By Steve Huntoon

Last month, FERC had a technical conference on one of the most effective and economic measures that could be taken to fight climate change (AD19-15).[1] It's akin to other no-brainers like LED lighting, energy efficiency standards, rational forest management, less red meat, keeping economic nuclear plants (here and abroad) and a carbon tax (aka "carbon dividends").

This particular measure is dynamic/ambient transmission line ratings. It surfaces every 10 years or so and, sadly, nothing much gets done.[2]

No, it's not glamorous like giant offshore wind turbines, huge batteries and cross-country HVDC transmission lines, and maybe that's the problem. Fingers crossed that this conference will be a breakthrough.

Here's the thing in a nutshell: In most of the country, transmission circuits are given a static (fixed) maximum capacity rating based on worst-case assumptions about temperature and wind speed. Of course, *virtually none of the time are worst-case assumptions reflective of actual temperature and wind speed.*

It's like having a national speed limit of 25 mph because it snows occasionally. Yes, it's that simple.

Studies and actual experience show that dynamic/ambient ratings are 30% or more than static ratings.[3] The value proposition is illustrated in the chart below from a U.S. Department of Energy study.[4] Our grid has an enormous amount of capacity that is wasted because it is not measured.

This causes needless congestion, curtailment and artificially low revenue for some generators. And the anticipation of future congestion, curtailment and artificially low revenue discourages new renewable energy development.

So why is this no-brainer still stuck in neutral? Well, the entities that control ratings, the transmission owners, don't benefit from change, and may have perverse incentives to deter new generation entry competing with their units, and/or expand their own transmission facilities instead of efficiently using them.

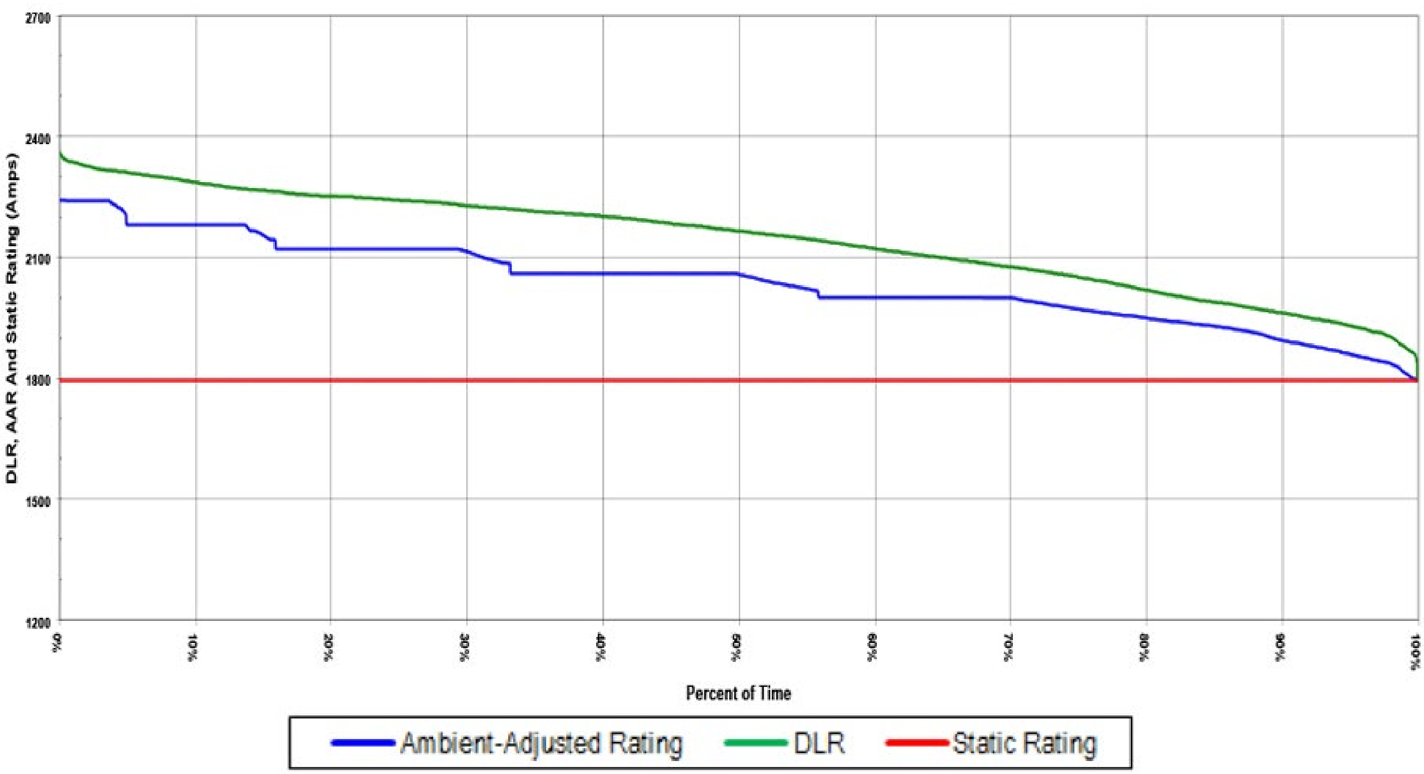
At the technical conference, some TOs posited various objections to dynamic/ambient ratings, none of which are valid. Let's check them out.

TOs: Circuit Ratings Can be Limited by Substation Equipment, not the Line (Conductor)

It is true that a circuit's rating is based on the rating of the most limiting element, and for a given circuit, that element may be a piece of substation equipment rather than the transmission line (conductor) between two substations.

This is not the typical situation, and even when it happens, it does not follow that that's the end of the story. Substation facilities also have (or should have) ratings that vary by temperature (and sometimes wind as well). These include transformers, with dynamic ratings based on fluid-temperature monitoring that has been available for 20 years[5] and voltage (reactive) devices. In PJM, there are many temperature-adjusted ratings for transformers and voltage devices.[6]

Transformers and voltage devices that have (or should have) weather-variable ratings are the



NRT-based ambient-adjusted rating and static rating probability distribution (Temple Pecan Creek-Temple Switch, September 2011) | *Oncor*

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By Steve Huntoon

most expensive substation facilities. There are other types of substation equipment that may or may not also be susceptible to weather-variable ratings, but more important, these types of equipment (breakers, wavetraps, etc.) are relatively cheap to upgrade.

The substation equipment objection lacks merit.

TOs: Transmission Limits Can be Voltage-based Rather than Thermal-based

Another truism that is immaterial. As noted above, voltage devices have (or should have) dynamic/ambient ratings. And where they don't, the cost of adding new voltage devices may be small. System operators should get the information they need to make rational decisions about this.

TOs: Ambient Conditions Can Differ Along a Given Transmission Line

Another truism that is immaterial. Sure, ambient conditions might be materially different where a given transmission line goes say, into a valley, than say where it goes over a hill. In those circumstances, the transmission operator/owner can install more than one set of weather (or other) sensors on that line, and base the dynamic/ambient rating on the lowest of the resultant ratings. Not rocket science.

TOs: This is Really Complicated, Needs more Study, etc.

This kind of objection to technology that's been around for decades comes from entities like the MISO TOs that somehow manage to do things like … hmm … operate 10 nuclear plants.

Ambient ratings, at least for temperature, have been used in PJM for decades.[7] One example of thousands of these ambient rating sets is below (Degf is temperature Fahrenheit; Norm is normal rating; Long and Shrt are emergency ratings; and Dump is load-dump rating; values are MVA).

And PJM now has the capability to use dynamic ratings as well.[8]

Same with CAISO: "Now with the new EMS that we have, we have the capability of implementing any type of an AAR or DLR, you name it" (Tr. 149).

Same with NYISO, which has the "capability to accept DLRs" and use them in its EMS.[9]

Same with MISO, which testified that it has the capability to handle rating changes in real time (Tr. 239-240).[10]

Basically, most of the RTOs have the capability now to use dynamic and/or ambient ratings.

It's the TOs that need to step up.

TOs: NERC Standards Take Care of This

In a "nothing to see here" gambit, various TOs claimed that NERC Reliability Standard FAC-008 somehow takes care of all this. In fact, this standard basically says that a TO has to have a ratings methodology and has to comply with whatever that methodology says. Nothing in it says the methodology has to be reasonable, satisfy any other criterion or is subject to review by an objective entity.

Take FAC-008's requirement that a TO's ratings methodology explain how "ambient conditions" are considered. It appears that for MISO TOs (other than Entergy) and for countless TOs elsewhere, the explicit or implicit answer is "considered and tossed." And, tragically, this seems to satisfy FAC-008.

Having gone through the TO objections, let me touch on a couple key points.

Substn: ORCHARD kV: 500 KV Dev: ORC-SAL End: END B
Descr: ORCHARD-SALEM 5021

	-------- Day	---------			-------- Night	-------		
Degf	Norm	Long	Shrt	Dump	Norm	Long	Shrt	Dump
95	2654	3016	3016	3469	2654	3016	3016	3469
86	2709	3065	3065	3524	2709	3065	3065	3524
77	2762	3112	3112	3579	2762	3112	3112	3579
68	2815	3159	3159	3633	2815	3159	3159	3633
59	2867	3205	3205	3686	2867	3205	3205	3686
50	2917	3250	3250	3738	2917	3250	3250	3738
41	2967	3295	3295	3790	2967	3295	3295	3790
32	3016	3339	3339	3840	3016	3339	3339	3840

| PJM

The Importance of Wind

With apologies for getting into the weeds, it is critical that wind speed and direction be included along with temperature. Wind dramatically increases ratings, and typically is more significant than temperature as numerous witnesses testified at the conference.[11]

Wind dramatically affects ratings almost all the time. PJM has 26 years of data showing this.[12] These data show that when temperature is the highest, the prevailing wind increases the rating *98% of the time*. Amazing.

This also responds to a question at the conference about whether dynamic/ambient ratings might sometimes be less than the static rating (Tr. 104). The answer is that if wind speed is considered, this will almost never occur. And in the incredibly rare hour or two that it does occur, then that slightly lower rating could be used.[13]

The Importance of Emergency Ratings

This isn't really about dynamic/ambient ratings but something that may be even more consequential.

Emergency ratings are short-term ratings that apply to contingencies (i.e., N-1 events) because the nature of contingencies is the loss of a given circuit, causing increasing loading on adjacent circuits, and redispatch within an hour or so to get all circuits back within normal ratings.

PJM for example has had ratings for normal (continuous), emergency and load dump conditions for decades (and as noted earlier also differentiates ratings by temperature).

OK so here's the news. At the conference it surfaced that there are some TOs, including a lot of the MISO TOs, that use normal ratings as their emergency ratings as well.[14] This is a tragedy.

In operations (dispatch), that means artificial congestion with too low prices and curtailments for some generators, and dispatch of higher-cost generators causing too high prices to load.

In planning, it means unnecessary transmission upgrades to alleviate fantasy overloads, and excessive interconnection costs and delays for new entrants like wind and solar projects.

FERC should put a stop to that as soon as possible regardless of what actions it takes on dynamic/ambient ratings. One way would be to investigate the cost of transmission upgrades that have been based on an N-1 "overload"

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of a normal rating that is wrongly doubling as an emergency rating. It could also open an investigation into the withholding of available transmission capacity.

Renewable energy developers (and consumers) should not stand for this.

Transition

We know Rome wasn't built in a day. So we'll need some sort of transition.

There are two ways of looking at it. What can we do right away? And how do we prioritize the rest?

There's no apparent reason why TOs across the country can't do what all the PJM TOs do now, as illustrated above, provide ambient temperature-differentiated normal, emergency and load dump ratings. This is the lowest hanging fruit and can be done on a "desk" basis. No new equipment needed.

From there, priority for installation of dynamic rating capability should focus on the most heavily congested circuits. But if a TO can justify another approach, so be it.

But let's get going on making the most of the grid we have. ■

[1] References here are to presentations and transcript (Tr.) from the conference. See also FERC Considering Tx Line Rating Rules.

[2] For example, the first CAT-1 Transmission Line Monitoring System was installed in Virginia in 1991. http://sgemfinalreport.fi/files/D5.1.55%20-%20Dynamic%20line%20rating.pdf (page 20).

[3] Thirty percent was the low end of the ranges in the U.S. Department of Energy's report on the New York Power Authority and Oncor projects. https://www.smartgrid.gov/files/SGDP_Transmission_DLR_Topical_Report_04-25-14_FINAL.pdf (page vi). These results were consistent with testimony at the conference, such as the Ampacimon presentation and at Tr. 34.

[4] https://www.smartgrid.gov/files/SGDP_Transmission_DLR_Topical_Report_04-25-14_FINAL.pdf, pdf page 103.

[5] See for example this paper, https://kth.diva-portal.org/smash/get/diva2:1155097/FULLTEXT01.pdf. The Exelon representative erroneously said that transformer ratings are not affected by temperature (Tr. 320).

[6] https://edart.pjm.com/reports/PJM_Line_ratings.txt (word search for "xformer" and "ser dev").

[7] https://edart.pjm.com/reports/PJM_Line_ratings.txt.

[8] PJM presentation, page 1.

[9] NYISO presentation, page 2.

[10] And Entergy, a MISO TO, uses ambient temperature ratings and communicates them to the RTO (Tr. 154-158).

[11] Tr 33-34, 38, 52, Lindsey Manufacturing presentation (slide 7).

[12] https://pjm.com/~/media/planning/design-engineering/maac-standards/bare-overhead-transmission-conductor-ratings.ashx (Appendix 1). Looking at the row for the highest temperature of 35 degrees Celsius (95 F), the frequency of 0 to 2 knots (0 to 1 m/s) is 0.104, and the frequency of 3 knots and more is 5.427. This means that when temperature is the highest, wind will increase the rating 98% of the time (1 minus 0.104/5.427).

[13] Even if a slightly lower rating isn't used, it would be inconsequential. In the most common situation where the rating is based on the thermal capacity of the conductor (rather than a sag/clearance issue), the consequence of exceeding the limit is simply a reduction in useful life of the conductor, i.e., accelerated depreciation. And if it's for a short time, the reduction is trivial. And we need to keep in mind that transmission lines are being replaced when they reach their "end of life" for various reasons, which usually involve the structures (towers) and rarely involve the conductors themselves. So a trivial loss of life for the conductor is inconsequential.

[14] Tr. 311. By contrast, in PJM, the only TO that had identical normal and emergency ratings is American Electric Power, and then only for 345-kV and above circuits. Last year AEP changed to using different emergency ratings for all circuits.

Stakeholder Soapbox

Changing the Balance of Power Between States and PJM

By Ann McCabe, David A. Svanda and Betty Ann Kane



Given the costs and increasing impacts on resource choices that PJM market rules impose on states, states would benefit from a larger voice at PJM. Compared with its counterparts in other regions, the *Organization of PJM States Inc.* (OPSI) has less formal engagement and influence on PJM rules and decisions. Strengthening the role of OPSI's 14 members (13 states and D.C.) would help ensure that states have meaningful opportunities to influence PJM's rules and policies and could benefit everyone: states, retail and wholesale customers, and PJM.

One example of a PJM rule that impacts state renewable policies and costs to customers is PJM's proposed change to its capacity market, the expansion of its minimum offer price rule currently under review at FERC. The proposal is estimated to cost customers in the PJM region an additional *$5.7 billion per year*.

While the Federal Power Act generally provides PJM states a say over critical energy matters such as resource adequacy planning — how future energy needs will be met — states have seen their influence wane as PJM *market rules and policies* weight the scales that shape the mix and cost of capacity resources. As a result, PJM's markets operate increasingly at odds with state energy goals, often at consumer expense.

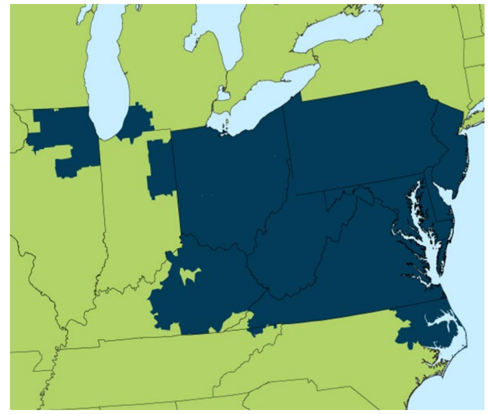
Like many RTOs, PJM has an official auxiliary group through which states in theory can make their collective voices heard on policies and market rules: OPSI. Consisting largely of state public utility commissioners, OPSI monitors PJM, submits comments and interfaces with the RTO's board and staff. Unlike state organizations in other RTOs, however, OPSI plays little more than an advisory role. PJM's current structure leaves states without power to vote on proposed market rules or to file alternatives with FERC.

States' abilities to directly influence RTO actions vary by region across the U.S. PJM states sit at one end of the spectrum, without voting ability and unable to file challenges with federal regulators. On the other end, states in SPP wield the most authority of any RTO state organization over generation and capacity matters. Taking a look at how RTOs in other parts of the country allow for state engagement is instructive as states in PJM strive for more voice and a better balance between their individual goals and the important role of the regional grid and markets. We overview several RTO/state models in a recent *white paper*.

Making PJM's State Committee Work for States

Inspired by the examples of other RTO state committees, here are a few ways to increase the role and influence of PJM states:

- Create stronger communication and collaboration between PJM and states: RTOs in other regions give deference to the views of state committees regardless of their rules. They prioritize a constructive working relationship.
- Provide regular opportunities to provide formal input: OPSI should be able to weigh in on the design of PJM's capacity market and transmission planning, both of which influence billions of dollars of supply investments and customer impacts.
- Back OPSI's feedback with bylaws: PJM's governing documents could have specific opportunities for states' input and require the RTO to say how it took OPSI's input into account.
- Give states more power to determine their own capacity needs: By adopting a provision like that available in MISO, individual states would be able to set their own targets for capacity reserves — rather than relying on a single target set by PJM — to better reflect state needs and energy goals.
- Give states the option to supply their own capacity needs: A so-called "fixed resource requirement option" would give states and utilities more flexibility to meet demand on a megawatt-by-megawatt basis.
- Give OPSI the power to make FERC filings: OPSI could be given the power to make its own filings to FERC under FPA Section 205, giving the states more power over resource adequacy planning.
- Give states a role in selecting PJM's board members: In MISO, for example, the state committee is often represented on the search committee for the RTO's board members.
- Require PJM to file states' alternative proposals: PJM could have a provision where it must file an alternative approved by some percentage of OPSI members. In ISO-NE, the percentage is at least 60% of New England Power Pool participants.



PJM's footprint | *PJM*

These suggestions are not new, but the events of recent years renew their urgency: PJM is proposing significant changes to its market while searching for its next CEO, public utility commissioners have ongoing concerns about consumer costs, and many states are racing toward a renewable energy future.

Changing the balance of power between PJM and its states is critical to prepare the nation's largest energy grid for the new energy era that lies ahead. ■

Ann McCabe returned to consulting after her term as a commissioner at the Illinois Commerce Commission (March 2012 to January 2017). Her recent clients include The Climate Registry, PJM Clean Energy Advocates and the Mid-America Regulatory Conference (MARC). While a commissioner, she was president of the OPSI board and of MARC and chaired NARUC's subcommittee on Nuclear Issues-Waste Disposal.

David A. Svanda, a principal at Svanda & Coy Consulting, follows PJM, SPP, MISO and developments in other regions. He served as a Michigan PSC commissioner from 1995 to 2003, during which time he was President of MARC and NARUC. In those roles, he was an active participant in creating the concept and reality of regional state committees.

Betty Ann Kane served on the District of Columbia Public Service Commission for three terms (March 2007 to December 2018), including as Chairman (March 2009 to November 2018), and on the NARUC Board of Directors. She served as chairman of MACRUC and president of the National Regulatory Research Institute. Now a consultant, she has over 40 years of experience in public and private sector energy, finance and management.

EnVision Forum

Energy Transition, Meet Kentucky

Continued from page 1

Talina Mathews, Kentucky PSC | © *RTO Insider*

"Well first off, I want to not apologize for the things we haven't jumped on the bandwagon for," Kentucky Public Service Commissioner Talina Mathews said in opening "Lessons from Kentucky: A Case Study in the Energy Transition."

"We remain vertically integrated. ... We remain predominantly fossil fuel[-powered]. We don't have a [renewable portfolio standard]. ... But what we do have is reliable, baseload generation that serves our homes and also serves a large manufacturing base in Kentucky," Mathews said. "We make things here, and I think that may be different from some of the other states that maybe have the ability to rely on more intermittent sources of energy. I don't think an aluminum smelter is going to deal very well with anything under a 90% load factor."

Chris Perry, CEO of the Kentucky Association of Electric Cooperatives, referred to an earlier panel entitled "Empowering 21st Century Energy Consumers with Technology," which featured Jeff Riles of Google and Brian Janous of Microsoft.

Chris Perry, Kentucky Association of Electric Cooperatives | © *RTO Insider*

"They were talking about ... a two-way communication, where customers are really engaged, getting a carbon signal, adjusting their usage. Let me tell you, in rural Kentucky, that's not happening," he said.

A member of the audience asked whether utilities in the state disclose electricity usage to ratepayers. "Sure," Perry said. His co-ops also provide voluntary demand response programs. "Guess how many people sign up? Not many. Not many. We find out they get excited for a short period of time, and then it's, 'I want to dry my clothes when I want to dry my clothes.'"

Another audience member asked the panel, which also featured Kentucky Power President and COO Brett Mattison and LG&E and KU Energy CEO Paul Thompson, if their utilities were seeing increased customer demand for renewables as in the rest of the U.S.

"We don't have the best resources," Mathews said. "I jokingly say Kentucky is the allergy capital of the world because the wind hits the plains and then all of a sudden it just stops, and we breathe pollen from April to November. ...

Big Rivers Electric CEO Robert Berry | © *RTO Insider*

"You would never build wind here if you can build it in Oklahoma," she said, making a similar comparison with solar and Arizona. "So, we've heard, but we really haven't had many of those [renewable projects] come to the commission."

"You have many customers who sometimes will say, 'Well we'd like to see some renewables; we'd like to see some zero-carbon energy,'" Big Rivers Electric CEO Robert Berry said. "But they're not really interested in paying for it."

Berry said a co-op survey revealed 40% of its customers wanted to get their electricity from solar, but only 20% were willing to pay "some amount" more for it. Only about 5% were willing to pay 2 to 3% more, he said.

The inaugural EnVision Forum was held at the University of Kentucky on Oct. 21. | © *RTO Insider*

EnVision Forum

Kentucky had the seventh-lowest average electricity price in the U.S. last year and the lowest price east of the Mississippi River, according to EIA.

Unaffordable Renewables?


Colette Honorable, Reed Smith | © *RTO Insider*

The argument that the switch to renewables would cost low-income ratepayers more was one that continually came up on an earlier panel entitled "All of the Above vs. Green New Deal," the latter a reference to a Congressional resolution to transition the U.S. to 100% zero-carbon energy by 2030. Moderated by former FERC Commissioner Colette Honorable, the panel featured several state utility commissioners, most of whom criticized the Green New Deal as too costly for their customers.


Brandon Presley, Mississippi PSC | © *RTO Insider*

"I represent the poorest region in the poorest state in the United States of America," Mississippi Public Service Commissioner Brandon Presley said. "And the impact of an electric bill on a Mississippian is much more than it is in many other places in the United States of America. It affects our cost of living."

"In the Eastern Kentucky footprint, where we serve, we have the same exact thing," Mattison said on the Kentucky panel, referencing Presley. "Probably 30-plus-percent of the individuals find themselves at or below the poverty line. So when you look at transitioning to new sources, there's always a cost associated with that. ... We have constituents and customers who can't afford to pay for that."

Speaking on the earlier panel, Richard Kauffman, chairman of the New York State Energy Research and Development Authority, pushed back against these arguments.

"This issue of affordability I think is a red herring," he said. "You [need to] create the right kind of innovation and market-related practices and change the financial incentives and business model for distribution utilities to be more system integrators as opposed to just being in the business of deploying capital — because that's one of the reasons we have such low average capacity utilization."


Ellen Nowak, Wisconsin PSC | © *RTO Insider*

Wisconsin Public Service Commissioner Ellen Nowak responded. "I think it is a real concern. In my state, we have a lot of manufacturers, and the margins on their profit are very dependent on the cost of their energy. And as an economic regulator, we have to be smart about what we're requiring them to pay for. That's why this transition has to be done in a meaningful manner, not in a date that you set out and then figure out how you get there."

"If we're not careful, we're going to burden all customers with a lot of stranded assets," Kauffman said in reply. "Capital and energy inefficiency is a burden that we're currently imposing on customers, and we can get more out of the customer bill. Think of that as a cost offload."

Impact on Communities and Workers

Another panel focused on the impacts of the "new energy economy" on coal-dependent communities.

"Kentucky, like many states, has experienced firsthand the workforce and community impacts of our changing fuel mix," Chairman Chatterjee said in an opening speech. "Behind every major energy project and company are dedicated energy sector workers. These women and men work hard to expand, improve and modernize our nation's energy infrastructure and serve as the humming engine of our energy economy. ...

"Right here in Kentucky, we're in the heart of coal country. ... The [coal] plant retirements that we've been seeing have real impacts on the workers, families and local economies here in Kentucky and throughout the United States."

The panel wasn't as dour as one might have expected, but it still illustrated the challenges blue-collar workers will increasingly face as coal plants continue to shut down and nuclear plants remain uneconomic to build.


Brian Kerkhoven, NABTU | © *RTO Insider*

Speakers included Brian Kerkhoven, energy policy adviser for North America's Building Trades Unions, a federation of 14 unions that includes the International Brotherhood of Electrical Workers. Kerkhoven said his organization offers apprenticeship programs to train "out-of-work coal miners, who sure as hell aren't going back to become nurses," to become construction workers.

"We are now seeing a huge growth in our pre-apprenticeship program," Kerkhoven said. "Not everybody has to go to college anymore, and we're trying to lead that charge. ... And that's going gangbusters," particularly in Texas.

He said renewables "don't create the amount of jobs that coal, nuclear and even natural gas, to a certain extent, create. ... Six to seven hundred people go to work every day at a nuclear power plant. A team of five to 10 go around and make sure the windmills are still spinning."


Donnie Colston, IBEW | © *RTO Insider*

Donnie Colston, director of IBEW's Utility Department, concurred, saying the union's members work on all resource types, but gas units, wind turbines and solar panels require very little maintenance compared to coal and nuclear plants.

"The good thing is ... we're being able to move" workers at shuttered coal plants "into other positions where members are retiring," Colston said. "We're not having massive layoffs."

That still involves teaching workers a new trade. Utilities need to wait three to eight years, for example, for new linemen to complete their apprenticeship programs, he said.

Colston was incensed by the failure of states to approve interstate transmission lines, citing New Hampshire's rejection of the 192-mile Northern Pass line that would have brought Canadian hydropower to Massachusetts, and Arkansas' rejection of the 720-mile Plains & Eastern Clean Line, which would have transported wind energy in Oklahoma to the Tennessee Valley Authority.

"We worked for probably eight years with Eversource Energy" on Northern Pass, Colston said. "That was 2,000 jobs for IBEW. It came down to one vote on one committee that eliminated eight years' worth of work. ...

"Now, I don't think we want to take away a state's right to say you can't build the lines, but if you want clean energy, as baseload comes off, you got to build lines," he said. ■

Overheard at EnVision Forum

LEXINGTON, Ky. — More than 130 regulators, industry officials and other stakeholders attended last week's EnVision Forum, sponsored by FERC and the University of Kentucky's Center for Applied Energy Research. The daylong conference, the brainchild of FERC Chairman Neil Chatterjee, featured discussions on energy storage, RTO markets and transmission policy.

Here's some of the highlights.

More than 130 regulators, industry officials and other stakeholders attended the EnVision Forum sponsored by FERC and the University of Kentucky's Center for Applied Energy Research. | © *RTO Insider*

Storage Seeks ITC as Standalone Asset

Energy Storage Association CEO Kelly Speakes-Backman | © *RTO Insider*

Kelly Speakes-Backman, CEO of the Energy Storage Association, urged Congress to pass legislation allowing standalone storage to qualify for the federal investment tax credit (ITC), citing *research* for the association by Wood Mackenzie that said the bill (*S.1142*/*H.R.2096*) could boost deployment by 16% annually through 2024. Storage currently is eligible for the ITC only when paired with solar generation.

She also called for PJM to change its 10-hour minimum run time requirement on storage, which she said undermined the resource's ability to help system reliability. On Oct. 17, FERC ordered a paper hearing to investigate whether PJM's requirement is unjust and unreasonable under Order 841, which seeks to remove market barriers to entry for storage. (See *FERC Partially OKs PJM, SPP Order 841 Filings*.)

Other grid operators came in for praise from Speakes-Backman. "MISO is taking the lead on storage as transmission. NYISO is taking the lead on [the] capacity evaluation of storage. The California ISO is taking the lead on hybrid storage plus generation power plants. ISO-NE is picking up the first distributed storage in a capacity market ever. And … ERCOT in Texas is taking FERC's lead and undertaking its own mini-Order 841.

"Together, these efforts are all focused on the same basic goal: Fully utilizing the flexibility that storage offers to lower costs, enable new resources and increase reliability and resilience."

John Moore, director of the Natural Resources Defense Council's Sustainable FERC Project, predicted that the U.S. Supreme Court will be asked to decide whether FERC overstepped its authority in refusing to let states opt out of distribution-level storage's participation in wholesale markets. Commissioner Bernard McNamee dissented, saying FERC was intruding on states' regulation of local distributions systems. (See *NECPUC Day 2: McNamee Reiterates Storage Dissent*.)

American Electric Power CEO Nick Akins | © *RTO Insider*

American Electric Power CEO Nick Akins said his company has been canvassing startup companies to find services to increase customers' satisfaction. "It was probably two years ago we were looking at battery walls" to allow customers to ride through outages. "Well, fast forward to this year: now companies are looking at not just battery walls; they're looking at actual storage within in the appliance plugs themselves.

"So if you want to go to Home Depot … to get a storage device for a toaster, it would be in a plug, or if you want it for a refrigerator, it would be in a plug and all of it has technology … to enable the prioritization of those services within that home."

Transmission Policy: Increasing Efficiency, Adding New Lines

A panel discussion on transmission policy touched on the need for more infrastructure to deliver renewables, the political obstacles to siting and the regulatory obstacles to improving efficiency.

Jon Wellinghoff, GridPolicy Consulting | © *RTO Insider*

Former FERC Chair Jon Wellinghoff held up the front page of the *San Francisco Chronicle*, with a headline on Pacific Gas and Electric's statement that its public safety power shutoffs (PSPS) to prevent wildfires could go on for the next decade.

Wellinghoff, now a consultant, had lost power at his home in the Berkeley Hills for 17 hours. "It was ridiculous," he said, calling for the addition of more transmission-sensing technology and ways to reroute power to deal with wildfire risks.

"We're trying to do smart grid at the distribution level with smart meters and all this technology while we've totally ignored our transmission system. We need to build it out [to accommodate renewables], there's no question about it. But we also need to ensure that we can start integrating these same kinds of technologies we're doing at the distribution level at the transmission level to make the thing work so we don't have to say we're going to shut [power] off for the next 10 years," he said. "It's going to cost money … but if we do it in smart ways to make the thing overall more efficient, hopefully those costs can be offset by savings that we achieve by delivering more renewables from low-cost areas to the areas that need them and driving down those LMPs."

Gregg Rotenberg, CEO of Smart Wires, said

EnVision Forum

Gregg Rotenberg, Smart Wires | © *RTO Insider*

that transmission technology has only recently improved enough to trust it on mission-critical lines. But he said the adoption of such technologies has been slower in the U.S. than in other countries because state regulators "punish" transmission owners for efficiency.

He praised the U.K.'s model, in which he said regulators set a target price for delivering energy with a 50/50 split between shareholders and ratepayers for any savings or excess costs. U.K. TOs have "been given a massive incentive to solve these problems," he said.

Rotenberg said a single project in the U.K. will add 1.5 GW of incremental transfer capacity. "That's enough to power Chicago," he said. "There is massive inefficiency in our grid that only recently was capturable. … The reality is we can get massive efficiency from our grid — not enough to bring all the renewables online we need; we need plenty of new lines. But if we don't make use of the grid that's there, the public is not going to let us build those new lines."

Michael Polsky, Invenergy | © *RTO Insider*

During the session, Wellinghoff also debated Michael Polsky, CEO of independent power producer Invenergy, over whether the costs of transmission expansion can be socialized in regions with multiple states.

Polsky acknowledged Texas was able to do it with its Competitive Renewable Energy Zones. "But when you deal with multiple states, I don't think we can expect socialization. … I cannot see two states dividing the pie."

But Wellinghoff noted that MISO socialized 19 multi-value projects (MVP) in multiple states. And he said regional grids are becoming more popular, noting the growth of CAISO's Western Energy Imbalance Market and South Carolina entities exploring joining PJM. (See *South Carolina Power Cooperative Joins PJM*.)

"As we expand these regions, I think socialization becomes more viable, potentially," he said.

Philip Moeller, EEI | © *RTO Insider*

Wellinghoff and former FERC Commissioner Philip Moeller recalled how they split in their ruling on Order 1000 over whether reliability projects should be exempt from competition.

"I think you won on that one," Wellinghoff said ruefully.

"I wasn't going to rub it in," Moeller joked.

Earlier this month, FERC ordered investigations under Federal Power Act Section 206 into whether PJM, ISO-NE and SPP are violating Order 1000's intent to open transmission projects to competition by abusing the "immediate need" exemption for reliability projects. (See *FERC to Probe Order 1000 Competition Exemptions*.)

Later in the conversation, Moeller, now Edison Electric Institute's executive vice president for business operations and regulatory affairs, said there is a "need to restart a national conversation … on the [transmission] needs and the political will to get these projects done."

Wellinghoff agreed: "We do need a national energy plan. 'All the above' is a slogan. It's not a plan," he said. "The Department of Energy doesn't develop a national energy plan. The Congress doesn't authorize a national plan. Somebody needs to do that ultimately and get the states in a room and say, 'We're all in this together folks. Let's get on the same page.'"

Polsky was skeptical. "It's not going to happen … not in my lifetime," he said. "It's just too complex of an issue."

The transmission panel featured, from left, Paul Segal, LS Power; Jon Wellinghoff, GridPolicy Consulting; Gregg Rotenberg, Smart Wires; Philip Moeller, Edison Electric Institute; Abigail Ross Hopper, Solar Energy Industries Association; and Michael Polsky, Invenergy. | © *RTO Insider*

Pipelines' Future

Richard Averitt | © *RTO Insider*

A discussion on the future of pipelines provided a forum for landowner and businessman Richard Averitt to make his case against current pipeline policy, which he said results in environmental racism and a trampling of property rights.

"If you look around the room … today I couldn't count more than about a half a dozen folks of color," he said of the conference attendees. "I don't think they were excluded. I think they're not in the industry at all. That has to be recognized because … these pipelines disproportionally impact [minority] communities. … Their voice needs to be at the table."

He also said it was improper for profit-making pipeline companies to be given eminent domain rights for projects that are facilitating natural gas exports, calling it "inconsistent with our beliefs around property rights."

"The idea that eminent domain is a last resort is a false narrative," he said, because courts have given pipelines "quick take" rights — allowing the taking of property before the projects have obtained required siting permits and undergone environmental reviews.

He said FERC's policy of issuing conditional approvals for projects that have not received their "foundational" permits, such as endangered species, water quality and national park approvals, "is really unconscionable."

He cited a family-owned sugar maple farm in

EnVision Forum

The gas pipeline panel included, from left, Don Santa, Interstate Natural Gas Association of America; Alex Herrgott, Federal Permitting Improvement Steering Council; Mike Catanzaro, CGCN Group; Richard Averitt, a landowner; Joe Blount, Colonial Pipeline; Karen Alderman Harbert, American Gas Association; Stan Horton, Boardwalk Pipeline Partners; and Dena Wiggins, Natural Gas Supply Association. | *© RTO Insider*

Pennsylvania that lost 500 trees to the proposed Mariner 2 project before it was denied a water quality permit. "So that pipeline is likely never to be built. But their sugar maple farm is decimated, and they have no recourse and will likely never get compensation of any kind," he said. "That's not an appropriate due process."

He suggested "fast-track" treatment of disputes in the courts instead.

Stan Horton, Boardwalk Pipeline Partners | *© RTO Insider*

Stan Horton, CEO of Boardwalk Pipeline Partners, said very little of pipelines' rights of way go through the eminent domain process. "I think the process works," he said.

Mike Catanzaro, a partner with CGCN Group, an advocacy and strategic communications firm, criticized siting policies that he said are biased in favor of those "who don't want to build things."

Mike Catanzaro, CGCN Group | *© RTO Insider*

"If Congress doesn't step up and fix the permitting process, we're in big trouble," said Catanzaro, a former staffer for the White House National Economic Council under President Trump.

Catanzaro and Karen Alderman Harbert, CEO of the American Gas Association, cited New York Gov. Andrew Cuomo's opposition to new gas pipelines, which prompted National Grid to announce a *moratorium* on connecting more than 1,100 new gas customers on Long Island.

Cuomo responded by ordering the company to connect the customers. Harbert said National Grid's response is to reduce their gas supplies to industrial customers. "And what are industrial customers going to do? Either pay more, so we pay more, or they're going to burn oil instead, and their emissions are going to go up. So, under the guise of environmental objections to natural gas, we're going to cause the emissions in New York City to go up," she said.

Harbert and others expressed confidence that natural gas will remain a major energy player for decades, despite efforts to address climate change.

"People want gas for fireplaces, for cooking, for heating," said Harbert, whose organization represents gas distribution companies. "We're adding a customer every minute of every day."

Joe Blount, CEO of Colonial Pipeline, which claims to be the largest refined products pipeline in the U.S., said there will be little "displacement" of demand by 2030, saying pipelines are the safest and cheapest form of fuel transportation.

Joe Blount, Colonial Pipeline | *© RTO Insider*

"A lot of people come to us and go, 'What about your gasoline [pipelines]? You're going to lose that to electric cars.' We have to remember, only about 2% of all car sales in the U.S. today are electric. And even if you go out to 2030, it's still a pretty insignificant number. So [we have a] strong future."

RTO CEOs Discuss Market Challenges

Interim PJM CEO Susan Riley | *© RTO Insider*

ISO-NE CEO Gordon van Welie, MISO CEO John Bear and interim PJM CEO Susan Riley took part in a panel discussion that focused largely on their markets' challenges in dealing with state policies to reduce carbon. They were joined by NRDC's Moore, Vistra Energy CEO Curt Morgan, Calpine CEO Thad Hill and Iowa Utilities Board Member Nick Wagner, the president of the National Association of Regulatory Utility Commissioners.

Van Welie and others agreed that a nationwide

The RTO markets panel featured, from left, Curt Morgan, Vistra Energy; Gordon van Welie, ISO-NE; Nick Wagner, Iowa Utilities Board; Susan Riley, PJM; John Bear, MISO; Thad Hill, Calpine; and John Moore, Sustainable FERC Project. | *© RTO Insider*

EnVision Forum

price on carbon would simplify the challenge for organized markets — and that there is insufficient political will to make such a change.

ISO-NE CEO Gordon van Welie | © *RTO Insider*

"These are really unsettled times in the markets," said van Welie, who acknowledged "nobody's happy with the compromise" ISO-NE tried to strike to incorporate state-subsidized renewables into the capacity market, the Competitive Auctions with Sponsored Policy Resources (CASPR) construct.

"Our stakeholders have said they want to have another round of discussion," he said. "We have a very sophisticated capacity market. We don't see a better solution right now, but we're open to the conversation."

Riley acknowledged PJM's challenges in preventing subsidized nuclear and renewable power from suppressing prices but said the RTO's markets have "worked very effectively over a long period of time," noting the billions in investment in generating capacity, the 40% reduction in energy prices and 25% reduction in carbon emissions over the last decade.

"We've got to find ways over the next 10 years to incorporate more of that state policy," she said.

Calpine CEO Thad Hill | © *RTO Insider*

Invenergy's Polsky and Hill outlined the concerns of independent power producers, who have been frustrated by low energy and capacity prices caused by subsidized generation and low natural gas prices.

"I'm a little surprised that people think markets are working the way they're supposed to work," Polsky said from the audience. "We need a complete market redesign. How can we put zero-cost variable resources [in a market] with the fossil fuel [resources]. Fossil fuel has been decimated."

Hill criticized "hybrid" markets such as CAISO and MISO, saying they will never attract new merchant generation investments.

Bear questioned whether reserve margins remain relevant, noting that "the last seven times we've been stressed on our system, it's never that day" of the summer peak demand. "That day we're well equipped. Everything's on and running. Access to the transmission system is good. Now [the challenge] is coming in November, January [and] February."

MISO CEO John Bear | © *RTO Insider*

That has led MISO to reconsider how it accredits its resources, as well as how to price reserves. "In real time, you'll see us moving a lot toward what they're doing" in ERCOT, he said.

Moore questioned whether the PJM demand curve should continue to use a cost of new entry based on combustion turbines. "Does that make sense when you're not building a lot of CTs now?"

From the audience, Tyson Slocum, director of Public Citizen's energy program, asked Riley how its markets can successfully evolve when consumer and environmental groups are not permitted to vote in stakeholder committees. Public Citizen has been a frequent critic of the RTO. On Oct. 17, FERC ruled against the group's request to require the RTO to publicly disclose its political contributions. (See *PJM Political Spending OK, FERC Says*.)

Riley declined to respond to Slocum's question, saying the issue was beyond the scope of the panel's discussion and that she couldn't comment because of pending capacity proposals before FERC.

Moore questioned whether PJM was meeting the transparency requirements of Order 719. "In RTOs like PJM, you actually have the regulated companies involved in decision-making. That just raises questions … that [need] to be examined a little more thoroughly by FERC," he said.

"My point is that PJM is governed by its members, who are mostly generators, transmission owners and other suppliers," he explained afterward, citing the D.C. Circuit Court of Appeals' 2015 *NRG Power Marketing v. FERC* decision limiting the commission's ability to modify FPA Section 205 filings. "With all that, it's not surprising that PJM's capacity market rules increase generator revenues and promote oversupply — and those rules also are increasingly frustrating state clean energy policies. All of this suggests a need to reassess PJM's governance outcomes against FERC's Order 719 independence requirements, including decision-making transparency, independence from undue influence and fair representation of all stakeholders." ■

— Rich Heidorn Jr.

Public Citizen's Tyson Slocum spoke briefly to interim PJM CEO Susan Riley after she refused to answer his question during a panel discussion. | © *RTO Insider*

CAISO/West News

Tx Summit Explores California's Link to Rest of West

By Hudson Sangree

Transmission Summit West and the Mountain West Renewables Summit took place in side-by-side meeting rooms at a resort in Scottsdale, Ariz. | *© RTO Insider*

SCOTTSDALE, Ariz. — The often tense relationship between California and other Western states occupied much of this year's Transmission Summit West, where the debate focused on whether states such as Idaho and Wyoming should draw closer to the Golden State or keep their distance.

The summit was held in conjunction with the Mountain West Renewables Summit, both organized by Infocast, at the Scottsdale Resort at McCormick Ranch.

Some speakers at the summits argued that a Western RTO made eminent sense, while others said their states didn't want to feed California's appetite for renewable energy without seeing enough benefits in return.

Arizona, for instance, is a politically conservative state with low electricity costs, said Michelle De Blasi, executive director of the Arizona Energy Consortium, a group that promotes the state's energy industry. Arizona has the nation's largest nuclear power plant, the 4,000-MW Palo Verde Generating Station, and one of the country's youngest coal fleets, De Blasi noted. Both produce low-priced electricity that benefits Arizona ratepayers, she said.

Arizona's electric utilities will take California's solar power, particularly when there's negative pricing, but they haven't found interstate cooperation sufficiently useful to justify major investments, she said.

"It hasn't made sense for them to go and build power lines and build generation feeding outside of the state," De Blasi said. "We did not want to be a giant outlet for California."

The state's largest utility, Arizona Public Service, is a member of CAISO's Western Energy Imbalance Market. Salt River Project and Tucson Electric Power plan to join in 2020 and 2022, respectively.

Some utilities of the interior West have determined the savings achieved through the EIM — a wholly voluntary, real-time interstate trading market — make it worth rubbing shoulders with CAISO, despite their states' political differences with California. CAISO says the EIM saved its nine-member utilities more than $736 million in the past five years.

Letting California access out-of-state renewables, including through new transmission, was the topic for (left to right) Holly Taylor, Western Interstate Energy Board; Michelle De Blasi, Arizona Energy Consortium; Michael Colvin, Environmental Defense Fund; Doug Marker, Bonneville Power Administration; and David Smith, Transwest Express. | *© RTO Insider*

Interior states aren't keen to get much closer to California than the loosely knit EIM, however.

Large areas of Wyoming and Idaho are served by PacifiCorp, an EIM member. But utility commissioners from those states expressed misgivings at the summit about serving California's needs with renewable energy, paying for transmission upgrades or joining a CAISO-led RTO.

Who Pays for New Transmission?

During a panel titled "Enabling California to Access Out-of-State Resources," David Smith described the *TransWest Express*, a proposed 730-mile transmission project that would link the wind-producing areas of Wyoming to Southern California via Utah and Nevada. Currently there's little transmission linkage between California and Wyoming.

"TransWest is a project that would fill in that gap from Wyoming into the existing transmission capacity," said Smith, the project's director of engineering and operations.

The problem is, who pays for the project's estimated $3 billion cost?

California would receive the energy to help

CAISO/West News

fulfill its ambitious clean energy goals. Under last year's landmark bill, SB 100, the state must rely entirely on carbon-free electricity sources by 2045.

Wyoming and other states would export that electricity, helping to offset the loss of coal production. A company controlled by billionaire Philip Anschutz, who also owns vast wind farms in Wyoming, would develop the project.

Smith suggested the costs of the new high-voltage lines should be shared among those who would benefit.

Public and private investors are part of the plan. The Western Area Power Administration is supporting the project through its Transmission Infrastructure Program, and the federal Bureau of Land Management is a backer. (See *Wyoming Wind Power Revs up, but is it too much?*)

Allocating costs for new western transmission provoked a lively discussion among (left to right) Steven Johnson, Washington Utilities and Transportation Commission; Idaho PUC Commissioner Kristine Raper; and Wyoming PSC Commissioner Mary Throne. | © *RTO Insider*

Kristine Raper, a member of the Idaho Public Utilities Commission and an outspoken critic of California's policy-driven energy goals, said she doesn't see much upside to the proposal.

"Why would you socialize the cost of transmission in order for California to meet its renewable energy goals?" Raper said. "Idaho doesn't have the same goals as California does in order to meet renewable energy," nor does it need out-of-state electricity to meet its needs, she said.

Wyoming Public Service Commissioner Mary Throne expressed similar reservations in panels on Western regionalization and the allocation of transmission costs. She said Wyoming's wind farms are no substitute for its once thriving coal industry, which has been shutting down.

"The number of renewable jobs will never replace the coal jobs we're losing," Throne said. "Coal to wind is not an even trade in Wyoming."

Coal isn't a "four-letter word" in Wyoming, like it is in California, she said.

"We kinda like coal in Wyoming," Throne said. "It pays our bills."

Regionalization Debate

The idea of forming an organized Western electricity market, especially one with California leading it, generated even more controversy than the transmission line proposal.

Johnny Casana, Pattern Energy | © *RTO Insider*

In a presentation called the "Rationale for Western Grid Integration," Johnny Casana, a senior manager with Pattern Energy Group, a San Francisco-based renewable energy firm, laid out his case for regional cooperation.

Historically, much of the West's transmission has been built to serve load in California, which has a huge population compared with the sparsely inhabited states of the Intermountain West, Casana said.

In a decade, wind and solar projects may be cheaper to build than keeping natural gas and coal-fired generators running, he said. Inexpensive energy from windy states such as Wyoming and sunny ones such as Arizona could fuel the cities of the West Coast, benefiting all involved, he contended.

"This is a world we're going into that is unlike the world we come from," Casana said. "There's a lot of winners across the board when we think of ourselves as a unified region."

Compared to the West, the eastern U.S. is far more connected with greater generating capacity, he noted. RTOs are the norm in the Eastern Interconnection; the West needs to catch up, Casana argued.

"We have a shared destiny with our neighbors," he said.

Some speakers agreed, particularly environmentalists from California advocating for a greater dependence on out-of-state renewables. The proposed expansion of the Western EIM, a five-minute market, to an extended day-ahead market (EDAM) is seen by many as the next step in the evolution of the West's energy landscape.

Samuel Golding, president of Community Choice Partners, a Los Angeles group that advocates for community choice aggregators (CCAs), moderated a panel on the EDAM. Representatives of CAISO, the EIM and environmental groups spoke on the panel, supporting the move. Like the EIM, they said, the EDAM would be voluntary, with utilities keeping control of their assets and allowed to leave at will.

"If you don't like it … you can get out of it the next day," said Craig Lewis, executive director of the Clean Coalition, a nonprofit that advocates for a quicker transition to renewable energy. He criticized some from the interior West for disregarding the potential windfall if they join with California and help serve its energy goals.

"There's this massive economic development to your states, and it doesn't seem to be part of the consideration," Lewis said.

During the panel on transmission cost allocation, Raper said the EDAM could increase the likelihood of a Western RTO. But she said there's a slim chance other states will join an organized market whose leaders are chosen by California's elected officials.

Members of CAISO's governing body are appointed by California's governor and confirmed by its State Senate — meaning the ISO's agenda is dictated by the state's progressive policy goals, she said. CAISO takes control, but not ownership, of the transmission lines of its member utilities. A Western RTO could only happen if California agrees to a board composed of representatives from other states, she said.

"It would be irresponsible for me as a regulator to cede all the assets of my utilities to California," Raper said. ■

CAISO/West News

PG&E Stock Plummets amid Wildfires, Shutoffs

Continued from page 1

a responding PG&E troubleman patrolling the … line observed that Cal Fire [the California Department of Forestry and Fire Protection] had taped off the area around the base of transmission tower 001/006. On-site Cal Fire personnel brought to the troubleman's attention what appeared to be a broken jumper on the same tower."

In a *press conference* Thursday, PG&E CEO Bill Johnson said, "A jumper is simply a piece of wire that jumps the conductor over the insulator."

"Filing the [electric incident report] does not tell us where the fire started," Johnson said. Cal Fire and PG&E are continuing to investigate, he said.

The transmission tower in question was inspected earlier this year as part of PG&E's Wildfire Safety Inspection Program, the utility said in its statement.

A fire-detection camera reportedly caught the ignition's fireball on a *video* posted by the Nevada Seismological Laboratory at the University of Nevada, Reno, which operates fire cameras in California. *Footage* from a news helicopter showed the tower Friday, according to a Sacramento television station.

Approximately 180,000 people were ordered to evacuate from Sonoma and Napa counties. The mandatory evacuation orders covered areas heavily damaged by the wine country fires of October 2017, including northern portions of the city of Santa Rosa that were leveled in those firestorms.

Cal Fire investigators blamed PG&E equipment for 21 of the 22 wine country fires, also called the North Bay fires, and determined that a broken PG&E transmission line sparked November's Camp Fire, the deadliest in state history. That fire burned much of the town of Paradise, killing 86 residents and destroying more than 14,000 homes.

PG&E sought bankruptcy protection in January, citing $30 billion in liability from the 2017/18 fires.

Zero Share Price

After PG&E filed its report with the CPUC last week, a Citigroup analyst warned that PG&E's stock price could become worthless, according to *MarketWatch*.

"Shareholders are worried. And should be," Praful Mehta wrote in a note to clients, the Wall Street publication said. "Kincade increases the probability of a zero share price."

After PG&E said it would file for bankruptcy in January, its stock price hit a record low of $6.36/share. By Monday morning, a selloff of PG&E stock had dropped the price to $3.62/share. It stood at $3.80/share at the close of trading Monday.

The Wall Street Journal *reported* Monday that PG&E's bond prices had also fallen, wiping out hundreds of millions of dollars on paper for its noteholders.

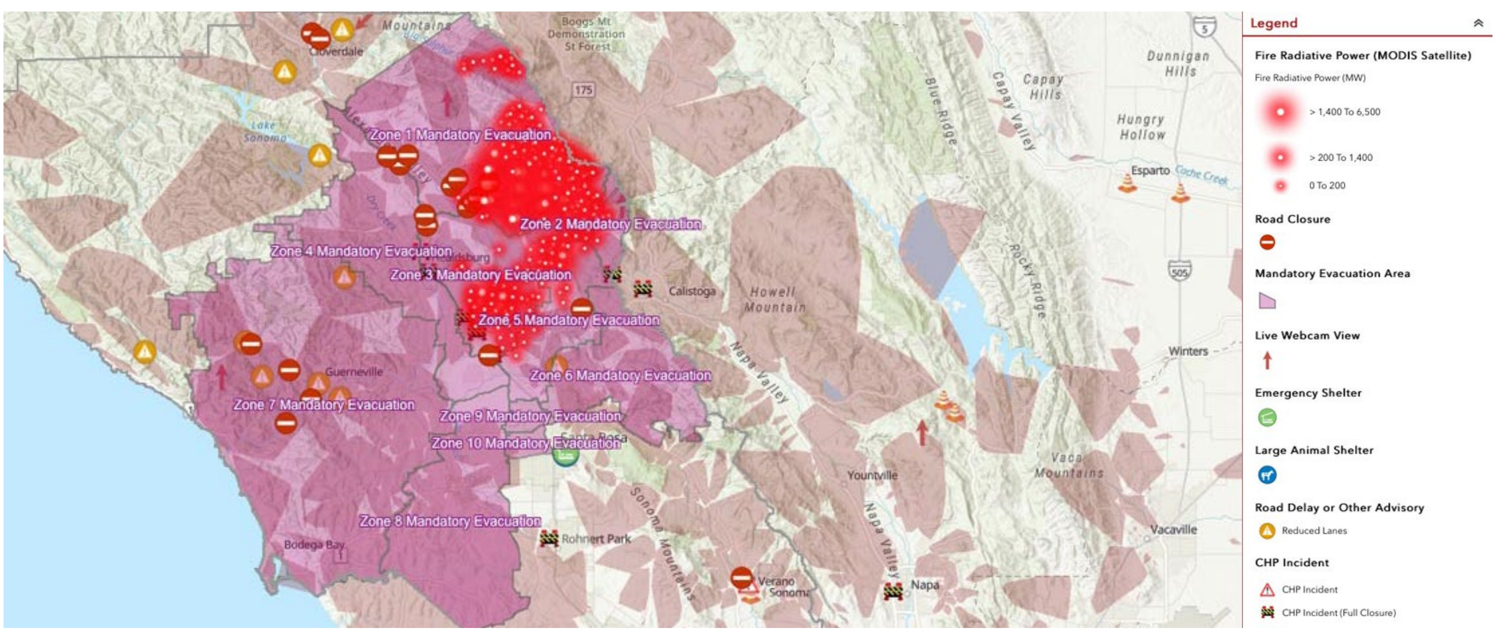
For weeks now, PG&E's bondholders and shareholders have been engaged in a battle for control of the company in proceedings before Judge Dennis Montali of the U.S. Bankruptcy Court in San Francisco.

The bondholders convinced Montali on Oct. 9 to end PG&E's period of exclusivity — the time it had to promote its own reorganization plan without interference — and to admit their Chapter 11 reorganization plan as a competitor. (See related story, *Attorneys Clash over PG&E Reorg; Blackouts Resume*.)

The bondholder plan would wipe out almost all existing equity in the company "because they're issuing themselves and the victims [of 2017/18 wildfires] about 99.99% of the company," Mehta told Bloomberg in a videotaped *interview*. PG&E's plan could result in stock price of about $20 to $25/share, he said.

Mehta said he thinks it's far more likely the judge will adopt the bondholders' plan, which promises to inject more than $29 billion into PG&E in exchange for a controlling interesting in California's largest utility. Mehta said he gave the bondholder plan about a 75% chance of success, versus a 25% chance for PG&E's plan.

"So that is the 75% probability of a zero" value share price, Mehta said. ■



The Kincade fire had burned more than 66,000 acres in Sonoma County as of Monday morning and forced the evacuation of 200,000 residents. | *Sonoma County*

CAISO/West News

Attorneys Clash over PG&E Reorg; Blackouts Resume

By Robert Mullin

PG&E headquarters on Beale Street in San Francisco | © *RTO Insider*

Attorneys in the Pacific Gas and Electric bankruptcy case sparred Wednesday over the merits of their competing reorganization proposals, taking potshots at each other's plans but not scoring any obvious points with the judge overseeing the proceeding.

The hearing was the first since U.S. Bankruptcy Court Judge Dennis Montali ended the utility's exclusive right to submit a restructuring plan. The decision allowed the company's unsecured bondholders to submit their own proposal, which has won the support of a group representing wildfire victims, the court-appointed Tort Claimants Committee (TCC). (See *Judge Admits Takeover Plan as PG&E Starts Blackouts*.)

The hearing also coincided with PG&E's announcement that it would cut power to customers in 17 Northern California counties in the second series of public safety power shutoffs (PSPS) orchestrated this month to prevent wildfires. The blackouts commenced Wednesday morning and continued this week as wildfires nevertheless raged throughout the state.

The bondholders' attorney, Michael Stamer, came out swinging early in the hearing. He disparaged the feasibility of PG&E's reorganization plan and urged Montali to schedule a confirmation vote for the bondholder proposal as soon as possible — a move that would effectively prioritize the plan over the utility's.

"We think the most efficient way to get to the end zone — which is confirmation [of a plan and] satisfaction of AB 1054 — is to allow our plan to go first," Stamer said, referring to the new California law that allows PG&E to draw on a $21 billion fund to cover wildfire damages if it wraps up its reorganization by June 30, 2020. (See *Calif. Wildfire Relief Bill Signed After Quick Passage*.)

Stamer said the bondholder plan would also accelerate a separate state court proceeding convened by Judge James Donato to settle wildfire victims' claims against PG&E over the October 2017 Tubbs Fire, which killed 22 people and leveled a section of Santa Rosa. (See *PG&E Bankruptcy Split into Three Parts*.) He contended the plan would "remove the burden" from Donato to estimate damages because bondholders have already negotiated a settlement with the TCC to cover claims of up to $13.5 billion for that fire. The PG&E plan caps the claim amount at $6.9 billion.

Montali was skeptical of Stamer's argument.

"There's a whole group of lawyers on the other side who think the burden is not gone — it's still there. It's called evaluation," Montali said, questioning whether the bondholders' plan might "overpay" tort claimants at the expense of other parties.

Montali added that the bondholder plan might be "DOA" if Donato "puts a larger number" on the claim.

"Our plan is DOA if he puts a very small number on them," Stamer retorted. Nevertheless, the parties supporting either plan would have to "scramble" if the settlement lands between $6.9 billion and $13.5 billion, he said.

"They'll scramble to come up, and we'll scramble to come down," he said.

Stamer said the "biggest difference" between the two plans is that PG&E's financing is contingent on the $6.9 billion top-end estimate for potential Tubbs Fire claims.

"Unequivocally, they have to get Judge Donato to say that there is less than $6.9 billion of tort claims, or their financing disappears," he said.

Montali pointed out that PG&E has said it will come up with additional financing if needed.

"We actually refer to that as the 'stroke of the pen' argument," Stamer replied. "The debtors are of the view that if they get a different view from Judge Donato, with the stroke of a pen, what we will do is we will raise more money.

"So, here's one of the fundamental problems — the world doesn't work that way. No. 2 is the bulk of their money coming from equity holders. Setting aside the $30 billion of bridge loans, it has to come from equity holders."

"You might say that doesn't happen in the real world, and I might agree with you. That's why you schedule a hearing — to prove the feasibility," Montali said.

The judge firmly rebuffed the notion that he could shelve PG&E's plan in favor of the bondholders.

"I have to do what the [bankruptcy] code says … and I don't think it says I can dump a debtor's plan because another plan is confirmable," Montali said.

No Altruists

PG&E attorney Stephen Karotkin complained that Montali's decision to terminate PG&E's exclusivity "has not worked to promote a consensus" in settling on a reorganization plan.

"As we told you, the [Ad Hoc Committee of Unsecure Bondholders] and the TCC have become polarized entirely and now want to move forward with their own plan. That's not the way it should work," Karotkin said.

"At the exclusivity hearing, your honor, the TCC made very clear to you that they would only engage in mediation if you agreed to terminate exclusivity," he said. "Having done that, we say to your honor, now is the time to promptly appoint a mediator. That is the way to move these cases forward, and let's see if the TCC will live up to its word and its commitment to this court to mediate."

CAISO/West News

Karotkin contested the bondholders' contention that financing for the PG&E plan would fall apart if the Tubbs Fire claims exceed $6.9 billion, saying there is "ample capacity in both the debt and equity markets to fund the plan and meet the requirements of AB 1054. The debtor's plan does not vaporize."

He said Stamer was promoting the misconception that PG&E's financing must come from the existing equity holders. "It doesn't. There's no requirement that it comes from the existing equity holders," he said.

"The ad hoc bondholders are not a group of altruistic investors willing to put up money on favorable terms in an effort to save the state of California," Karotkin said. "Any number of financial institutions have advised the debtors that there is adequate capital necessary ... and on substantially better terms than the terms that are being provided by the ad hoc bondholders."

Montali assured Karotkin that PG&E's plan was still a contender.

"I may have disappointed you because I ended exclusivity, but I didn't say your plan was out of the running," Montali said.

"Neither one is perfect yet, and neither one is confirmable yet. But both are potentially confirmable," he said.

Montali declined to rule on scheduling the confirmation of either restructuring plan. Hearings in the proceeding are slated to continue at least into early next year.

Shutoffs Resume

By Thursday morning, PG&E's latest round of shutoffs covered nearly 183,000 customers — or about 540,000 people — in the Sierra Foothills and North Bay regions, where a "Diablo" wind event was bringing peak gusts of 65 mph in conditions of extremely low humidity.

By Monday morning, about 940,000 customers — or about 2.5 million people — were without power as the Kincade Fire raged in Sonoma County. A PG&E transmission line that was de-energized as part of the latest PSPS is suspected of starting the fire. (See related story, *PG&E Stock Plummets amid Wildfires, Shutoffs.*) It is just one of 14 active wildfires burning in the state as of press time. ■

ERCOT News

ERCOT Technical Advisory Committee Briefs

Stakeholders Push Back on Sales Tax Certifications

The ERCOT TAC meets Oct. 23. | © *RTO Insider*

AUSTIN, Texas — An attempt by ERCOT legal staff last week to alert stakeholders that qualified scheduling entities (QSEs) will soon be required to submit certificates for the resale of electricity resulted in a bit of a kerfuffle.

Stakeholders pushed back against the proposal during the Technical Advisory Committee meeting Wednesday, complaining about what they saw as an added compliance burden and asking to see the legal opinion behind the proposal.

ERCOT Senior Corporate Counsel Erika Kane held firm, beginning her responses to repeated questions with, "Again…"

Other legal staff began filtering into the meeting room, with General Counsel Chad Seely eventually joining the fray.

"I haven't heard all the discussion. I just got text messages," Seely said, taking a seat at the table.

In teeing up the subject, Kane said that electricity sold in Texas for end use is a taxable good subject to sales tax, unless a tax exemption applies. The purchaser — the QSE — claiming a "sale for resale" exemption must provide a resale certificate to the seller to establish an exemption from sales tax. Tax-exempt entities, such as municipalities and cooperatives, can choose to provide a tax-exemption certificate.

Kane said ERCOT was only asking QSEs to conform with practices followed by other RTOs and ISOs, who have determined that their role as central counterparty raises a need for the certificates' submission.

"We came to conclusion that looking at risk versus burden, this is the right path forward," she said.

The subject had been discussed at the board level and with outside legal counsel, but not with stakeholders. Seely said that "through a lot of discussion," staff felt it necessary to put in place a process to gather the sales tax resale certifications.

"Help us understand the onerous burden placed on QSEs to fill out this documentation," he told stakeholders.

Reliant Energy Retail Services' Bill Barnes said that while the certification may be simple, "it feels like ERCOT has had an awakening or a new interpretation of the protocols that has caused a concern and proposed to be resolved by pushing the burden onto all the QSEs."

"It adds to the host of all other documentation we have to file when we register a new QSE or change a name and address, which some of us do quite a bit," Barnes said. "It's another form and requirement we need to remember to do, when it appears to us there's an easier way to do it. We're not getting a good answer as to why there's not a simple statement in the protocols that clarifies ERCOT can't and does not sell electricity to end-use customers."

Noting the layers of laws ERCOT operates under, Seely said, "You can't place a requirement that would usurp the Texas tax code in the protocols."

Seely said there was no outside legal opinion to share with stakeholders — "Everything I'm saying has been run through outside counsel," he said — and he seemed nonplussed when one member asked whether the state's comptroller could come to the committee and offer its opinion.

"You want the comptroller to come into this forum?" Seely asked.

"The comptroller hasn't had a problem with how we've operated for 19 years," Morgan Stanley Capital International's Clayton Greer said. "That's baffling to me," he added, referring to ERCOT's proposed change.

"I don't know why it's baffling," Seely responded. "Just because the comptroller hasn't

Clayton Greer of Morgan Stanley (left) and Bill Barnes of Reliant Energy follow ERCOT's presentation. | © *RTO Insider*

ERCOT News

said anything doesn't mean we shouldn't be addressing the issue."

Staff had intended to put out a market notice after first giving the committee a heads-up. Now they plan to return to the committee in November with additional information and a new plan for moving forward.

ERCOT Likely to Reprice 13 Operating Days

Staff told the committee they plan to ask the Board of Directors for permission to revise day-ahead and real-time prices for 13 operating days. ERCOT protocols require the grid operator to resettle prices to right the wrongs of any data mistakes.

Kenan Ögelman, ERCOT's vice president of commercial operations, assured market participants that the price corrections will be made, but he said staff first need to finish their analysis. That data will be shared with the Wholesale Market Subcommittee on Nov. 6 and the TAC during its Nov. 20 meeting.

Ögelman said a May update to the ERCOT's market management system, intended to model withdrawn outages in the day-ahead market and for reliability unit commitment where facilities were being restored, instead modeled all withdrawn outages. Outages withdrawn before their planned outage start date were erroneously modeled in the market as out of service.

"The transmission and distribution providers did everything exactly as they were supposed to," Ögelman said. "It's how our systems took that in and what they did with it. It was not about anything coming in incorrectly externally."

"ERCOT should correct prices when they screw up the data," said Beth Garza, director of the grid operator's Independent Market Monitor. "This is an ERCOT-screwing-up-the-data thing. ERCOT has an obligation to correct and inform."

When ERCOT became aware of the error in late September, staff began investigating prices for the May 30 to Sept. 25 operating days, Ögelman said. A patch was placed into production Sept. 26.

Staff identified erroneously modeled outages for the Aug. 20-21 and Sept. 16-25 operating days. They determined that only the Sept. 16-23 prices were eligible for board review.

Ögelman said the August prices could not be corrected, as they were outside the timeline for board review. However, staff were able to re-price the Sept. 24-25 days before the prices became final.

TAC Vice Chair Clif Lange and Kenan Ögelman lead the meeting. | © *RTO Insider*

On Oct. 24, ERCOT ***notified*** market participants that a recent update to the energy and market management system led to incorrect real-time prices Oct. 16-21 for certain settlement points and energy metered for resources. The grid operator said it has corrected the Oct. 21 operating day prices, which were still within the review timeline.

ERCOT said it would begin the resettlement process about a week after the Dec. 10 board meeting.

TAC Approves BESTF Leaders, Scope

One month after approving the creation of a task force to best integrate battery storage into ERCOT, the TAC endorsed the group's leadership and charter. (See "TAC Approves Task Force to Study Battery Energy Storage," *ERCOT Technical Advisory Comm. Briefs: Sept. 25, 2019*.)

Members unanimously backed the Battery Energy Storage Task Force's selection of ERCOT's Ken Ragsdale as its chair and Lower Colorado River Authority's Andy Nguyen to represent stakeholders as the vice chair.

Ragsdale demurred to Sandip Sharma, ERCOT's manager of operations planning, as being the group's real leader despite the title. "He's our guiding light," Ragsdale said.

According to its charter, the BESTF will develop policy recommendations for the TAC's consideration that relate to the integration of battery energy storage resources into the ERCOT system.

Two issues are currently "pressing" on the task force, Ragsdale said. The first is filing Nodal Protocol revision requests (NPRRs) related to a single model to be incorporated along with real-time co-optimization upgrades in the first quarter of 2020. The second is beginning discussions by midyear on how to integrate hybrid resources (battery and thermal) and DC-coupled resources, where the battery and solar are both behind the inverter.

The group defines a single model as a future approach where the battery is a single resource. It defines the combo model as the current approach representing a battery as a generating resource and a controllable load resource.

"We hope to come up with a proposal in early January and get some ideas on what the solution is before the second quarter of 2020," Ragsdale said.

The BESTF held its first meeting Oct. 18 and has two more scheduled this year. It plans to follow the same review process as the Real-Time Co-optimization Task Force (RTCTF) by first developing principles or key topic/concept (KTC) recommendations that will be used to write the revision requests. The group plans to bring its first KTCs to the TAC's Nov. 20 meeting.

"We're still doing our homework," Ragsdale said. He said the group is checking with other grid operators, developers and the Electric Power Research Institute to understand the design drivers.

RTC KPs

The committee endorsed the largest batch of real-time co-optimization key principles — 19 in all — yet ***offered up*** by the RTCTF.

The principles (KPs) fall under three

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categories:

- *KP 1.1 (5)*: Defines ERCOT's parameters in representing the disaggregation of ancillary service (AS) demand curves so that potential future changes in values and distribution will not require system changes.
- *KP 1.3 (1)-KP 1.3 (11)*: Outline the key mechanisms and timelines for submitted AS offers and the AS considered and awarded under real-time co-optimization.
- *KP 5 (1)-KP 5 (6)*: Identifies day-ahead market changes necessary to align day-ahead AS procurement with real-time co-optimization's implementation.

ERCOT's Matt Mereness, who chairs the RTCTF, promised more than 20 items in KP 5 before the group is finished.

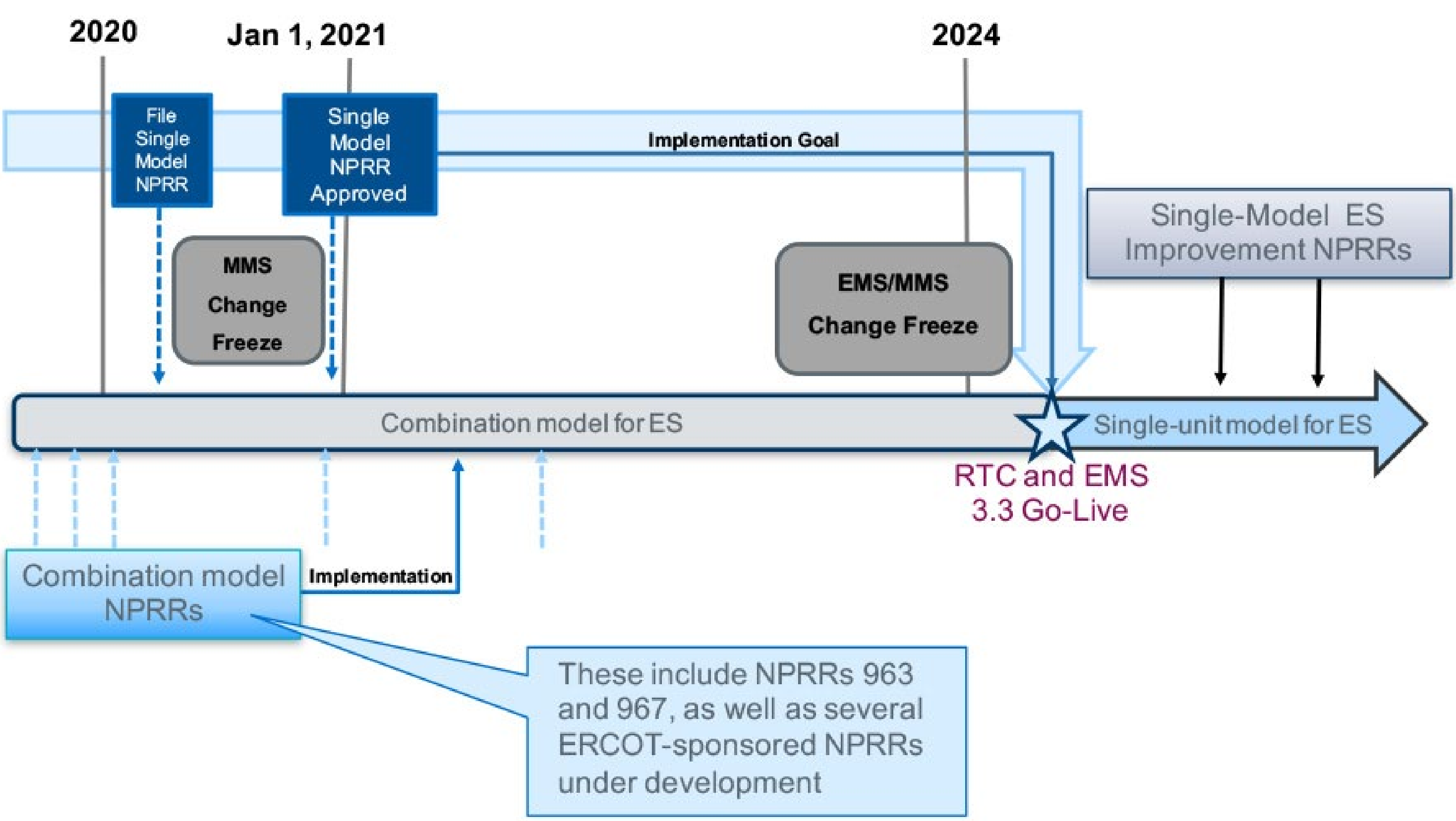
The task force has six meetings left, with the final one scheduled for Jan. 22. "We're going right up to the wire," Mereness said.

Members Endorse 9 Revisions

TAC members approved six NPRRs, a change to the Nodal Operating Guide (NOGRR) and two system-change request (SCRs):

- *NPRR849*: Clarifies the range of voltages at a generation resource's point of interconnection and circumstances for which its reactive capability must be designed to meet.
- *NPRR902*: Defines ERCOT Critical Energy Infrastructure Information (ECEII), adds items that are considered ECEII, specifies the restrictions imposed upon parties that receive or create ECEII, and provides a framework for the submission of ECEII to ERCOT.
- *NPRR937*: Removes distribution-level and non-settlement metered block load transfers from deployment during Level 2 energy emergency alerts (EEAs).
- *NPRR965*: Excludes a quick-start resource's five-minute intervals from the generation resource energy deployment performance calculation when the resource is engaging in the decommitment process or telemetering "shutdown" status.
- *NPRR968*: Updates Protocol language to comply with NERC reliability standards *BAL-002-3* (Disturbance Control Standard – Contingency Reserve for Recovery from a Balancing Contingency Event) and *EOP-011-1* (Emergency Operations) by changing the physical responsive capability trigger for a Level 3 EEA to match a new most severe single contingency of 1,430 MW, to be implemented on Jan. 1, 2020.
- *NPRR969*: Clarifies ERCOT is the final authority in qualifying market participants.
- *NOGRR197*: Updates the responsive reserve service (RRS) manual deployment to provide flexibility in the amount of RRS capacity that is released to the security-constrained economic dispatch engine during scarcity conditions.
- *SCR800*: Incorporates DC tie-scheduled ramp into SCED by updating the resource limit calculator's formula to determine the generation-to-be-dispatched value and adding a scheduled five-minute DC tie ramp rate (DCTRR). The DCTRR will be calculated from the scheduled systemwide DC tie ramp multiplied by five and a configurable factor to capture the scheduled five-minute ramp.
- *SCR805*: Allows ERCOT to automatically provide certain reports to requesting transmission service providers (TSPs) before they are posted to the market information system public area. TSPs will receive the reports once a formal request has been approved by ERCOT. ■

— Tom Kleckner



Energy storage road map | *ERCOT*

ISO-NE News

NEPOOL Reliability Committee Briefs

Approves ICR Values

The New England Power Pool Reliability Committee (RC) on Wednesday reversed its September rejection of ISO-NE's proposed installed capacity requirement (ICR) calculations for Forward Capacity Auction 14 (2023/24) and three annual reconfiguration auctions (ARAs) to be conducted in 2020.

A restored End User sector quorum and a break in the ranks of universal opposition from the Generation sector proved the tipping point. Needing a 60% majority to recommend the ICR values to the Participants Committee, the RC voted by roll call and passed the motion with 63.49% in favor. The RC approved net ICRs of 32,205 MW for 2020/21 ARA 3, 32,230 MW of 2021/22 ARA 2 and 32,465 MW for 2022/23 ARA 1.

The Generation sector voted 4.2% in favor and 12.59% opposed, with one abstention. The Transmission and Publicly Owned Entity sectors remained unanimous in favor, Alternative Resources remained approximately split, and the End User sector was recorded unanimously in favor with one abstention.

The End User sector lacked a quorum in September's vote and was reported 0.98% in favor and 0% opposed. (See *Supply Side not Buying ISO-NE's ICR Numbers*.)

The committee also approved a 940-MW value for the Hydro-Québec interconnection capability credit (HQICC) for FCA 14's ARA 3, with the value rising to 958 MW for ARA 2 and 969 MW for ARA 1.

Peter Wong, ISO-NE manager of resource studies and assessments, and Senior Engineer Manasa Kotha *presented* the ICR values and tie benefits.

Pending PC approval on Nov. 1, the RTO plans to file the ICR-related values with FERC by Nov. 5.

$46 Million PTF Cost Allocation

The RC voted to recommend that ISO-NE approve pool-supported pool transmission facility (PTF) costs of $46.39 million for the Baird 115-kV line rebuild project in Connecticut, per the revised cost allocation submitted by Avangrid/United Illuminating.

The committee found the costs consistent with the criteria set forth in Section 12C of ISO-NE's Tariff for receiving regional support and inclusion in pool-supported PTF rates, and that none of the costs associated with the upgrade are considered localized costs.

The project involves rebuilds of the 88006A and 89006B lines between Baird substation, Barnum substation and the Devon Tie switching yard tying into the Housatonic River Crossing project, for a total distance of approximately 2.4 miles, and includes installing new galvanized steel transmission poles supporting new aluminum conductor steel-supported cable and optical ground wire.

Based on a show of hands, the motion passed with none opposed and no abstentions.

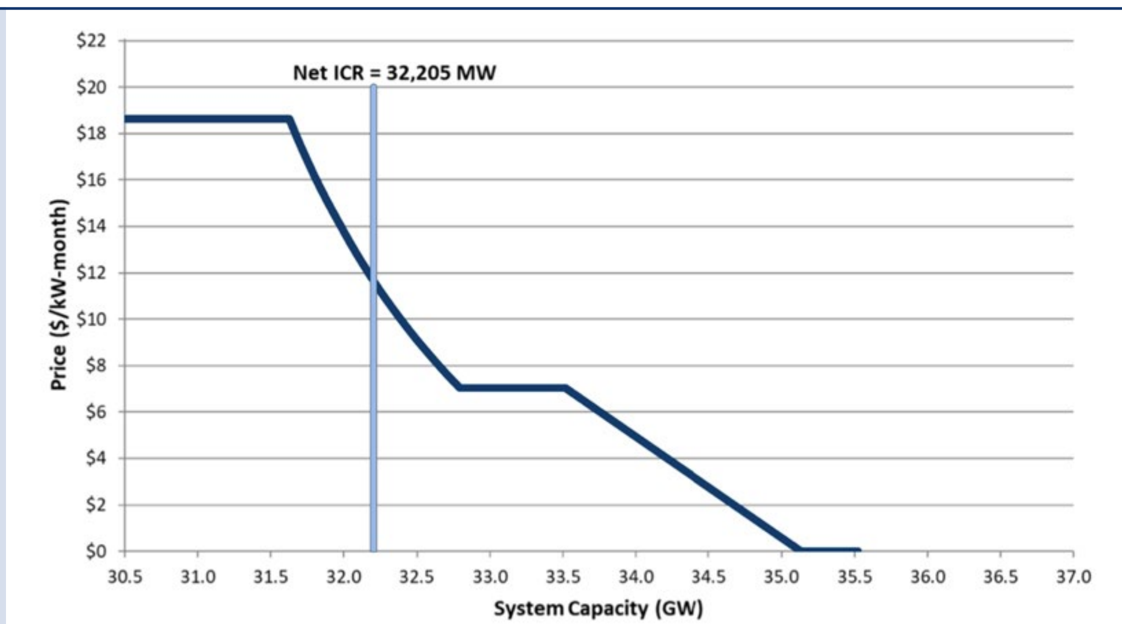
Other Action

The RC on Wednesday also approved a number of projects, including recommending that ISO-NE approve implementation of the Scitico substation circuit breaker and transformer addition project by Eversource Energy in Connecticut, as well as the 15-MW Davenport Solar Generation project by NextEra Energy Resources in Vermont.

The committee also recommended that ISO-NE approve implementation of Eversource's Andrew Square-to-Dewar Street Station 115-kV cable installation project in Boston; New England Power's 40-plus-MW Iron Mine Hill Road solar generation and transmission project in Rhode Island; and the latter's King Solar 1 and 2 generation project.

It also approved revisions to Operating Procedure 16J to modify the timing for initiating the annual certification of transmission equipment dynamics data; and revisions to Operating Procedure 2A, to modify the table of itemized equipment maintenance of communications, computers, metering and building services. ■

— Michael Kuser



Capacity commitment period 2020/21 ARA 3 systemwide capacity demand curve | *ISO-NE*

ISO-NE News

ISO-NE Planning Advisory Committee Briefs

Bulk Power System List Updates

ISO-NE will add five buses to the bulk power system list and remove seven others for various reasons, the Planning Advisory Committee learned on Thursday.

Dan Schwarting, lead engineer for transmission planning, *presented* the BPS list updates to the PAC and said reasons for the additions include planned transmission upgrades, changes to protection schemes, and a reduction in inertia in Nova Scotia and New Brunswick.

Two of the additional buses were previously identified as BPS in the proposed plan application (PPA) for the Southeast Massachusetts/Rhode Island (SEMA/RI) transmission upgrades, and all five were identified in the 2019 BPS assessment report.

Reasons for the seven bus removals include generation retirements, dynamic model changes and other system changes since 2016, Schwarting said.

Four buses were previously identified as new BPS in the PPA study but will not be added to the BPS list. All seven buses were identified in the 2019 BPS assessment report.

The Northeast Power Coordinating Council requires the identification of buses that are part of the BPS, with some NPCC criteria applying only to BPS buses or BPS elements, including Directory 1: Design and Operation of the BPS and Directory 4: System Protection Criteria.

BPS classifications are determined through a performance-based test, as described in NPCC Document *A-10*.

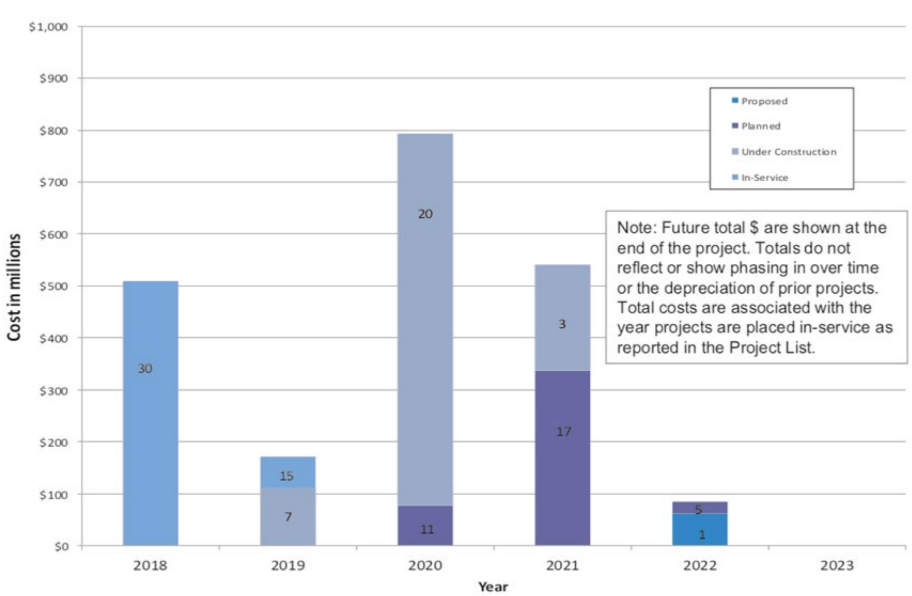
RSP Transmission Projects and Asset Conditions

New England saw cost increases of nearly $200 million on 11 transmission projects between June and October 2019, according to Brent Oberlin, the RTO's director of transmission planning, who *presented* on Regional System Plan transmission projects and asset conditions.

Eight of the projects were in the Greater Boston area and had a combined cost increase of $157 million, which Eversource Energy attributed to "actual construction bids coming in higher than estimated costs, lengthy and extensive permitting, and restrictive permitting conditions," Oberlin said.

The other three projects all were in the Seacoast New Hampshire Solution, in the Madbury-Portsmouth area, and experienced a combined cost increase of $40 million, which Eversource also attributed to actual construction bids coming in higher than estimated costs, lengthy and extensive permitting, and restrictive permitting conditions.

"This can't keep happening; the estimates have to get more accurate," said Dorothy Capra, director of regulatory services at the New England States Committee on Electricity. "You don't want to keep upsetting state regulators."



Investment of New England transmission reliability projects by status through 2023 | *ISO-NE*

Eversource representatives at the meeting said they would be prepared to answer questions on the cost overruns in more detail at the PAC meeting in November.

There were no new projects since the June 2019 update, but three upgrades on the project list have been placed in-service, including two in Greater Boston and one in Greater Hartford and Central Connecticut, Oberlin said.

Eversource 1355 115-kV Line Rebuild

Eversource's John Case presented the utility's *plans* for an estimated $7.45 million line rebuild in Connecticut (+50% to -25%), with an estimated in-service date of May 2020.

Eversource proposes to rebuild the 115-kV 1355 transmission line from the Colony substation to Schwab Junction in Wallingford, Conn., replacing 14 aged and degraded structures with new steel structures.

The original 1927 steel lattice towers on the line have bent members, corrosion and tower legs located in standing water. The conductor and shield wire in this section are original to the line, thus 92 years old, and no longer standard Eversource transmission conductors, Case said.

The utility will reconfigure the circuit arrangement and right of way to reduce the structures and conductors required, eliminating seven structures and approximately three-quarters circuit-miles of conductor. The aged and degraded copperweld conductor and shield wires will be replaced with new standard conductors and optical ground wire.

Wood structures in this section date from 1966 and suffer from various degrees of woodpecker damage, rot, cracks and deteriorated steel mechanical connections.

Tx Owner Local System Plans

The PAC meeting was followed by a meeting of the Transmission Owner Planning Advisory Committee, a transmission owner-led forum. The TOs each provided brief introductions of their local system plans or those of their subsidiaries, including upcoming transmission projects within their areas.

Presenting plans were *Avangrid*, *Emera Maine*, *Eversource*, *National Grid*, *New Hampshire Transmission* and *Vermont Electric Power Co.* ■

— Michael Kuser

ISO-NE News

Offshore Wind Leaders: Future is Now in US

Officials and Developers to Keep Pushing New Industry

By Michael Kuser

BOSTON — Federal and state officials joined offshore wind developers last week in giving about 60 members of the Environmental Business Council of New England (EBCNE) an upbeat update on the nascent U.S. offshore industry.

The following is some of what we heard Oct. 22 about a burgeoning sector that has about 19 GW of projects in view, more than 80% of today's total global installed capacity of 23 GW.

Learning the Process

Massachusetts Energy and Environmental Affairs Secretary Kathleen Theoharides | *© RTO Insider*

"We couldn't be more excited to be deploying a real climate change solution that also has these benefits in terms of job creation, economic development and securing a clean energy resource," Massachusetts Energy and Environmental Affairs Secretary Kathleen Theoharides said. "Offshore wind also coincides with our winter peak in terms of demand and gets us away from some of the higher-priced, dirtiest resources in our energy mix."

The state's strategy focuses on energy efficiency, cleaning up the energy supply and electrifying the transportation and building sectors, she said.

"While it has been a stressful summer in terms of the federal permitting side ... we are learning about the permitting process and helping the rest of the industry understand what those steps are going to be," Theoharides said.

New England renewable energy advocates in September expressed skepticism about federal officials' claims to be acting in the public interest by delaying the final permits for the 800-MW Vineyard Wind project off the coast of Massachusetts. (See *Renewable Backers Decry Vineyard Wind Delay*.)

The U.S. Bureau of Ocean Management announced in August it would delay issuing the final environmental impact statement for the project in order to conduct an expanded analysis of "cumulative impacts."

Massachusetts officials in "a couple of weeks" will announce winners of the state's second solicitation for up to 800 MW in additional offshore wind energy, Theoharides said.

Federal Commitment

James Bennett, BOEM | *© RTO Insider*

James Bennett, program manager for renewable energy at BOEM, highlighted the "massive change" in offshore wind development caused by Equinor's $42 million lease in the New York Bight in 2016.

"Everybody turned their head and said, 'Oh my God, this is for real,'" Bennett said, noting that deal was followed by a lease off North Carolina and another off Massachusetts, where three areas auctioned for $135 million apiece last year after being left on the table two years earlier. (See *Mass. Offshore Lease Auction Nets Record $405 Million*.)

BOEM now has 15 leases up and down the East Coast, he said.

"Do we have steel in the water? No, but next year we're going to have actual steel in the water off of Virginia and hopefully very soon after that up here in Massachusetts," Bennett said.

"The next decade is very promising," he said. "We are looking at additional leasing off of New York ... and we've been working on our regulatory processes, refining them and streamlining them so we can move as quickly as possible with the lessons that we're learning over time. And, of course, the state offshore wind procurements are phenomenal in making sure that there's plenty of support in moving forward, and industry continues to demonstrate its commitment."

Bennett said that while his agency has been handling offshore wind leases state by state, it nonetheless favored a regional approach. He mentioned that the Gulf of Maine Intergovernmental Renewable Energy Task Force, organized by BOEM with the participation off Maine, Massachusetts and New Hampshire, will hold its first meeting on Dec. 12.

"We're all committed to getting this right," Bennett said. "The [permitting delay] is not the first bump in the road, and it's not going to be the last. We're going to have more over the next decade with potentially 12 projects being put in place up and down the East Coast. We're going to run into issues like transmission, like ports, like construction vessels ... and we're going to deal with them.

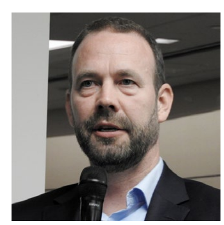
"At BOEM, we're going to work through this issue and we're going to make it work, and we're going to have the stakeholders and the developers and the government, both federal and state, work together to come up with solutions," Bennett said.

Robert LaBelle, BOEM | *© RTO Insider*

Robert LaBelle, a retired associate director at BOEM, is now helping his home state of New Hampshire prepare for the three-state panel organized by the agency to pursue development of offshore wind in the Gulf of Maine.

"I spent a lot of years doing ocean planning, and now that I'm just a free citizen of New Hampshire, I'd like to see some ocean doing, so I'm recommending that all you folks who are in a position to make a difference reconsider your commitment to working collaboratively," LaBelle said.

'Great Expectations'



Lars Pedersen, Vineyard Wind | *© RTO Insider*

"I'm driven by fundamental trends [and] am concerned on behalf of my children about climate change and global warming and what it will do," Vineyard Wind CEO Lars Pedersen said. "I have seen this industry transform from a technology-driven niche ... into a big business."

Pedersen recalled planning bids in Europe in 2012 when someone proposed aiming for 100 euros/MWh as a goal for 2020.

"We were way off: It happened much, much quicker than we thought, and it's because the fundamentals are really good for this industry," Pedersen said. "And, also, the fundamentals are

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really strong here in the Northeast. You have high winds offshore, shallow water, good seabed, a lot of people living on the coastline, and you're transforming your energy system away from fossil and nuclear plants into renewable energies."

Bloomberg New Energy Finance projects offshore wind costs of 64 euros/MWh by 2020 and 60 euros/MWh by 2025.

A joint venture between Avangrid Renewables and Copenhagen Infrastructure Partners, Vineyard Wind in August bid for the second Massachusetts solicitation by offering several options on up to 800 MW of additional offshore wind.

Matthew Morrissey, Ørsted US | *© RTO Insider*

The state leaders have done their job, as has the team at BOEM, but now it's up to the industry to develop offshore wind, said Matthew Morrissey, head of New England markets for Ørsted US Offshore Wind, which also bid in the second solicitation.

"There are great opportunities that come from a new industry in America. There are great expectations," Morrissey said. "Offshore presents a very compelling case for the development of clean energy at scale to deal with the problem we have now replacing fossil generation coming offline," and also reinvents the old maritime ports along the Eastern seaboard, he said.

Stephen Pike, CEO of the Massachusetts Clean Energy Center, recounted a day in 2014 when it became apparent that the Cape Wind project would not be moving forward, and a couple state officials thought the failure set the industry back at least 10 years.

Stephen Pike, Massachusetts Clean Energy Center | *© RTO Insider*

"To think that we would be standing on the statehouse lawn less than two years later watching the governor sign that first-in-the-nation path to market legislation was really remarkable," Pike said. "Never mind that the law set up an actual solicitation that less than two years after that ended up with a project whose pricing was way below what anyone could have imagined even six months prior to that." (See *Mass., R.I. Pick 1,200 MW in Offshore Wind Bids*.)

The agency is now focused on developing the supply chain and workforce training, Pike said.

Fast Enough?

H. Curtis Spalding, Brown University | *© RTO Insider*

"Two degrees is in the rearview mirror," said H. Curtis Spalding of the Institute at Brown for Environment and Society. The former EPA regional administrator for New England during the Obama administration was referring to the temperature increase threshold (equivalent to about 3.6 F) to reaching irreversible climate change.

"There's too much to do and too short a time to stop the temperature from rising 2 degrees," Spalding said. "What does that mean? That means climate change is going to affect and cascade so many parts of our community going forward."

After two major flooding events, the threat from climate change is felt more in Houston than it is in New England, he said. "The context is going to shift."

Seth Kaplan, Mayflower Wind | *© RTO Insider*

Seth Kaplan, director of permitting and development for Mayflower Wind, came to the joint venture between Shell New Energies and EDP Renewables after working five years at the latter firm planning onshore wind and solar and before that, 16 years at the Conservation Law Foundation.

"It's hard to avoid the conclusion that the renewable energy industry isn't aggressive enough," Kaplan said. "If you look at the world through a climate frame, we need to build so much so quickly in order to meet our climate goals, that the strictures and barriers that are just the normal stuff of business are annoying if you're trying to meet those goals." ■

Massachusetts Energy and Environmental Affairs Secretary Kathleen Theoharides speaks on offshore wind energy issues to the Environmental Business Council of New England on Oct. 22 in Boston. | *© RTO Insider*

OMS Annual Meeting

OMS Panel Debates Merits of MISO-SPP Seams Projects

By Amanda Durish Cook

NEW ORLEANS — At the Organization of MISO States' annual meeting last week, where MISO-SPP seams needs took center stage, North Dakota Public Service Commissioner Julie Fedorchak set the tone by opening a panel with a pun.

"We're bursting at the seams," she said, then drummed a "ba-dum-tsh" beat on the podium.

Steve Gaw, AWEA | © *RTO Insider*

American Wind Energy Association and Advanced Power Alliance's Steve Gaw commended state regulators for bringing attention to the seam this year. He said the discussion has earned FERC's attention and is stimulating action at the federal level.

"It's immensely helpful to understanding the future and where we're going," he said during the Thursday meeting. "The bottom line is, if you don't do robust planning, you won't have the idea of where the needs are."

Natalie McIntire, Clean Grid Alliance | © *RTO Insider*

"We're not seeing the interregional planning process as effective as we'd like," Clean Grid Alliance's Natalie McIntire added.

MISO has never recommended an interregional project with SPP, while it's close to embarking on its first major interregional transmission project with PJM in the $21.6 million reconstruction of the 138-kV Michigan City-Trail Creek-Bosserman line in the northwestern corner of Indiana. (See *MISO, PJM Poised for 1st Major Interregional Project*.)

But Entergy's Charles Long said too little is known about future transmission use patterns to build a major MISO-SPP interregional project. He urged the RTOs to develop market-to-market efficiencies first.

Charles Long, Entergy | © *RTO Insider*

"What really concerns me about the seams is the thinking that we need to build our way out of it. … Our big concern is that we would fund transmission that in five or 10 years won't be useful," Long said. "To make the assumption that every problem can be fixed by transmission is the wrong assumption. We're getting to the point of diminishing returns on transmission."

OMS' annual meeting underway Oct. 24 | © *RTO Insider*

Long also argued that if electric vehicle adoption takes off, the distribution system will need upgrades and buildouts "far before" the transmission system will.

Long's arguments reiterated those his company recently made in response to the MISO and SPP market monitors' solicitation of stakeholder feedback on the interregional processes. (See related story, "Entergy Comment on Seams 'Raises Eyebrows,'" *SPP MOPC Briefs: Oct. 15-16, 2019*.) The monitors were enlisted by OMS and SPP's Regional State Committee to perform a study to determine the effectiveness of seams coordination. (See *MISO, SPP States Ponder Look at Interregional Planning*.)

His arguments found traction with other panelists.

Travis Kavulla, NRG | © *RTO Insider*

"You should eat your peas before you have dessert," agreed NRG Energy's Travis Kavulla. He encouraged RTOs and utilities to first make software upgrades and create "closer automation between two systems" before moving to "fancy new capital assets."

Kavulla said the country's regulatory framework is generally bad at forcing utilities to leverage their existing capital assets for more efficiencies.

But McIntire said the future is clear: more renewable generation.

"MISO says its greatest asset is its footprint diversity. And if that's true, footprint diversity should extend to the seams to have this sort of mutual aid society," McIntire said.

Long said it's worth remembering that MISO and SPP have completed a lot of analysis already on possible seams projects.

"If you want the yardstick to be how many seams wires to go into the air, then you could say it's slow. But I think you have to be careful in how you measure success. You need to measure twice and cut once," Long said.

Gaw disagreed, saying the RTOs are moving too slowly, and with a flawed planning process that assumes some transmission projects will be ticked off through needed upgrades in their generation interconnection queues.

"You end up with something that generators have to pay for that benefits load. And because it's so expensive, it doesn't get built at all. Is that the kind of outcome we want?" Gaw asked.

Market Study Results Soon

OMS Executive Director Marcus Hawkins acknowledged "several" members of the RSC and thanked them for their attendance.

The first round of the groups' seams studies focuses on rate pancaking and unreserved transmission use charges, the market-to-

OMS Annual Meeting

market process and the RTOs' lack of joint dispatch in energy markets — all elements that might frustrate market efficiencies between the RTOs.

Both monitors have so far found limited benefits.

Last month, MISO Independent Market Monitor David Patton said he was encountering "a snag" preventing him from securing offer data from SPP in order to complete his side of the analysis. At Thursday's meeting, Patton said he was still having "data issues."

Another issue arose when the IMM requested confidential market participant information that, according to the SPP Tariff, can only be shared with permission of affected market participants. Patton since revised the data request to more limited information. SPP said it's willing to perform an analysis of its own data under the direction of the IMM, if necessary.

SPP Market Monitor Unit Executive Director Keith Collins said he is examining rate pancaking and unreserved transmission use charges essentially functioning as taxes.

"Are the imposition of costs acting like taxes that are barriers, or are they acting like taxes that provide a societal good?" he said.

But so far, the costs seem too low to bother with.

Collins said MISO and SPP's rate pancaking issues are moot because both RTOs offer heavily discounted, "near-zero-cost" spot-in transmission service for imports.

"The reality is that most of the rate pancaking has been addressed by market import spot-in service," Collins said. "Because most non-firm import transactions are already exempt from transmission charges, there is little to no market efficiency to be gained by the further removal of the additional transmission service charges across all import transactions."

MISO IMM David Patton (left) and SPP MMU Executive Director Keith Collins | © *RTO Insider*

Collins said there have been no unreserved use charges levied against MISO members by SPP in the past two-and-a-half years and only "minimal" charges from MISO to SPP in 2017 and 2018. He also said he's aware the RTOs' transmission customers take "cost-avoidance measures" so they aren't charged for unreserved use.

Patton said a joint dispatch stands to drastically increase power imports from SPP to MISO with only "modest" production cost savings on both sides of the seam.

"These are initial results that are subject to be iterated and improved," Patton caution. He also noted that the production cost models he uses represent a "highly idealized" version of the RTOs that doesn't take into account all transmission constraints, "lumpy" outage planning and other operating realities.

Patton also welcomed more ideas on what the monitors should study. "If there are participants or states here that think there are issues that haven't been looked at, please let us know," he said.

McIntire said that while there might be few market efficiencies to be gained by their removal, pancaked rates present "a real barrier" to moving low-cost renewable energy across the seams. She also asked that the Monitors not rely solely on a 2018 model to conduct the study but make future assumptions. ■

Clashing Visions of the Grid on Display at OMS Meeting

By Amanda Durish Cook

NEW ORLEANS — MISO executives and some of its state regulators last week provided sharply contrasting visions of the grid's move away from fossil fuels and toward renewables.

MISO President of Market Development Strategy Richard Doying arrived at the Organization of MISO States' annual meeting in the Big Easy to discuss the RTO's 2019 *Forward Report*, which concluded that market changes are necessary as the RTO footprint experiences demarginalization, decentralization and digitalization. (See *New MISO Report Starting Point for Major Grid Change*.)

The RTO had only about 400 MW of wind in 2007, CEO John Bear said. Doying noted it is now nearing 20 GW of wind generation in its mix, which can have zero marginal costs.

"That is the right economic price, but it's terrible for baseload generation," Doying said.

MISO's generation interconnection *queue* currently contains 59 GW of solar projects and 27 GW of wind projects.

But 15 years ago, coal was king in the footprint, holding more than 75% of the generation mix; now MISO predicts that share will drop to less than 25% by 2030.

But Kentucky Public Service Commissioner Talina Mathews offered a starkly different picture. She said her state, with its continuing flat loads and lack of a renewable portfolio standard, still seems perfectly happy with 94% of its energy needs being *supplied* by coal and natural gas.

Kentucky doesn't yet see a need to add renewable generation, Mathews said. For customers that do want renewable energy, she pointed out that western Kentucky, as a MISO member, can access other states' renewable generation.

"We're seeing change come more slowly," she said. And as far as those "green kilowatt-hours? We're going to sit back and let that come to us."

"Would some people say my head is in the sand?" she mused. "Maybe."

But many of Kentucky's residents simply can't afford to think about clean energy, Mathews said. To them it doesn't matter "what color the kilowatt-hours are" as long as they come cheap.

"When your home is a pre-1970s trailer with resistance strip heating, you can't respond to [energy] market signals," she said, adding that many in Kentucky's formerly booming coal country are barely scraping by.

"We have counties that are at 12% [unemployment]," Mathews said. "We have counties that are taking the hit for other people's energy decisions. And that's fine. That's how economies move."

Minnesota Public Utilities Commissioner Matt Schuerger offered yet another view. He said while renewable adoption was stimulated in the beginning by state renewable targets, they're no longer a catalyst in 2019.

Kentucky Public Service Commissioner Talina Mathews | © *RTO Insider*

Richard Doying, MISO | © *RTO Insider*

"We've moved beyond that several years ago. In fact, most utilities met these goal several years early," Schuerger said.

Arkansas Public Service Commission Chairman Ted Thomas argued that energy innovation isn't a one-step process and markets are best positioned to encourage and accommodate the series of steps — not a federal rule.

"Imagine if we still had the Clean Power Plan. You would have state policy in response to federal mandates clashing with" FERC rules, he said. Storage remains the most potentially disruptive technology that is close to mass deployment, he said. Consumer-oriented demand response is a close second.

Thomas said he agreed with Supreme Court Justice Oliver Wendell Holmes Jr.'s position that laws should be written with the "bad guy" in mind, or the one person that will try to exploit the law for personal gain. He said that advice should be carefully considered when states target certain levels of fuel mix diversity.

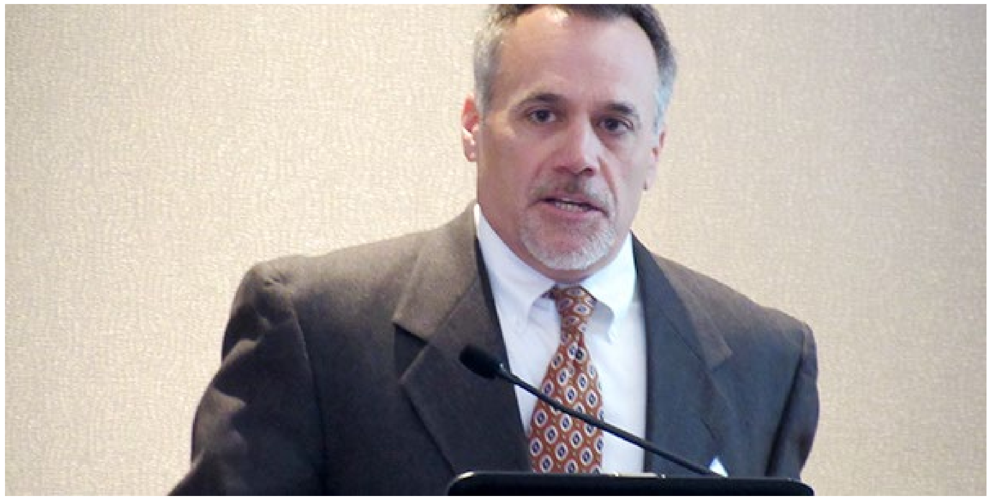
"There's going to be some 'slick' that is going to free-ride. That's human nature," Thomas said.

He also said the manner in which decentralized generation is adopted remains debatable: "There's a lot of talk that we're going to be decentralized, but the question is how — decentralized at scale or decentralized on rooftops?"

Doying took notes during the exchange; MISO plans to release an updated version of its Forward Report in 2020. ■

OMS President Makes One Last Call for Long-term Tx Plan

NEW ORLEANS — The outgoing president of the Organization of MISO States used his final address to the MISO community to once again press the RTO to develop a long-term transmission plan.


OMS President Daniel Hall | © *RTO Insider*

"We came together to encourage MISO to come together and study long-term transmission needs," OMS President Daniel Hall said Thursday during a look back at the organization's 2019 accomplishments at its annual meeting. Hall attended the meeting via telephone, kept home by illness.

"There is nothing radical in these principles. … However, our goal was to jump-start the conversation on long-term needs in the footprint," Hall said, referring to the set of transmission planning principles state regulators released in June. OMS has for months insisted that the RTO consider creating a long-term transmission planning package similar to the 2011 multi-value project (MVP) portfolio. (See *MISO Cracks Door on Long-term Tx Planning*.)

In a review released earlier this month, MISO said the MVP package continues to show $16 billion to $57 billion in *benefits*, with a benefit-cost ratio ranging from 1.8:1 to 3.1:1.

"The current planning process is not sustainable. In fact, many stakeholders would say it's broken," Hall said. He urged MISO to put together a "thoughtful and comprehensive" long-term transmission plan study.

"Failure to do so will result in missed opportunities," Hall said, referencing reliability benefits, reduced customer costs and accommodation of a growing renewables fleet.

MISO CEO John Bear said OMS' long-range transmission planning principles are "a great call to action."

OMS members also elected Minnesota Public Utilities Commissioner, and current vice president, Matt Schuerger as their 2020 president, a role he'll take on two months early, as Hall plans to exit the Missouri Public Service Commission next month. North Dakota Public Service Commissioner Julie Fedorchak was elected vice president. ■

— Amanda Durish Cook

MISO Informational Forum Briefs

New Integrated Roadmap Timeline

CARMEL, Ind. — MISO is rearranging its Integrated Roadmap schedule to update the list of market improvements annually instead of the existing nearly two-year timeline.

The RTO said it will cut the Integrated Roadmap from 20 months to 13 months to put it in sync with the MISO's annual budget process and the Independent Market Monitor's yearly State of the Market Report. The Monitor's recommendations are regularly folded into the ongoing list of market improvements.

MISO is suggesting a one-time shift of the Integrated Roadmap to cut seven months out of the process from recommendation to numbered roadmap item. After the change, stakeholder prioritization of recommendations will take place in March instead of July.

At an Informational Forum on Oct. 22, MISO market strategy team member Christov Churchward said the move to the new timeline will be implemented by the end of the year, nudging the new issue submission for the 2020 roadmap to Dec. 23 instead of the usual cutoff in the beginning of May. MISO and stakeholders' issue prioritization is slated to begin Jan. 22 and wrap in the first half of April.

"This will continue to make the Integrated Roadmap even more integrated," Churchward said.

MISO plans to hold a workshop Nov. 7 to discuss which improvements it will undertake with stakeholders from 2020 through 2025. (See *Stakeholders Confused over MISO Roadmap*.)

Prices, Peak Stay Low in Hot September

MISO's average load in September nearly matched load at the same time last year, though peak loads stayed significantly below September 2018.

The RTO reported a 79.5-GW average load throughout the month, in line with the 79.4-GW average load in 2018. It hit an almost 107-GW peak on Sept. 11, well below the 115-GW peak on Sept. 4, 2018.

MISO said parts of its South and Central regions were 6 to 7 degrees Fahrenheit above the National Oceanic and Atmospheric Administration's 30-year September historical average.

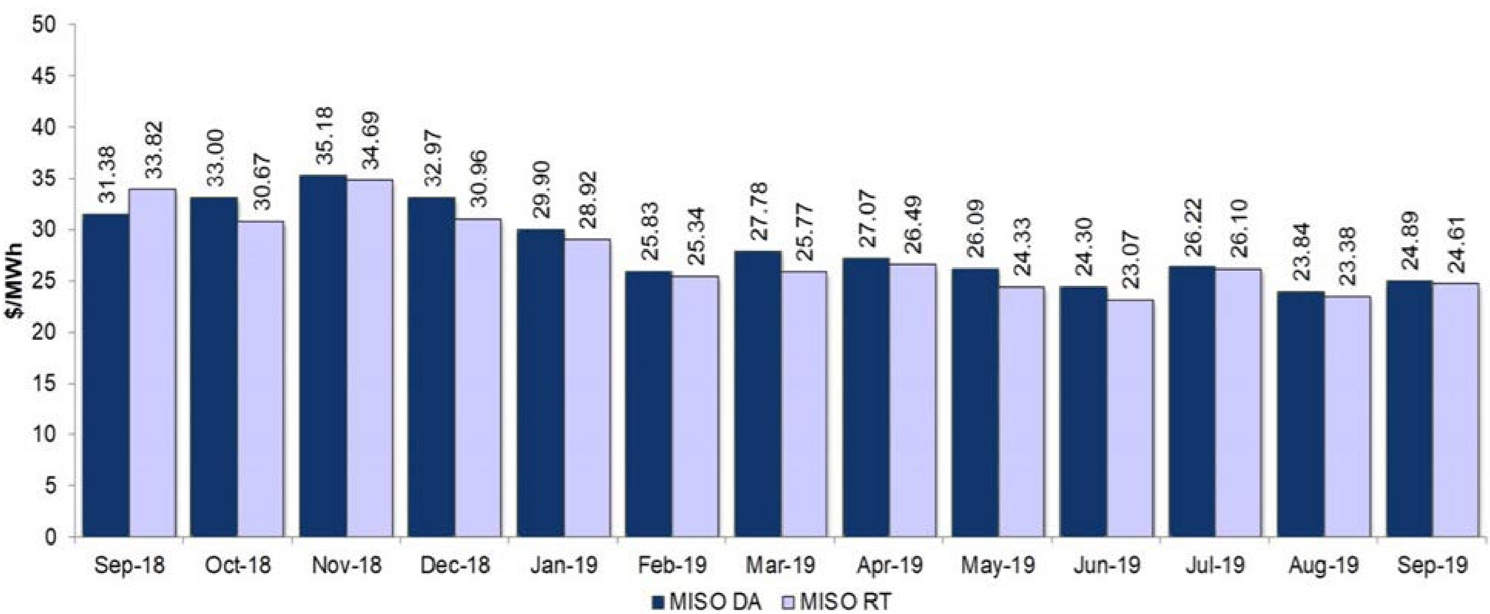
"We had a warm enough September this year — even warmer than last year," MISO Executive Director of Market Operations Shawn McFarlane said.

The RTO called a hot weather alert in MISO South for Sept. 5-9, when average high temperatures stayed above 95 degrees. Despite this, MISO was able to keep "good supply availability," McFarlane said.

In mid-September, RTO executives predicted MISO's forecasted 112-GW fall peak wouldn't come to pass with the worst of September heat behind the footprint. (See *MISO Unruffled by Fall Supply-demand Outlook*.)

Despite warm weather loads, prices stayed low, with MISO averaging a $24.61/MWh real-time LMP — a 27% decrease compared to September 2018 when real-time prices averaged $33.82/MWh. McFarlane said the low prices were a product of strong natural gas supply and low fuel prices. ■

— Amanda Durish Cook



MISO systemwide prices September 2018 to September 2019 | *MISO*

MISO News

MISO Taking Pains to Prepare for Moderate Winter

By Amanda Durish Cook

CARMEL, Ind. — MISO is preparing for emergency conditions this winter despite projecting 40 GW of excess capacity to meet the forecasted peak in January.

"MISO does have adequate resources for the upcoming winter under normal operating conditions," Executive Director of Energy Operations Rob Benbow told stakeholders during an Oct. 22 winter readiness workshop.

The RTO says it has 143 GW in total available capacity to meet demand. It anticipates a comfortable 37% systemwide reserve margin this winter, more than double the 17% target.

Its latest winter peak forecast is 104 GW, 5 GW below the all-time winter record set Jan. 6, 2014, during the polar vortex. Peak and capacity predictions are similar to last year's forecasts. (See *MISO Foresees Manageable 2018/19 Winter*.)

Relying on data from the National Oceanic and Atmospheric Administration, the RTO expects slightly warmer than normal conditions in MISO South and "pockets" of the MISO Central region, Resource Adequacy Coordination Engineer Eric Rodriguez said.

Possibly Hazardous January

But the generous supply only applies if everything goes smoothly, and MISO executives warned that the RTO could once again call wintertime emergencies. Benbow said MISO runs the risk of entering emergency procedures if temperatures dive and outages soar. The risk is most pronounced in January, where a worst-case scenario shows the RTO burning through all its 12.3 GW of load-modifying resources (LMRs) and operating reserves and still coming up almost 9 GW short.

Even in a probable generation scenario with normal load levels, MISO might still have to make an emergency declaration to call up LMRs. The RTO also said it could experience almost 6 GW of stranded capacity this winter.

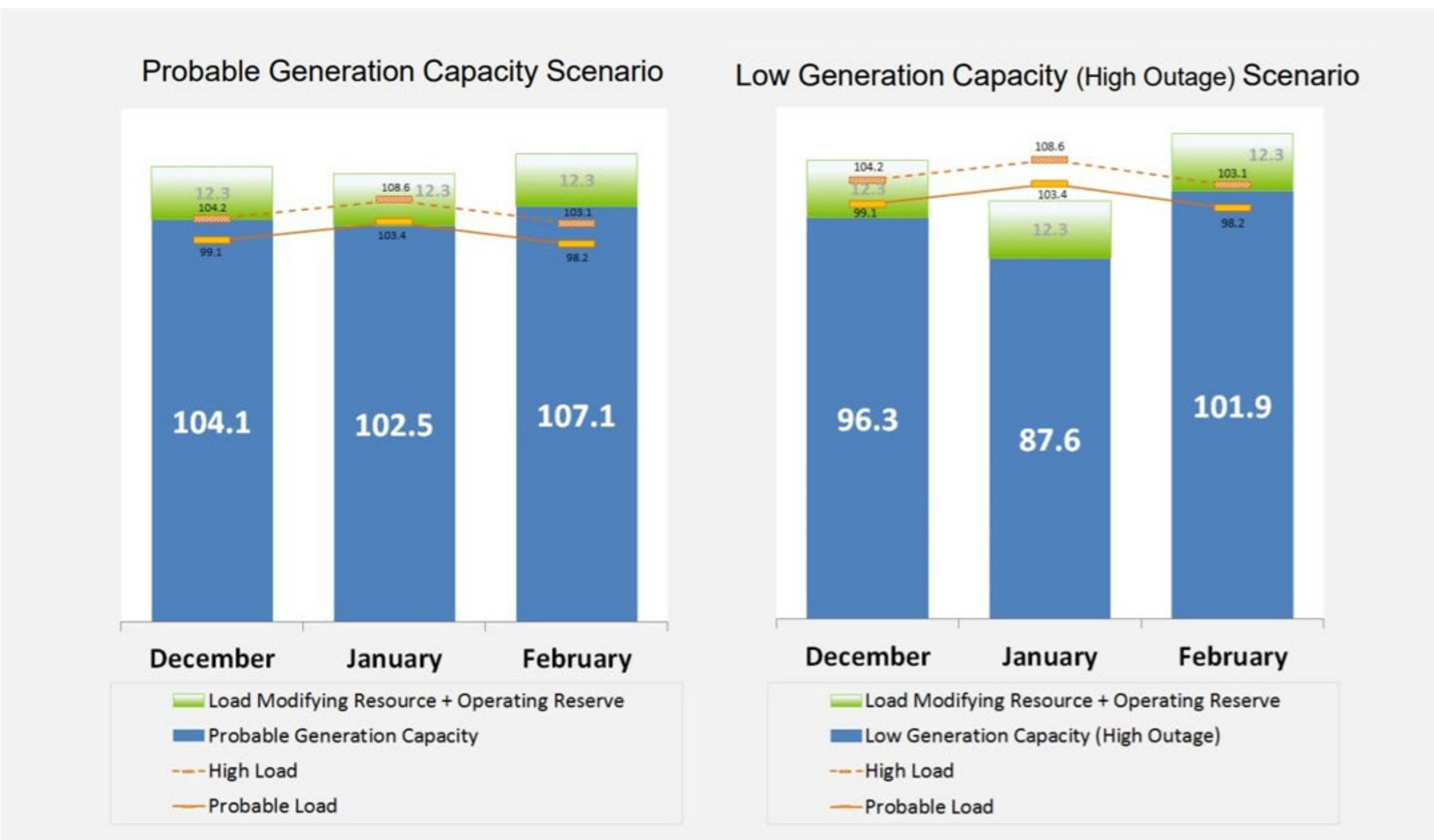
Benbow said the risk is "not surprising considering the last two Januarys."

"A combination of both high load and high outages would present challenges in reliably operating through the upcoming winter," MISO said.

Increasing forced outage rates have been a "major driver" for emergency declarations in recent winters, the RTO said. MISO experienced about 45 GW worth of outages during the January 2019 maximum generation event and about 40 GW during its January 2018 event. (See *MISO Details 'Uncertainty' Behind Winter Max Gen Event*.)

MISO also reported that Midwest natural gas storage levels are at or above the five-year average because of amplified production.

The transmission system is also in relatively good shape to handle winter loads, staff reported. Engineer Benny Relucio said that MISO found no transmission constraints that don't already have mitigation plans in place. In a thermal transfer analysis, MISO found two areas of concern: the Dumont-to-Wilton Cen-



MISO winter 2019 capacity projections | *MISO*

MISO News

ter east-to-west transfer in northwest Illinois, and the Midwest-to-South transfer in either direction. MISO said it could be in violation of the lines' transfer limits if certain nearby lines go down.

Cold Weather Prep

MISO Senior Adviser Eli Massey also said many generation owners have reported erecting temporary or permanent structures around "cold-weather-susceptible components" and have either improved existing — or added new — heat-tracing capabilities at plants.

But Massey said data from MISO's annual winterization survey shows "a tipping point" when temperatures drop below -20 degrees F. At such subfreezing temps, all resource types are susceptible to shortages.

ReliabilityFirst engineer Tim Fryfogle, tapped by MISO to give a winter preparedness presentation, shared best practices with stakeholders. Among the most important steps generation owners can take are erecting wind barriers or enclosures and installing heaters to protect certain components, he *said*. "Keeping wind, snow and cold out of critical components is crucial."

Fryfogle recommended remote monitoring from the control room of transmitter enclosures and more frequent operator rounds once the temperature dips to a certain point. He also suggested staff meetings to discuss lessons learned from past winters and comprehensive, pre-winterization walk-throughs of entire facilities, as well as assigning "dedicated individuals to monitor critical areas."

2019 Improvements

Wintertime talk included a look back at the historic extreme cold that gripped the Upper Midwest last year as January turned to February and the early 2018 arctic blast that nearly sent parts of MISO South into load-shed.

MISO Director of Central Region Operations Ron Arness said the RTO has learned from its past two years of weathering cold snaps. "We did see a need to update our wind forecasting," he told stakeholders.

Arness said MISO has now added cold-weather cutoffs for wind generation in its forecasting, and it accounts for some voluntary facility closings when temperatures are extremely low. "We're trying to be more proactive when we forecast events."

MISO has also been working with its generator operators to make sure expectations are clear for capacity warnings and how to best handle making a public appeal for energy conservation.

"Not too long ago we didn't have to worry about generation capacity. Now we do," Arness said.

The RTO so far has termed its short-term resource availability and need fixes a success, *reporting* that stricter generation outage rules, better LMR availability reporting and annual real power testing for demand response have resulted in 5 to 10 GW of additional availability during times of need.

For the upcoming winter, MISO said it expects to have about 9.5 GW worth of increased availability and that response times should be shorter when it calls on LMRs. This is the first winter in which LMRs will be required to respond to emergencies outside the summer months.

More Winter Procedures to Come?

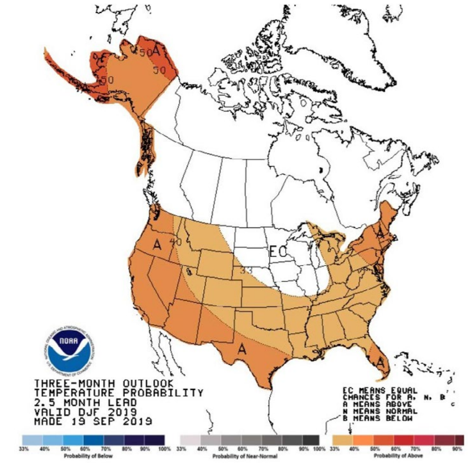
MISO used the workshop to provide an initial reaction to FERC's recent recommendation that RTOs adopt a multifaceted cold weather reliability standard. (See *FERC Calls for Cold Weather Reliability Standard*.)

The RTO said it has so far completed a "preliminary evaluation" of the recommendation and concluded it already follows more than half of the practices FERC advised. Director of Seams Coordination Jeremiah Doner said the RTO believes it already complies with some recommendations on emergency drills, improved reserve deliverability and information sharing with neighbors on expected flows on the regional dispatch limit.

But Doner promised more work and communication with its neighbors on how to best coordinate use of its Midwest-South regional transfer limit with SPP after some stakeholders have criticized MISO for using an overly conservative summer line rating for the constraint in the middle of January.

Doner also promised more work on communication about challenging operating conditions with SPP and the Tennessee Valley Authority, and deeper seasonal assessments with SPP, though he said MISO had already improved communication with its southern neighbors between the January 2018 emergency and last January's emergency, resulting in smoother coordination.

MISO will also ensure its load forecasting process is as "robust as possible" and is currently researching how its neighbors forecast load, he said.



| NOAA

He told the Organization of MISO States in August that the RTO hadn't found any recommendations in the FERC report that are "overly burdensome or complex."

In the wake of the 2019 cold snap, the state of Michigan asked MISO to improve how it manages the system during extreme weather, after portions of the state only avoided load shedding through utilities asking consumers to turn down thermostats to reduce heating demand.

In a September letter to MISO, Michigan Gov. Gretchen Whitmer and Public Service Commission Chair Sally Talberg called on the RTO to improve its DR process, speed up its generator interconnection queue, evaluate another long-term transmission package, put more focus on distributed resources in the MISO-OMS annual resource adequacy survey and increase transmission import capability between Michigan's peninsulas.

The state also recommended MISO improve its gas-electric coordination and emergency preparedness.

"The increased reliance on natural gas generation for electricity and the fire at the Ray gas storage facility occurring at the same time as MISO's declared emergency all highlight the need for improved coordination between electricity and natural gas systems during emergencies," Whitmer and Talberg wrote.

Michigan's *recommendations* were among the 37 recommendations resulting from a statewide energy assessment the PSC undertook following troubles brought on by the extreme cold. (See *Mich. PSC Urges Changes After Winter Emergency*.) ■

Carbon Pricing Vital to NY Goals, Study Author Says

Reaching State Targets 'Really Hard' Even with Price

By Michael Kuser

TROY, N.Y. — The state must put a price on carbon in its wholesale electricity market if it hopes to meet the aggressive timelines of the decarbonization goals set out in a new law, the co-author of NYISO's carbon pricing study told stakeholders last week.

"If New York does not do this in the electric-sector engine that the law hopes to rely upon to decarbonize the economy, it's tying two hands behind the state's back," Analysis Group's Sue Tierney said on Oct. 22 in delivering a *summary* of the study to NYISO's Installed Capacity and Market Issues Working Group (ICAP/MIWG). "You will not get the efficiency or timing or depth or pace of change without having this electric system engine on acceleration to get it."

Delivery of the long-awaited study was delayed a couple of months to perform additional analysis on the impacts of the Climate Leadership and Community Protection Act (*CLCPA*), signed into law in July by Gov. Andrew Cuomo. Among other provisions, the law requires 70% of the state's electricity to be generated by renewable resources by 2030 and the whole economy to be carbon-neutral by 2040. (See *NYISO Study: Carbon Charge to Help NY Climate Goals*.)

"It's going to be really hard to meet the new goals in the CLCPA, even with a carbon price. It's going to be really hard, so the state should be relying on every tool it can to get the job done," Tierney said.

NYISO stakeholders took a fine-tooth comb to the final version of the carbon pricing study at the ICAP/MIWG meeting, posing dozens of questions to Tierney.

"Is there a threshold size of the [decarbonization] solution that needs to come from carbon pricing, or is it linear, like you can have as little as 1% of it being accomplished through carbon pricing, or 99%?" asked Aaron Breidenbaugh, representing Consumer Power Advocates.

"I don't think there's an engineering or an economic answer to that because we're going to be surprised, happily surprised, by a market solution," Tierney said. "Introducing a carbon price will create a dynamic effect, which in turn will produce results later on, and the results will affect things that happen after that."

"You will not get the efficiency or timing or depth or pace of change without having this electric system engine on acceleration to get it."

– Analysis Group's Sue Tierney

Market Efficiencies

The report said the literature on organized wholesale markets indicates carbon pricing will produce a 1 to 3% efficiency improvement in

Implications of the Act for entry of renewables and zero-carbon resources

The numbers: Clean energy resources in NYISO system v. CLCPA targets for the power sector

	2018		2030		2040	
	%	GWh	%	GWh	%	GWh
Baseline demand forecast	-	158,445	-	153,400	-	165,200
Renewable resources						
CLCPA Target[2]	-	-	70%	107,380	-	-
Known/planned resources[1]	20%	32,338	42%	63,700	52%	85,300
Additional resources to be identified	-	-	28%	43,680	18%	30,340
Zero-carbon resources						
CLCPA Target[2]	-	-	-	-	100%	165,200
Known/planned resources[1]	60%	94,744	70%	108,000	75%	123,400
Additional resources to be identified	-	-	-	-	25%	41,800

Much-higher electrification scenarios will require significantly more renewable and zero-carbon resource additions.

1. Reflects all existing, already procured and planned resources in NYS, including those forecasted by NYISO in the 2019 Gold Book, procured through NY's Clean Energy Standard (2017-2019), or announced as part of the specific/concrete technology-specific targets in the NLCPA.
Other notes and information sources are in the Final Report; assumptions are in the Technical Appendix

Implications of the CLCPA for entry of renewables and zero-carbon resources in New York | *Analysis Group* the overall capital and operating costs of the wholesale electric system.

"Applying that range of market efficiency benefits to the above-market cost analysis, we estimate a benefit to New York consumers in the range of $280 [million] to $850 million, net present value, for a baseline scenario running from 2022 to 2036," Tierney said. The baseline refers to the NYISO *Gold Book* forecast of baseline demand, she said.

"What is the 1 to 3% supposed to be capturing?" asked Howard Fromer, director of market policy for PSEG Power New York. "In a world that had the social cost of carbon reflected in LMPs, one would expect LMPs to trend higher to capture that cost in a marginal unit, to the extent that fossil is that marginal unit. I would expect that as that percolated through the electric system ... you would see people doing things differently, being more active in efficiency opportunities as prices were higher. I assume some elasticities. ... Is this 1 to 3% capturing that kind of benefit?"

Tierney provided an example: "If one did a long-term renewable energy credit procurement as the only approach to meeting the requirements of the CLCPA, then an owner of a fossil unit ... might decide that the next dollars it might consider spending on operations and maintenance to keep that plant the most efficient one are not worth spending. The market would be telling that owner that it would be stupid to invest in such efficiency. This [1 to 3%] is meant to capture the other things going on."

Mark Reeder, representing the Alliance for Clean Energy New York, said he assumed that carbon pricing would have negligible effects on energy efficiency, as residential retail prices would go down.

"There is no increase in energy conservation in homes from a program that results show the prices are in fact going down," Reeder said. "Maybe you could have done an offset to your $280 million and go down another 15 [million dollars] and say it's $265 million, but we keep forgetting the result ... is customer prices go down. The customer impacts are quite near zero, but on net, the prices go down."

Reeder questioned the premise of getting the 1 to 3% coming from the dispatch: "Most of the literature about going to deregulation was that it would increase efficiencies in terms of people's investment decisions, in terms of their maintenance decisions. I would think the bulk of the 1 to 3% is in the investment decision to extend the life of your plant, to make your gas plant more efficient. None of those are dispatch efficiencies."

> **"It's going to be really hard to meet the new goals in the CLCPA, even with a carbon price. It's going to be really hard, so the state should be relying on every tool it can to get the job done."**
>
> – Analysis Group's Sue Tierney

Tierney disagreed. "There will be also dispatch efficiencies, along with the other types of efficiencies," such as investments to make individual plants more efficient and others that reflect a shift of risk from consumers to owners of generation and transmission, she said. "So the dispatch efficiencies will be reflected in the new portfolio of resources [that] results from the new investment signals, including locationally in New York. Our 1 to 3% is meant to cover all of those types of things."

Transmission Differentials

"We include in the value proposition that the carbon price would send signals for transmission as a result of a differential in LMPs, upstate and downstate," Tierney said. "We also said that part of the value proposition here would be more direct signaling about the value of adding demand and supply resources in downstate New York, where most of the load occurs and where the prices would be higher."

One of the benefits listed in the report has to do with transmission buildout, which NYISO has already documented as essential to New York meeting its aggressive goals, Fromer said.

"There is simply no way we're going to make a dramatic dent in carbon reduction unless more transmission is built in the state," Fromer said. "To what extent does the 1 to 3% benefit capture the difference of a likelihood of transmission buildout in a world where you're moving $30 power to a $35 market, versus $30 power to a $55 market? How do you get the public to accept spending a billion dollars for a line that's saving hardly any money?

"What is the logic that you get more transmission built from upstate to downstate unless you're reflecting the carbon benefit of that transmission in the price — and is any of that in the 1 to 3%?"

Tierney said she didn't think so. "Based on the literature review, that has not been called out as a specific issue. I think that is a powerful advantage of the NYISO's carbon-pricing proposal, putting a price signal on transmission."

Fromer said that raised the issue of whether the state would get more carbon reductions by just relying on REC contracts.

"One of the concerns with the [CLCPA] is ... you might not get carbon reduction from some of the renewable additions upstate because the load being reduced would have been using renewables anyway, and you don't have the lines to move the surplus power downstate," Fromer said. "Even though you're spending a lot of money, you're displacing other pre-existing carbon-free energy."

"I agree. ... When we did our buildout scenarios and estimated the above-market costs that one might expect as a result of the CLCPA, which was the lump of money from which we said that you could expect to get 1 to 3% in efficiency savings, we included no transmission investment in that," Tierney said. "We did include one scenario [that] assumed that all of the offshore wind dumped into New York City, so that higher cost is reflected in part in there.

"In order to actually get the carbon reductions, there has to be a demand forecast that reflects electrification of buildings and vehicles, including in downstate New York, where most of the state's demand is located, and that has to include getting the power to where people live," she said. ■

PJM News

Critical Tx Planning a PJM Responsibility, Stakeholders Insist

By Christen Smith

Stakeholders are insisting PJM should manage critical infrastructure planning, telling the Board of Managers that a proposed Tariff attachment from incumbent transmission owners would violate the RTO's governing documents.

LS Power and American Municipal Power are leading the chorus of dissent arising among stakeholders over *Attachment M-4*, which would establish a confidential process for mitigating the risks related to transmission facilities on NERC's CIP-014-2 list — a subset of supplemental projects with regional implications that some members believe belong under the purview of PJM.

"PJM is a creature of both its Operating Agreement and Tariff, and PJM must pursue sound public policy consistent with the legal confines of both its Operating Agreement and Tariff construct," LS Power wrote in a *letter* to the board Wednesday. "The proposed M-4 proposal construct has glaring inconsistencies with the existing regional planning process and the PJM Operating Agreement, which is controlled by the members of PJM, not the transmission owners."

CIP-014-2 requires TOs to identify and protect transmission stations and substations whose loss or sabotage could result in widespread instability, uncontrolled separation or cascading outages. In August, incumbent TOs proposed outlining a process for vetting transmission projects in order to remove the assets from the list.

Competitive transmission developers, consumer advocates, state commissions and other load interests argue the attachment is riddled with flaws that ultimately guarantee incumbent TOs control over a subset of complex supplemental projects with RTO-wide impacts, all under the guise of NERC-required confidentiality. (See *PJM TO Tariff Filing Stirs Up Transparency Concerns*.)

"Given the importance of these substations to regional and possibly interregional operations, there can be little question that the planning of those substations would be conducted through the PJM-administered regional transmission planning process," AMP *said*.

| Plocher Construction

PJM proclaimed its neutrality in the debate and only committed to the mutual agreement among all sectors that transmission planning should aim to eliminate the assets deemed critical within the RTO's footprint, of which incumbent TOs say less than 20 exist. (See *PJM Remains Neutral in CIP-014 Debate*.)

But staff's refusal to take sides hasn't stopped stakeholders from taking their concerns straight to the board.

"We wish to emphasize that we can protect our critical energy infrastructure and maintain our national security, while also opening up the processes to build or upgrade such regional infrastructure to competition," Securing America's Future Energy (SAFE) said in a *letter* dated Oct. 3. "Contrary to the claim by the TOs, national security and market competitiveness are not mutually exclusive."

SAFE further described a separate process for vetting CIP-014 projects as unnecessary and rejected the argument "that such transmission lines cannot or should not be allowed to be bid through a competitive process."

In a Sept. 24 *letter*, the Organization of PJM States Inc. (OPSI) said that TOs should bring state commissions deeper into the CIP-014 planning process and specify how many critical facilities exist within each zone. The group also wants to know when these projects get factored into PJM's Regional Transmission Expansion Plan and suggested TOs develop an assessment that balances cost and consequence reduction associated with each project.

The recommendations channel a problem statement and issue charged sponsored by the D.C. Office of the People's Council that encourages stakeholders to develop a CIP-014 process inclusive of all sectors. The Planning Committee voted on Oct. 17 to postpone voting on the proposal pending a TO-led webinar to address questions. (See "Critical Infrastructure Vote Delayed," *PJM PC/TEAC Briefs: Oct. 17, 2019*.)

Beyond PJM's Control

The issue intersects with stakeholders' overall concerns about supplemental project planning, which PJM insists it has little authority over. (See *PJM TOs Sign off on Supplemental Project Deal*.)

Board Reliability Committee Chair Dean Oskvig *said* on Oct. 4 that the managers' review of supplemental projects concluded that the RTO's role "can be expanded in some areas but also remains appropriately constrained in others."

"PJM does not have the authority or expertise to assume responsibility for asset management decisions or to determine when a facility is at the end of its useful life or otherwise needs to be replaced," he said, referencing a failed AMP-sponsored problem statement and issue charge that wanted to open up these projects to regional planning. "Those decisions are the sole responsibility of the transmission owner."

According to the Oct. 31 *agenda* for the Markets and Reliability Committee, AMP will present its failed problem statement and issue charge for a first read. (See "PJM Says No to End-of-Life Transparency Discussion," *PJM PC/TEAC Briefs: Sept. 11, 2019*.)

Interim CEO Susan Riley echoed Oskvig's sentiments in *response* to Consumer Advocates of the PJM States over what the organization called the unfettered growth of supplemental projects in comparison to necessary system upgrades planned by PJM.

"It is important for the PJM community to remain cognizant of where PJM's authority and technical capabilities are positioned in relation to the planning and implementation of supplemental projects," she *said*. "Identifying and verifying the need for supplemental projects, determining what goes into a transmission owner's planning criteria and authorizing supplemental projects are responsibilities that extend beyond where PJM is situated as the regional transmission planner."

In multiple responses addressing the CIP-014 process exclusively, Riley said the board understands the profound implications of these projects and said stakeholder comments provide constructive feedback for TOs in the ongoing development of their proposal.

"CIP-014 mitigation presents unique challenges related to the balance between significant risks imposed on customers and the transparency that has been at the foundation of the PJM planning process," Riley told OPSI in a *letter* dated Oct. 8. "We discussed this matter at our last board meeting and commit to work with all stakeholders to develop a process that will allow the transmission owners to mitigate the risk associated with these critical facilities with PJM oversight." ■

PJM News

Shell Appeals FERC's GreenHat Rulings

By Christen Smith

E. Barrett Prettyman Federal Courthouse | *HSU Builders*

Shell Energy last week asked the D.C. Circuit Court of Appeals to review two FERC rulings in the GreenHat Energy default case after the commission denied the company a role in settlement negotiations in August.

Attorneys for Shell filed its challenge Oct. 21, appealing the commission's June 5 and Aug. 22 orders that established a paper hearing for PJM's failed waiver request and denied rehearing arguments that the company should participate in subsequent settlement proceedings. (See *Shell Demands Seat at GreenHat Settlement Table* and *FERC Denies Shell, ODEC GreenHat Settlement Role*.)

PJM filed an agreement with FERC earlier this month that would see the RTO pay $12.5 million to two trading firms that alleged economic harm after its waived its own liquidation rules to settle GreenHat's 890 million MWh defaulted financial transmission rights portfolio in July 2018. (See *PJM to Pay $12.5 million to End GreenHat Dispute*.) PJM also asked the commission to waive the comment period should it receive no negative feedback on the agreement. Comments are due with FERC today (ER18-2068).

It's unclear if Shell will protest the settlement or request payout from the $5 million fund PJM would establish for additional claimants, per the agreement. Jonathan Franklin, Shell's attorney, did not respond to *RTO Insider's* request for comment. Attempts to contact Shell itself were also unsuccessful.

Shell pleaded with the commission in July for a role in settlement negotiations, saying it was "uniquely situated" in the proceeding and could bear a disproportionate financial burden based on its outcome. The company filed one of the more than 20 late motions to intervene that were dismissed by FERC in the June 5 order.

In its request for rehearing, Shell said a PJM Tariff provision caused its tardiness, a circumstance that it says none of the other petitioners faced. It had explained that it entered into three bilateral contracts with GreenHat that involved transferring FTRs back and forth between the two companies. Liquidating the GreenHat portfolio "could substantially affect the amount sought by PJM from Shell for the guarantee and indemnification claim" the RTO placed on the portion that was transferred. (See *Shell Energy Seeks to Avoid Liability in GreenHat Trades*.)

In August, the commission said it found Shell's argument "unpersuasive," reiterating that the company had no excuse for an untimely intervention.

Jeff Shields, a PJM spokesperson, told *RTO Insider* on Friday the RTO doesn't expect Shell's appeal to affect the settlement proceeding, noting that "obviously FERC will be able to take into account any comments that are filed." ■

PJM TOs: Beyond FERC, Legislatures to Slow Auctions

By Christen Smith

Transmission owners warned PJM last month that FERC inaction on the RTO's capacity market revamp isn't the only obstacle stalling future capacity auctions — state legislatures will likely need extra time to comply with the ruling too.

In a Sept. 4 *letter* addressed to the PJM Board of Managers, CEOs from PJM's largest utilities urged the RTO to convene a meeting with stakeholders and produce a schedule that allows for time between FERC's decision and the 2022/23 and 2023/24 Base Residual Auctions.

"Regardless of what FERC decides as to these new market rules, states will need time to react by redesigning their own clean energy programs and utility procurement programs," said the CEOs of American Electric Power, Exelon, Public Service Energy Group, Dominion Energy and FirstEnergy. "This is no easy task."

PJM submitted its proposal to create a resource-specific fixed resource requirement (FRR) in October 2018, four months after FERC ruled that its capacity market rules were not just and reasonable because they failed to address growing subsidies that the commission said are suppressing prices. (See *FERC Orders PJM Capacity Market Revamp*.)

Interim PJM CEO Susan Riley | *© RTO Insider*

The RTO made the FRR proposal as an alternative to expanding its minimum offer price rule (MOPR) to include all new and existing capacity receiving out-of-market payments, such as renewable energy credits and zero-emission credits for nuclear plants. The RTO's MOPR currently covers only new gas-fired units.

The TOs cited comments filed with FERC from all sectors — including states, consumer advocates, load interests, suppliers, nongovernmental organizations and public power groups — that said regulatory and legislative changes will likely be required in the majority of PJM's footprint to accommodate an FRR or expanded MOPR. Moving forward without these controls in place would further destabilize price signals and result in stranded costs, the TOs said.

"When the capacity auctions … are ultimately held, they will be most successful if they occur against a backdrop of stable and settled market rules, as well as state policies enacted in response to those rules," the TOs' letter concludes. "Indeed, it would be counterproductive to hold an auction when major portions of the auction framework remain in flux."

On Sept. 27, a second cross-section of PJM members — including AEP Service Corp., Avangrid Renewables, the Illinois Citizens Utility Board, the Delaware Division of the Public Advocate, Dominion, EDP Renewables, Exelon, FirstEnergy Utilities, Natural Resources Defense Council, Nuclear Energy Institute, the D.C. Office of the People's Counsel, PSEG and the Sierra Club — requested the RTO produce a capacity auction schedule that accommodates state and regulatory timelines, reiterating that any auction held next year would likely still be too early to factor in the impact of these policy changes.

"A rushed auction process would lead to skewed price signals that undermine economically rational behavior while reinforcing the high level of perceived (if not real) conflict that currently exists between PJM and the states," the *letter* concluded.

PJM indefinitely suspended all deadlines for its upcoming BRAs pending FERC action before the end of year, when many deadlines for the 2023/24 auction would come due. (See *PJM Suspends Auction Deadlines Pending FERC Action* and "Capacity Auction Ruling Anticipated Before 2020," *PJM MIC Briefs: Aug. 7, 2019*.) In July, FERC halted the 2022/23 capacity auction scheduled for August, refusing to "rule prematurely" on PJM's request for clarification that if it ran the BRA using the existing MOPR that the commission would also agree to enforce any new rates prospectively, saving the auction from being rerun (*EL16-49*). (See *FERC Halts PJM Capacity Auction*.)

In a *response* to the TOs dated Sept. 12, PJM agreed to consult with stakeholders and reach out to state and regulatory commissions after a FERC order to consider next steps. Interim CEO Susan Riley noted that a "prolonged delay" undermines both investment decisions and capacity and reserve requirements.

Many stakeholders, notably, say neither factor is of great concern — considering PJM's healthy reserve margins and the fact that developers work on their own timelines — and don't require the RTO to rush BRAs.

"At the same time, we agree that the auction must be both practical in its implementation and offer a meaningful opportunity for states to consider and pursue alternatives depending on the substance of the FERC order and their policy objectives," Riley said. "This question of timing is well-briefed and clearly before FERC such that it may be addressed in its decision."

PJM spokesperson Susan Buehler said Wednesday that Riley's response applies to both stakeholder letters.

On Friday, the PJM Industrial Customer Coalition and the PJM Power Providers Group submitted a joint *letter* to the board pushing back against claims from other sectors that an extended delay is sustainable, saying that many resources' lending arrangements are based on three-year forward capacity commitments and payments.

"While recipients of out-of-market payments or those resources seeking to exit the market through a FERC-sanctioned carve out may be able to better manage a capacity auction delay, those resources solely dependent on market revenues to determine their viability rely heavily on the three-year forward capacity construct to make decisions related to investments in existing units, construction of new units or retirement of uneconomic units," the groups wrote. "The current delay of the 2019 auction is challenging many of these financial arrangements that are so critical to the overall vitality of PJM's markets." ■

Federal Court Denies Nuke Petition Extension

Punts Question to Ohio Supreme Court

By Christen Smith

A federal judge ruled Wednesday that only the Ohio Supreme Court can determine whether state law thwarted a citizen advocacy group's ballot petition against nuclear plant subsidies.

Judge Edmund A. Sargus Jr., of the U.S. District Court for the Southern District of Ohio, denied Ohioans Against Corporate Bailouts' motion for a preliminary injunction after the group claimed 38 days of its 90-day allowance to collect signatures were wasted in a "blackout period" during which it sought the attorney general's approval of the petition's language before circulation could begin.

The group has alleged a well-funded opposition harassed and bribed its petitioners, further complicating its effort to gather 265,774 signatures by Oct. 21. (See *Ohio Nuke Petition Misses Signature Deadline*.)

"This 90-day period they claim is burdened arises from the Ohio, not the federal, Constitution," Sargus wrote. "Whether the Ohio Constitution guarantees a full 90-day period for petition circulation, and whether the statute's requirements 'burden the 90-day period,' is a question beyond the jurisdiction of this court. Instead, these questions should be resolved by the Ohio Supreme Court."

Ohioans Against Corporate Bailouts has led a campaign against Ohio's House Bill 6 — a $150 million nuclear subsidy program funded with ratepayer surcharges — having begun organizing petition efforts the same day Gov. Mike DeWine signed the legislation in July. The group fell nearly 45,000 signatures short of the count necessary for the referendum's inclusion on the 2020 ballot, according to documents filed Wednesday.

"We look forward to making our case to the Ohio Supreme Court that the petitioning 'blackout' period is an unfair infringement on our constitutional right to referendum," Gene Pierce, the group's spokesperson, said in a statement. "Ohioans deserve the opportunity to vote on House Bill 6, and the despicable campaign by supporters of the bill to prevent that should not be rewarded."

William Rogers, president of Advanced Micro Targeting, the Nevada-based company that managed the referendum effort, said in court documents that he had never encountered a "more hostile environment" in any other state throughout his 30-year career. He said Ohio's draconian preregistration requirement, coupled with the opposition's abuse of public records to target petition circulators for harassment and bribery, undercut the group's efforts. (See *Federal Court Waives Ohio Preregistration Law*.)

Rogers said he knew in late September that the constant interference would prevent the group from meeting its deadline, so he began contracting with pay-per-signature firms to keep the campaign on track — to no avail. He claims the opposition poached 900 circulators between Sept. 3 and Oct. 21 by offering up $2,100/day to peddle a "fake petition." AMT, by comparison, paid just $150/day.

Rogers told the court he estimated that it would take about 75 days to gather the necessary signatures and had initially expected circulators would collect around 4,100 per day.

Secretary of State Frank LaRose, the state's chief election official and a defendant in the lawsuit, argued that the so-called blackout period is an "elections-mechanics rule that sets forth certain procedures for the referendum process" and doesn't preclude advocates from promoting a petition in public discourse. He said that questions about whether the Ohio statute intends to give petitioners a full 90 days just for collecting signatures is worth exploring, but not in a federal court.

Sargus agreed, noting that the Ohio Supreme Court could give the group the remedy it seeks: a stay of HB 6 and additional time to circulate its petition.

"At the heart of plaintiffs' claims is [the] proposition that the Ohio Constitution affords them 90 days to circulate a referendum petition, and that their First Amendment rights are violated by the statute because of the blackout period," he said. "But Ohio courts have not held whether the 90-day period is guaranteed for circulating, or whether the required review by the attorney general violates the Ohio Constitution."

Tom Becker, spokesperson for FirstEnergy Solutions, said Thursday the court's decision "ensures that its citizens will have lower electric bills and cleaner air." The company previously warned that it would resubmit deactivation notices for its Perry and Davis-Besse nuclear plants should the advocacy group succeed in its efforts. FES rescinded deactivation notices for both facilities in July after the state approved HB 6. (See *Ohio Approves Nuke Subsidy*.)

"We are pleased that our state will continue to benefit from diverse energy resources and that more than 4,000 jobs have been saved at our carbon-free, reliable nuclear power plants," he said. ■

Perry Nuclear Power Plant, located about 40 miles northwest of Cleveland

PJM News

PJM MRC Preview

Below is a summary of the issues scheduled to be brought to a vote at the PJM Markets and Reliability Committee meeting 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 Valley Forge, Pa., covering the discussions and votes. See next Tuesday's newsletter for a full report.

Consent Agenda (9:10-9:15)

PJM will ask for endorsement of:

B. Revisions to *Manual 14D: Generator Operational Requirements*, including a periodic cover-to-cover review and proposed language changes regarding compliance with FERC Order 841 for energy storage participation.

C. Changes to *Manual 36: System Restoration* and *Manual 40: Training and Certification Requirements* regarding Order 841.

D. The 2019 Reserve Requirement Study results, including updated values for the installed reserve margin and forecast pool requirement, which will reset key parameters for the RTO's upcoming capacity auctions. (See "2019 Installed Reserve Margin Study Results," *PJM PC/TEAC Briefs: Oct. 17, 2019*.) If approved, the Members Committee will also be asked to endorse the same day.

1. Load Management Testing Requirements (9:15-9:30)

PJM will seek approval of a modified *proposal* to update load management testing requirements.

The RTO, which said it *wants* testing procedures to more closely mimic reality, is proposing a three-step notification system that gives resources first notice two weeks ahead, with additional alerts the day before and the morning before. Resources that fail would be retested within 46 days. There will be one test per year when there is no event, with half of resources tested in winter and the other half in summer.

At last month's MRC meeting, stakeholders advised the RTO to find a compromise with Enel X, the sponsor of a competing package. (See "Stakeholders Urge Consensus on Load Management Testing Requirements," *PJM MRC/MC Briefs: Sept. 30, 2019*.)

Stakeholders expressed concerns about how PJM would fit retests into the same season, as well as the usefulness of a month-ahead notification. Enel X had suggested instead a week-ahead alert to capacity resources. (See *PJM Stakeholders Support More Realistic DR Testing*.)

The current rules, developed when demand response availability was limited to just six hours a day over the summer, require one test during the summer. They give resources a two-day warning — down to the exact hour — and provide unlimited retesting. Enel X had contended that PJM's original month-ahead notice provided little useful information to resource owners who operate on a week-ahead timeline. It was also uncertain how PJM would manage retests. ■

— Christen Smith

SPP News

SPP MOPC Briefs

Stakeholders Endorse Eliminating Z2 Revenue Credits

LITTLE ROCK, Ark. — SPP members earlier this month moved to eliminate Z2 revenue credits for sponsored transmission upgrades, the source of years of stakeholder frustrations and jokes.

At its monthly meeting, the Markets and Operations Policy Committee unanimously endorsed a Regional Tariff Working Group *revision request* (RR) that eliminates Z2 credits and replaces them with incremental long-term congestion rights (ILTCRs), effective February 2020.

The committee first overrode pushback from members seeking to delay RTWG RR374's implementation, contingent on fully developing ILTCRs, rejecting the motion against seven "no" votes and seven abstentions. That would have allowed additional upgrades to be granted Z2 credits during the delay.

OG&E's Greg McAuley | © *RTO Insider*

"One more sponsored upgrade that qualifies for Z2 credits is one too many, in our opinion," Oklahoma Gas & Electric's Greg McAuley said.

Under Tariff Attachment Z2, sponsors that fund network upgrades can be reimbursed through transmission service requests, generator interconnections or upgrades that could not have been honored "but for" the upgrade. Multiple stakeholder teams have taken a crack at improving the process, which, combined with software problems, has delayed credits to transmission customers.

In February, FERC reversed a waiver and ordered SPP to refund, with interest, credit payment obligation amounts dating back to 2008. SPP has estimated the obligations to be approximately $200 million. (See *FERC Reverses Waiver on SPP's Z2 Obligations*.)

Dan Simon, outside counsel for the EDF Renewables, warned RR374 doesn't comply with FERC's policies on interconnections (*Order 2003*) and long-term firm transmission rights (*Order 681*). To eliminate Z2 credits, he said, the commission would have to find SPP's ILTCR rules comply with both policies.

Simon said Order 2003 allows ISOs and RTOs to directly assign upgrade costs if, in return, they receive rights that are valuable, well defined and tradeable. By modifying ILTCR rules to limit total compensation to each upgrade's directly assigned costs plus interest, RR374 will make the ILTCR rules noncompliant with Order 681, he said.

The retiring David Kays, OG&E, shares a laugh with his fellow "Three Amigos," Midwest Regulatory Consulting's Dennis Reed and NPPD's Bob Pick. | © *RTO Insider*

"If you want to go ahead and vote in favor of the Z2 credits' elimination, it shouldn't be filed with FERC," he said. "It shouldn't be effective until you develop and modify ILTCR rules to where they have some actual value. I think this will be heavily contested [at FERC]."

"We don't know when this thing will be done to everyone's satisfaction," McAuley said. "It could be a quarter; it could be four years. Once you agree to Z2 credits, they're permanent."

"We're tired of paying for things that have no benefit for the customers because we adopted such a complicated process," Southwestern Public Service's Bill Grant said. "We're funding 80% of creditable upgrades, which was not our intention."

The Tariff change is one of the first Holistic Integrated Tariff Team recommendations to be endorsed, following the approval of its 21 proposals to integrate the expansion of renewable energy, boost reliability and improve transmission planning and the wholesale market. (See *SPP Board Approves HITT's Recommendations*.)

MOPC Approves $336 ITP Portfolio

The committee approved the 2019 Integrated Transmission Planning *10-year assessment*, a 27-month process resulting in 44 transmission projects with a total engineering and construction cost of $336 million. The portfolio, which includes 166 miles of new EHV transmission and 28 miles of rebuilt high-voltage infrastructure, will address 145 system issues, the Economic Studies Working Group said.

SPP projects the assessment will provide a 40-year benefit-to-cost ratio of between 3.5:1 and 5.8:1, with residential customers seeing a savings of 4 to 23 cents/kWh on their average bill. Approximately 75% of the portfolio encompasses regional highway projects.

"We're trying to evaluate whether or not the delivery [of low-cost generation] can reduce the cost to load on the SPP network," SPP System Planning Director Antoine Lucas said. "To the extent we are unable to justify [capital] investments that have less costs than the savings to load, we think we will see projects that wouldn't be justified. We're saving fuel costs for load in SPP, albeit at a capital cost in

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transmission. We see that as a net benefit to customers."

ESWG Chair Alan Myers, with ITC Holdings, said the assessment addresses overlapping top-ranked economic needs and reliability concerns, along with seams impacts, congestion, stability concerns and operational issues. The projects are expected to pay for themselves in less than 20 years, with customers seeing benefits in under two years.

McAuley, saying OG&E sees a "mismatch on the commitment side," warned about the consequences of continuing to connect renewable generation that "far exceeds the needs of our customers." SPP's reserve margin sits in the mid-20% range, with more generation in the interconnection queue than the RTO "knows what to do with."

"OG&E will be advancing this position much more aggressively in the future, not because we hit a wall today, but because we see a wall coming," he said. "How do we impact the rest of the generation that's already there? SPP will have an optics problem when we have a lot of renewable generation on the ground and we can't get it to the load. Who is going to feel that pressure? Who is going to be asked to pay for that transmission to get that generation to load?"

Myers said a "significant" amount of "noncommitted generation" is included in the model, "but we've also taken great care to make sure we're not over-planning."

"If the wind is there, the failure to plan for it only exacerbates the problem," he said. "We've taken a number of steps to carve out commitments not tied to SPP load."

MOPC Chair Holly Carias, with NextEra Energy Resources, relied on the RTO's new web-based voting system (see below) to vote on the ESWG's motion. Transmission owners and transmission users both favored the ITP assessment, by 13-5 and 42-7 votes, respectively, easily clearing SPP's 67% threshold.

Separately, the MOPC also approved a revision request that adds a high-wind dispatch for the powerflow model's sensitivity cases that measure stress on the grid. The Transmission Working Group recommended *TWG RR379*'s approval, saying the additional flexibility will enable SPP to demonstrate its proactive approach to continuous improvement during NERC audits for *TPL-001-4*.

The motion passed with three no votes and three abstentions.

Members Endorse Quick-start Revision

Members approved a Tariff revision that complies with FERC's directive to allow fast-start resources to set clearing prices, despite stakeholder and Market Monitoring Unit opposition.

SPP staff said *MWG RR375* was limited in scope to meet only FERC's requirements. The commission in June found the grid operator's quick-start pricing practices to be unjust and unreasonable because they don't allow prices to reflect the marginal cost of serving load. It directed the RTO to make six Tariff changes in response. (See *FERC Orders Fast-start Rules for SPP*.)

FERC's order wrapped up an investigation of several RTOs begun in December 2017. (See *FERC Drops Fast-Start NOPR; Orders PJM, SPP, NYISO Changes*.)

Staff said they believe the proposed protocol and Tariff changes comply with FERC's order and minimize the amount of changes, staff time and vendor expenditures needed to address the order.

The MMU disagreed, saying it had significant concerns with the proposal and that it would file comments at FERC noting its objections and concerns. The Monitor said the commission requires separate market solutions for dispatch and pricing and to maintain a cost-minimizing dispatch solution that would separate price from quantity in the market.

MMU Supervisor John Luallen said RR375 only mitigates the pricing run, and start-up and no-load offers can be modified after commitment and used to set price.

"By separating price and quantity, you will end up with an inconsistent price for quantity," Luallen said. "FERC was very specific about how certain things are to be done in this order."

Golden Spread Electric Cooperative and City Utilities of Springfield (Mo.) filed comments opposing the proposal. Golden Spread said it "does not allow prices to reflect the cost of quickly responding resources from an offline state, which will not allow [quick-start resources] dispatchable from zero to set price in the same way that other dispatchable resources set price, and hence will not reflect the QSR cost of or value of responding quickly to unforeseen system needs."

The cooperative was among six members to oppose the revision. Four others abstained from the vote.

The MWG withdrew four other revision requests as a result of RR375: *RR116*, *RR137*, *RR142* and *RR256*.

Members also endorsed *MWG RR361*, which creates ramp-capability up and down products designed to pre-position resources with

Election	2019 ITP Report
Generated as of	2019-10-15 14:58:18.097
Number of voters who voted	67
TO's Voting	18
TU's Voting	49
Percentage of TU's Approving	85.71
Percentage of TO's Approving	72.22
Averaged Approval %	78.97

Motion/Recommendation	Voters	Votes	YES	NO	ABSTAIN
ESWG and TWG recommend the MOPC endorse the 2019 ITP Assessment Report as documentation of completion of the ITP planning process specified in SPP OATT Attachment O Section III. ESWG and TWG recommend the MOPC endorse the 2019 ITP Assessment. This includes issuance, modification, and withdrawal of NTCs for projects within the four-year financial commitment window and NTC-Cs for projects that are >100 kV and >$20M for a refined cost estimate.	Transmission Owner	18	13	5	0
	Transmission User	49	42	7	0

Results of SPP's first eBallot vote | *SPP*

SPP News

that capability to manage net load variations and uncertainties and to provide transparent price signals to incent resource flexibility and economic investment.

The revision was opposed by seven members, with two abstaining.

"For some of you old guys that used to run [balancing authorities]," American Electric Power's Richard Ross, chair of the MWG, began before catching himself. "For some of you more seasoned operators, back in the old days, we would recognize that when the morning load pickup came, you had to get those units ready to move. You might hold one of those units back a little so you can ramp and have ramping capability."

SPS' Grant agreed with the need for ramping products but questioned the reliability of short-term forecasts to determine renewable energy's availability.

"Weather can change rapidly at the resource," SPP's Gary Cate said. He said in their analysis, staff used 36 operating days and reran more than 18 different scenarios, resulting in 684 day-ahead market and reliability unit commitment reruns and 197,000 real-time market reruns.

"In only five cases did the solar or wind farm clear ramp capability up," Cate said.

The MMU said it supports RR375 after many of its concerns were addressed during its development. However, the Monitor plans to file with FERC over lingering issues, including a lack of transparency on the confidence level used to establish ramp requirements and the lack of a claw-back provision should a resource not perform.

Change Continues GI Requests' Processing

The committee easily approved a Business Practice Working Group revision request documenting a change to generator interconnection modeling assumptions.

BPWG RR370 changes the assumptions to stop artificially forcing wind and solar on at 10% in remote areas in the off-peak case and reduces the amount of existing firm generation that must be offset to accommodate new study generation. The change, recommended by the Generation Interconnection Improvement Task Force as a short-term step that allows new requests to be processed, will enable the study process to accommodate larger cluster sizes.

The change is seen as a patch until a new group, the NRIS, ERIS and Deliverability Task Force, can develop a longer-term solution. In the meantime, staff continues to struggle with a GI queue clogged with study requests.

"We've got to work our way through the queue, no question about it," Midwest Energy's Bill Dowling said. "We have to be sure we're thorough about it. The [change] is intended to give us a way to complete the studies. It keeps the ball rolling."

Entergy Comment on Seams 'Raises Eyebrows'

Missouri Public Service Commission economist Adam McKinnie briefed the committee on the efforts of SPP and MISO state regulators to determine the effectiveness of the RTOs' interregional planning processes. (See *MISO, SPP States Ponder Look at Interregional Planning*.)

It's a briefing McKinnie has delivered in several venues recently.

"And you'll get it again at the [Regional State Committee] meeting," McKinnie said, referring to the RSC's Monday meeting in Little Rock.

A committee of RSC members and their Organization of MISO States counterparts have commissioned the grid operators' monitors to gather *stakeholder feedback* as part of the analysis on the interregional processes.

One comment in particular has "raised eyebrows," McKinnie said.

MISO member Entergy charged that SPP's failure to conduct economic planning since 2016 has resulted in continual congestion on the Neosho-Riverton flowgate in Kansas. Market-to-market (M2M) settlements on the flowgate had reached $29.3 million in SPP's favor through July since 2015, accounting for almost half of the $64.3 million it has accrued from MISO since the M2M process began.

"Had SPP performed an economic plan during that time, it is possible that SPP might have found a solution (and started construction) to fully address the ... congestion," Entergy said. "If an RTO is not conducting an economic plan during the planning period, the RTO should provide a well supported explanation to stakeholders."

SPP and MISO skipped their biennial Coordinated System Plan (CSP) study last year to refine their interregional process, which has yet to result in a joint project. SPP did include an economic analysis in the 2019 CSP, which, like its two predecessors, failed to identify a joint project.

"Both SPP and MISO should focus on improving their regional processes rather than increasing the already substantial time and energy each RTO spends on interregional issues," Entergy said.

McKinnie said Entergy's comments were likely to be part of the discussion when OMS met Thursday, which proved correct. (See related story, *OMS Panel Debates Merits of MISO-SPP Seams Projects*.)

The RSC-OMS Liaison Committee has requested two rounds of analysis. The monitors have split up the first round of studies, which are focused on rate pancaking and unreserved transmission use charges, the M2M process and joint dispatch.

Keith Collins, executive director of SPP's MMU, told members that the Monitor has found little evidence of pancaking on the seam, but some SPP entities have been charged for unreserved transmission use on the MISO side. The MMU expects to publish its report in November.

The Liaison Committee will have to replace Missouri Public Service Commissioner Daniel Hall when his term expires in November, McKinnie said. Hall also leads the OMS half of the committee.

SPP Uses Web-based Voting System

SPP stepped boldly into the 21st century by introducing a web-based voting system developed by a third party. The eBallot software replaces roll call voice votes, which can take up to 15 minutes at the MOPC, given the group's 82 voting members.

"That could add up to quite a bit of time in meetings where there are multiple votes," SPP spokesman Derek Wingfield said.

He said eBallot improves the integrity of the voting process and reduces the chance for human error in counting the votes. Voting members log in to a secure system where they cast and certify their votes. A report is then generated that calculates whether motions pass or fail based on the averages of the transmission owners' and users' approval percentages.

The system was used to approve the 2019 ITP assessment's report.

"We do not have any indications that the Russians tampered with this," Chair Carias said in announcing the final tally.

RTWG Chair Kays Announces Retirement

Last week's meeting marked David Kays' last appearance before the committee. Kays

SPP News

recently announced he will retire from OG&E at the end of the year after 21 years with the utility.

Kays became active with SPP in 2004, joining the RTWG two years later and serving as its chair and vice chair for eight years. He will still lead three more RTWG meetings before handing over "the scepter of power," an aluminum softball bat, to his successor.

Following the committee's decision favoring the elimination of Z2 credits — eventually — Kays cracked, "I've now seen the birth and death of Z2 revenue credits in my career."

OG&E's McAuley, who announced the "sad news" to the committee, said, "We're really going miss that guy. He is a very significant contributor to both SPP and OG&E."

SPP Halts Consolidation of Working Groups

The consolidation of working groups has been paused in order to do more analysis, brainstorming and creative thinking "as if we were redesigning the MOPC organization from scratch," said the committee's staff secretary, Senior Vice President Lanny Nickell. (See "SPP Stakeholders React to Proposed Working Group Consolidation," *MOPC Briefs: July 16-17, 2019*.)

Nickell said he, Carias, Board of Directors Chair Larry Altenbaumer and MOPC Vice Chair Denise Buffington will be working together on a consolidation business case to be shared with members. The group hopes to have a new organizational structure in place by May 2021.

In the meantime, SPP has already moved the Balancing Authority Operating Committee and its responsibilities into the Operating Reliability Working Group.

"It was an incremental change we felt was worth doing," Nickell said.

COO Carl Monroe, who has been overseeing a survey of behind-the-meter resources, said staff will propose a policy for the proper treatment of BTM resources and load. The white paper will also include energy storage resources, the subject of FERC's Order 841. (See *FERC Partially OKs PJM, SPP Order 841 Filings*.)

Consent Agenda Clears RRs, Baseline Resets

The committee unanimously passed the consent agenda, which included the annual violation relaxation limits analysis, a sponsored upgrade study, a pair of baseline resets for approved projects, nine revision requests and scope changes for 12 stakeholder groups.

Staff recommended an approval of APEX Clean Energy's upgrade to the 345-kV Neosho-Caney River line in Kansas, scheduled to go in service next year.

The Project Cost Working Group recommended both baseline resets:

- Evergy's $54.1 million update for a 345/138-kV transformer and 138-kV transmission line project, estimated at $67.1 million in 2017.
- Evergy's $34.4 million update for network upgrades on a 138-kV circuit, which was originally projected to cost $58.3 million.

The approved RRs included:

- *BPWG RR372*: Documents the practices to evaluate energy storage resources in the interconnection queue.
- *BPWG RR378*: Clarifies the detailed project proposal's (DPP) data-validation process by limiting the number of times a submitter can correct data errors, allowing staff more time to assess the projects.
- *ESWG RR367*: Revises the ITP process manual to incorporate separate, optional load forecasts into the ITP conventional resource plan.
- *RTWG RR366*: Ensures TOs consistently account for point-to-point (PTP) revenue by eliminating overpayments to customers when TOs don't reduce their annual transmission revenue requirement with PTP revenue.
- *RTWG RR381*: Revises Tariff language to indicate transmission invoices may also include adjustments for prior services furnished under the Tariff.
- *TWG RR363*: Defines existing transmission facilities' "material modification" as being "based on engineering judgment" in NERC's facility interconnection studies (*FAC-002*) compliance.
- *TWG RR364*: Reduces the planning criteria's language on equipment rating, which is already covered by NERC Reliability Standard *FAC-008*.
- *TWG RR368*: Clarifies how local planning criteria will be considered in ITP studies.
- *TWG RR384*: Clarifies the ITP manual to better meet compliance with firm transmission service modeling requirements for planned retirements of generator resources in the base reliability models. ■

— Tom Kleckner

SPP News

Google Searches, Finds Membership in SPP

By Tom Kleckner

LITTLE ROCK, Ark. — Google, the world's ubiquitous search engine — "Google it!" — made its SPP membership official when it participated in this month's Markets and Operations Policy Committee meeting.

The company, which signed a membership agreement in May, observed two MOPC meetings before casting its first vote on the consent agenda. Jeff Riles, Google's lead for global infrastructure energy policy and markets, contributed to the stakeholders' discussions when it centered on renewable energy and transmission costs.

Riles, an energy regulatory attorney formerly with Enel Green Power, represents Google under the Google Energy brand, which was created to reduce parent company Alphabet's energy consumption and to produce and sell clean energy. Google joins Walmart as SPP's only two end-use customer members. (See *New SPP Member Walmart Eyes 'Everyday Low Costs'*.)

Google's Jeff Riles listen to the discussion. | © *RTO Insider*

He said Google joined SPP because of the company's energy procurement needs and plans to grow its businesses within the RTO's footprint.

"As a consumer, we recognize the benefits that wholesale, competitive power markets provide," Riles said. "What's happening here will impact our business. Google wants to follow market developments in SPP and have a voice in its future."

Google leads SPP's corporate buyers with 1,135 MW of power purchase agreements, almost quadruple that of T-Mobile and Facebook's 320 MW apiece.

Riles noted Google has load and "pretty significant" renewable projects in SPP's footprint. The corporation has already *invested $2.4 billion* in an Oklahoma data center, and it *broke ground* earlier this month on a $600 million data center in Nebraska with more load than the nearby city of Lincoln (excluding Cornhusker gamedays). The facility will be powered by 100% renewable energy when it is operational in two years.

In September, Google *announced* a 1,600-MW package of renewable deals across the U.S., Europe and Chile that it calls the largest corporate renewables purchase ever. The purchase will increase its total wind and solar agreements by more than 40%, the company said. ■

SPP News

SPP Shortfall Leads to Scarcity Pricing Calls

'A Lot of Sticks and not Enough Carrots'

By Tom Kleckner

LITTLE ROCK, Ark. — An August energy emergency alert (EEA) that had SPP one contingency away from shedding load has renewed calls for scarcity pricing or other measures to ensure adequate reserves.

Unplanned outages, low wind and a bad forecast combined to create tight operating conditions on Aug. 6. That forced SPP to call its first EEA since becoming a consolidated balancing authority in 2014. The RTO resolved the situation by calling on 478 MW of grid-switchable resources in ERCOT and curtailing up to 127 MW of non-firm export capacity. (See "Staff Evaluating Procedures After Aug. 6 EEA," *SPP Seams Steering Committee: Sept. 11, 2019*.)

"We had no other generators," SPP Operations Director C.J. Brown told the Markets and Operations Policy Committee on Oct. 16. "We maintained that day just fine, but one more contingency and we would have been at a higher level of EEA. We would have been turning the lights off, and that's close to me."

SPP's load peaked at 49,389 MW on Aug. 6, a little more than half of its nearly 90 GW of nameplate capacity. However, wind production was at only 7% of its 22.3 GW of installed capacity.

Brown said generation outages have become commonplace during recent summers. MOPC members suggested wear and tear from fossil units cycling and up down to meet demand has much to do with that, a notion Brown agreed with.

SPP's C.J. Brown briefs MOPC on generator outages. | © *RTO Insider*

"These are machines. They're not going to run 24/7, 365 days a year," he said. "We see a definite uptrend of planned outages over the summer. We want to look at that. It doesn't seem to be an anomaly. Why are we seeing more planned work in the summer? What's the driver? Can we do anything about it? We want to look into it further, and we need your help with that."

SPP has suggested creating a generator outage task force to assess trends and potential causes, making improvements to supply adequacy requirements, and verifying assumptions in loss-of-load expectation planning studies. It is already trying to determine its real-time capacity, as opposed to planning capacity, and working to develop more specific declarations beyond EEAs, weather alerts and calls for conservative operations.

The Market Monitoring Unit has proposed reliability pricing rules during EEAs and maximum generation events to incent generator performance. Noting that day-ahead prices barely reached $25/MWh during July and August, the Monitor's Greg Sorenson said market prices did not reflect emergency conditions because capacity commitments and generation added to address the conditions frequently lowered prices.

"If SPP wants generators to be available during an emergency, prices do not reflect that," Sorenson said. "Other markets have rules that incent generation."

While real-time prices briefly spiked to nearly $1,500/MWh during the August EEA, Golden Spread Electric Cooperative's Natasha Henderson questioned the market's price formation.

"I see a lot of sticks and not enough carrots," she said.

Listening to the discussion, Mike Wise, Golden Spread's senior vice president of regulatory and market strategy, stood and delivered an impassioned speech on the value of scarcity pricing. It's a mechanism he is very familiar with, as Golden Spread also operates in ERCOT.

"I'm going to use the s-word that is not popular with many of you sitting here today," Wise said. "Scarcity pricing works. Although several here will disagree, I believe we need to consider moving towards this strategy for our pool."

Mike Wise, Golden Spread | © *RTO Insider*

While scarcity pricing may be sacrilegious to some in SPP, Wise pointed to ERCOT's ability to meet record demand this summer despite similar wind-energy shortages that led to tight operating conditions. He said the lack of price-responsive load in the SPP market could be because of "market prices not reflecting the actual scarcity."

The ERCOT "market is seeing price-responsive loads taking the price signals and curtailing themselves," he said. "This summer … saw over 3,000 MW of price-responsive load get off across their peak as the reserves were getting low and the price adders for the lack of reserves made the market price go very high. So, if prices in the SPP were allowed to correctly reflect scarcity of reserves, then those utilities would find it in their best interests to change their maintenance plans.

"This market has got to change, and soon, as we continue to add all these intermittent renewable resources, and our legacy generation assets are used less and less for actual energy and more for reserves and market support," he said.

MOPC Chair Holly Carias, with NextEra Energy Resources, emailed committee members last week to request their feedback and next steps on staff's and the MMU's recommendations.

"We want to work with our stakeholders," Brown said. "That makes the most sense." ■

Company News

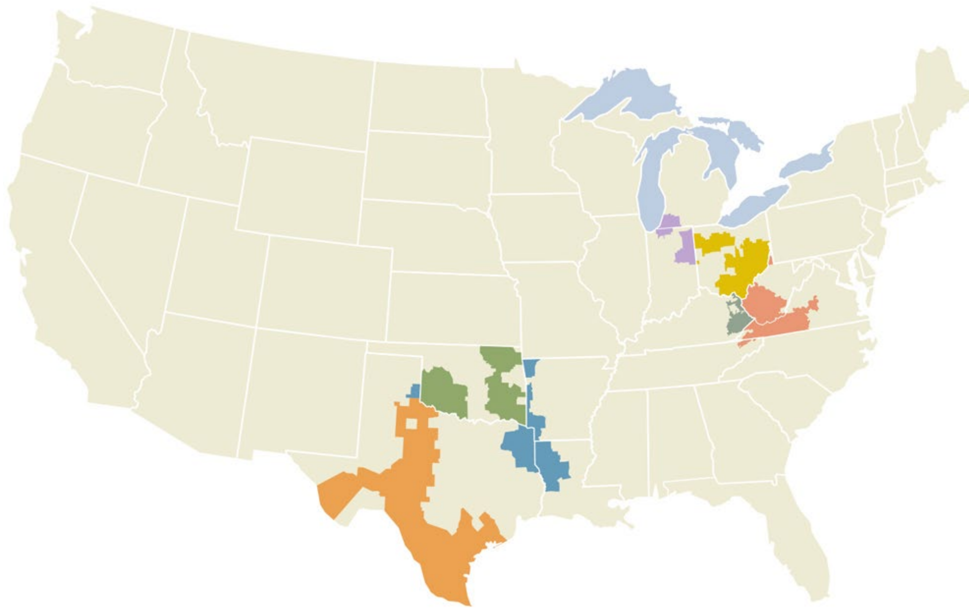
AEP Reports Strong Q3

American Electric Power's third-quarter *figures* beat expectations with earnings of $734 million ($1.49/share), up from $578 million ($1.17/share) over the same period in 2018. Operating income was $722 million ($1.46/share) against Zacks' consensus estimate of $1.33/share.

The company said the difference between GAAP and operating earnings was driven primarily by the mark-to-market impact of economic hedging activities.

CEO Nick Akins told financial analysts Thursday that the company's overall load is "making a comeback." Industrial sales, driven by oil and gas production in Oklahoma, were up 3.4% during the quarter, and the footprint's GDP grew at a 2.4% rate, ahead of the 2.1% national average, AEP said.

"I think you're seeing some resiliency from an industrial and manufacturing standpoint. You're starting to see it pick up," Akins said. "We've got the oil and gas activity going gangbusters. … There's no question people have more money in their pockets and people have more jobs. That's reflected in what we see."



AEP territory | *AEP*

The Ohio-based company increased and narrowed its 2019 operating earnings guidance range to $4.14 to $4.24/share, up from $4 to $4.20/share and reaffirmed its long-term growth rate of 5 to 7%. AEP's share price is up 26.4% since the year began, beating the S&P 500's 19.9% pace.

Wall Street greeted the news by driving the share price up 75 cents to $95.74 in after-hours trading. ■

— Tom Kleckner

Xcel Talks Tx Build After Earnings Come up Short

By Tom Kleckner

Xcel Energy CEO Ben Fowke on Thursday dropped a reference to a classic John Belushi movie in explaining the company's plans to invest more than $22 billion over the next five years in transmission and renewables.

"Like The Blues Brothers, [we] are on a mission to put the band back together again," Fowke told financial analysts Thursday during the company's third-quarter earnings call, referencing the now completed *CapX2020 initiative*. The project, developed with 10 other Midwest utilities, resulted in the construction of 800 miles of 345- and 230-kV transmission lines at a cost of $2 billion.

| *Xcel Energy*

Fowke said Xcel is working with the original CapX utilities on a *CapX2050 Transmission Vision* study to maintain a reliable grid as the system adds more carbon-free energy.

The company has updated its investment plan, which now reflects the $22 billion in capital expenditures. The forecast is driven by Xcel's investment in renewables "as we continue the clean energy transition," Fowke said.

"I don't think this is a very quick process," CFO Bob Frenzel said. "I think this is going to take at least five years through planning before we start getting into real capital plans and construction time frames."

Fowke and Frenzel both noted that friendly right-of-first refusal legislation in Minnesota and Texas will help create opportunities in building transmission. (See *Court Upholds Minn. ROFR, MISO Cost Allocation*.)

Minneapolis-based Xcel *reported* earnings of $527 million ($1.01/share) for the quarter, up from $491 million the same period a year ago ($0.96/share). Xcel fell two pennies short of expectations; an Investing.com poll of analysts projected earnings of $1.03/share.

The company narrowed its 2019 earnings guidance range to $2.60 to $2.65/share, representing the upper half of its original range of $2.55 to $2.65/share.

Xcel's share price opened at $64.95 on Thursday but was trading down after hours at $64.54. ■

Company News

NextEra Beats Expectations with $1.16B Quarter

By Tom Kleckner

NextEra Energy touted "one of the best renewable development periods" in its history as it *reported* third-quarter adjusted earnings last week, beating analysts' expectations.

The Florida-based company's earnings were $1.16 billion ($2.39/share), an increase over 2018's third-quarter earnings of $1.04 billion ($2.17/share). Zacks' consensus estimate had projected earnings of $2.27/share.

Speaking with analysts Oct. 22, CFO Rebecca Kujawa said NextEra has increased year-to-date adjusted earnings by nearly 12%, compared to the same period in 2018. NextEra Energy Resources drove much of that growth, she said, pointing to a renewables backlog of more than 12.3 GW, more than the operating portfolio it had at the end of 2014, which took 15 years to build.

Energy Resources added 1,375 MW to its backlog in the last three months, Kujawa said. The company added 747 MW of solar and 340 MW of battery storage, all paired with new solar projects, she said, "as we further advance the next phase of renewables deployment that pairs low-cost wind and solar energy with a low-cost battery storage solution."

Kujawa said NextEra removed 339 MW from MISO's interconnection queue because of increased transmission upgrades and rising interconnection costs as developers have rushed to get projects approved as tax credits wind down. The "speed bump" only creates opportunities, she said.

"Some of those projects had some obvious customers that wanted to buy some wind and solar projects, which will create opportunities for Energy Resources. … It also creates the opportunity or incentive for us to optimize our existing queue positions and existing interconnection rights to maximize all the generation that could be filled for those interconnection requests," she said.

"Overall, we are pleased with the progress we are making at NextEra Energy," CEO Jim Robo said in a statement. "I will be disappointed if we are not able to deliver growth at or near the top end of our [$10 to $10.75] adjusted earnings per share expectations range in 2022."

| NextEra

On a GAAP basis, NextEra's third-quarter income was $879 million ($1.81/share), compared to $1.01 billion ($2.10/share) a year ago. GAAP earnings considered the effects of the federal corporate tax reduction and non-qualifying hedges.

NextEra's share price gained $2.87 following the earnings release, closing up 1.2% at $236.24/share. ■

Company Briefs

Acciona Acquires 3-GW Pipeline of US Solar Projects from Tenaska

Spanish renewables developer Acciona has acquired 3 GW of solar and 1 GW of storage projects currently under development in the U.S. by Nebraska-based Tenaska.

The deal announced Oct. 21 will see Acciona aiming to complete eight solar projects totaling around 1,200 MW before the end of 2023, the first year the federal investment tax credit hits zero for utility-scale projects.

The pipeline includes 20 projects in Pennsylvania, Ohio, Kentucky, Illinois, Kansas, Oklahoma and Missouri. Tenaska Solar Ventures will provide Acciona with "development services" during the build-out of the pipeline.

More: *Greentech Media*

Avangrid Renewables Picks New CEO

Avangrid Renewables has appointed **Alejandro de Hoz** as the company's new president and CEO.

De Hoz is currently the vice president of the company's offshore wind business and will now take over both onshore and offshore wind operations. He will succeed Laura Beane, who is leaving after three years with the company.

More: *Renewables Now*

Ex-Tenn. Gov. Bredesen Introduces Renewable Energy Firm

Former Tennessee Gov. **Phil Bredesen** introduced Clearloop last week, which will offer short-term agreements that enable companies to compensate for their emissions impact by paying to fund new solar panels in communities with the dirtiest electric grids.

The agreements would offset the companies' carbon footprints, either product by product or service by service. The companies' labels can then feature a symbol that customers can use to track their purchases to the corresponding solar panels built.

"I see it as a way of really reaching into a different world of companies that are not the big dogs, who have got some C-suite executive worrying about sustainability, like Walmart does or Procter & Gamble does," Bredesen said.

More: *The Associated Press*

Brookfield Acquires Stake in Dominion's Cove Point LNG Facility

Brookfield Super-Core Infrastructure Partners will obtain a 25% noncontrolling equity interest in Dominion Energy's Cove Point LNG import, export and storage facility in Lusby, Md., under an agreement announced last week.

The investment will total a little more than $2 billion in cash consideration, excluding working capital. The deal is part of Dominion's previously announced intention to established a permanent capital structure for Cove Point.

"The agreement highlights the compelling intrinsic value of Cove Point and allows us to efficiently redeploy capital toward our robust regulated growth capital programs," Dominion CEO Thomas Farrell said in a statement. "We are very excited to have a highly respected infrastructure investor such as Brookfield as our partner in this world-class facility."

More: *Power Engineering*

Amazon Unveils Solar, Wind Projects in Wake of Bezos' Climate Pledge

Amazon on Wednesday unveiled three new renewable energy projects in the U.S. and U.K., its first new set of green developments since CEO Jeff Bezos unveiled his ambitious Climate Pledge last month.

In the U.S., Amazon will have solar farms in Warren County, N.C., and Prince George County, Va., totaling 215 MW. A wind farm in Scotland will provide 50 MW. All three projects are expected to come online in 2021. Amazon has also launched a new sustainability site to allow the public to track its progress in reducing its carbon footprint.

Bezos has pledged to make Amazon carbon neutral by 2040.

More: *CNET*

Federal Briefs

Danly Confirmation Hearing Scheduled for Nov. 5

The Senate Energy and Natural Resources Committee has scheduled a hearing for Nov. 5 to consider FERC General Counsel **James Danly's** nomination to fill the vacant Republican seat on the commission.

Ranking member Joe Manchin (D-W.Va.) told reporters last week that Democrats' pick to fill the other vacant seat, Allison Clements, clean energy markets program director for Energy Foundation, has been fully vetted by the FBI. "We have no idea what the holdup is," Manchin said. "When I spoke to [President Trump] three or four weeks ago, he seemed to have no problem with [Clements]. ... So I don't know. I'm going to try to get a hold of him and just ask him about it."

Trump's nominee to be deputy secretary of the Interior Department, Katharine MacGregor, will also be considered alongside Danly. MacGregor current serves as deputy chief of staff at the department.

More: *Senate ENR Committee*; *S&P Global Market Intelligence*

Murkowski, Manchin Introduce Bill to Advance Geothermal R&D

Sens. **Lisa Murkowski** (R-Alaska) and Joe Manchin (D-W.Va.) last week introduced bipartisan legislation to accelerate geothermal energy development in the U.S.

The Advanced Geothermal Innovation Leadership Act of 2019 (the "AGILE" Act) includes provisions for research and development of both existing and enhanced geothermal systems, resource assessment updates, grant program authorization, and improved permitting.

"Geothermal is a highly reliable, zero-emission resource able to provide both heat and power almost anywhere," Murkowski said. "Our new bill addresses both technical and non-technical barriers that have kept us from realizing geothermal's full potential."

More: *Senate ENR Committee*

Senate Energy Package to Come by Year-end, Manchin Says

Senate Energy and Natural Resources Committee ranking member **Joe Manchin** (D-W.Va.) last week said he expects to unveil a sweeping package of energy-related bills by the end of the year.

Manchin said he and Chair Lisa Murkowski (R-Alaska) will introduce between 40 and 45 bills, but it is unclear whether Senate Majority Leader Mitch McConnell (R-Ky.) would bring the legislation to the floor.

"We've got a good piece of legislation ready to go," Manchin told Bloomberg Environment.

More: *Bloomberg Environment*

IEA: Renewables to Expand by 50% in Next 5 years

The International Energy Agency predicts that by 2024, the world's solar capacity could grow by 600 GW. Overall, renewable electricity is expected to grow by 1,200 GW in the next five years — the equivalent of the current total electricity capacity of the U.S.

Renewable energy sources make up 26% of the world's electricity today, but according to IEA, its share is expected to reach 30% by 2024.

The organization said growing climate ambitions in the European Union and the U.S. played the biggest role in driving its forecasts higher, but it will be China that leads the way in rolling out wind and solar energy projects.

More: *The Guardian*

DOJ Sues Calif. to Stifle Cap-and-trade Program with Quebec

The Department of Justice is trying to put an end to a California program that caps carbon emissions from the transportation sector, arguing the state exceeded its authority by crafting the program alongside Canada.

The program, underway since 2013, aims to improve California's air quality, allowing companies to trade credits with others in the province of Quebec.

"The state of California has veered outside of its proper constitutional lane to enter into an international emissions agreement. The power to enter into such agreements is reserved to the federal government, which must be able to speak with one voice in the area of U.S. foreign policy," the department said in a statement.

More: *The Hill*

State Briefs

REGIONAL

O'Guinn Appointed to NARUC Board of Directors

Arkansas Public Service Commissioner **Kimberly O'Guinn** was appointed to the National Association of Regulatory Utility Commissioners' board of directors by President Nick Wagner, of the Iowa Utilities Board.

O'Guinn has served on the Arkansas PSC since November 2016, when she was appointed by Gov. Asa Hutchinson. She previously served as the director of communications for the Arkansas Department of Environmental Quality and was also an engineer in the department's Office of Air Quality for 16 years.

"I am grateful to President Wagner for providing me an opportunity to serve NARUC as a member of the board of directors," O'Guinn said. "NARUC is an invaluable resource and an instrumental voice for utility commissions. I look forward to continuing my support of NARUC and its mission in this capacity."

More: *NARUC*

NECPUC Names Hatfield as Next Executive Director

The New England Conference of Public Utilities Commissioners last week named **Meredith Hatfield**, senior attorney in the Conservation Law Foundation's New Hampshire office, as its next executive director.

Hatfield has served both as New Hampshire's consumer advocate and as the director of the state's Office of Energy and Planning. She will replace Rachel Goldwasser in December.

"We are delighted to have Meredith join NECPUC to continue our work advancing the interests of our commissions and our utility consumers," said NECPUC Chairman Anthony Z. Roisman, chair of the Vermont Public Utility Commission. "Utility regulation plays a key role in our region's quality of life and economic strength. With Meredith at the helm, NECPUC will continue its important role supporting regulators and build on Rachel Goldwasser's leadership over the last four years."

More: *NECPUC*

ARKANSAS

Ouachita Co-op Seeks Rate Reduction

Ouachita Electric Cooperative will ask state regulators to lower rates for its members in five counties.

The request, which is expected to be filed by Nov. 1, will ask the Public Service Commission to approve a 4.56% rate drop. Ouachita's board of directors approved the decrease request last week.

The company said the decrease is fueled by advances in solar power and other efficiencies the utility has created.

More: *Camden News*

CALIFORNIA

State Plans Nation's 1st Electric Truck Mandates

State air regulators are hoping to set graduated goals for certain truck classes weighing more than 8,501 pounds to meet zero-emission goals beginning in 2024. The rule would primarily affect stop-and-go, day-route trucks that head back to home bases at the end of the day.

By 2030, 50% of certain truck and chassis sales of medium and heavy trucks would have to be zero-emission, as would 15% of all other truck sales, according to the proposed regulation.

If adopted by the Air Resources Board, the regulation would be the first of its kind in the U.S. The board released the proposal Oct. 22, while a comment period on it opened Friday. The first board hearing on the proposed rule will be held in December, with a final vote expected in mid-2020.

More: *Bloomberg Environment*

MASSACHUSETTS

State Sues Exxon over Climate Change, Accusing it of Fraud

ExxonMobil, already fighting a climate-related investor fraud case in New York (see below), was hit with a second lawsuit last week: Attorney General Maura Healey is accusing the company of defrauding investors and threatening the world economy.

This newest legal blow landed Thursday in Suffolk County Superior Court in Boston in a complaint alleging Exxon repeatedly violated the state's consumer and investor protection law and related regulations.

The lawsuit accuses Exxon of a broad sweep of misconduct that includes using deceptive advertising to mislead consumers in the state about the central role its fossil fuel products play in causing climate change, and intentionally misleading state investors about material climate-driven risks to its business.

More: *InsideClimate News*

MISSOURI

Ameren Missouri Breaks Ground on New Operating Center

Ameren Missouri announced plans to construct a new $20.7 million North Metro Operating Center for its electric operations serving North St. Louis and the surrounding communities.

The operating center will replace the adjacent Geraldine Operating Center and is part of Ameren's Smart Energy Plan that includes thousands of infrastructure projects throughout the state to upgrade the energy grid.

More: *Ameren*

NEW YORK

State's Lawsuit Against Exxon Begins

After four years of legal sparring and finger-pointing, oil-industry giant ExxonMobil went to court last week to face charges that the company lied to shareholders and to the public about the costs and consequences of climate change.

The case turns on the claim that Exxon kept a secret set of financial books that seriously underestimated the costs of potential climate change regulation while claiming publicly that it was taking such factors into account. It follows a sprawling investigation that included millions of pages of documents and allegations of a chief executive's secret email account.

Representing Exxon, attorney Ted Wells Jr. said in a vehement opening statement that while the company has long acknowledged climate change is real, "climate change does not permit the New York attorney general to bring a meritless complaint, and one that is so unconnected from the truth."

More: *The New York Times*

RHODE ISLAND

Providence Releases 'Climate Justice Plan'

The city's Office of Sustainability and Racial and Environmental Justice Committee, in an effort toward transitioning away from fossil fuels and becoming carbon-neutral by 2050, released a "climate justice plan" that aims to reduce the city's carbon footprint while considering the needs of low-income communities and communities of color.

The plan includes targets such as having 100% of municipal buildings' electricity derived from renewable sources by 2030 and making all city vehicles and school buses renewable by 2040. It also lays out programming and community engagement steps to ensure residents are involved in the process. The plan identifies "frontline communities," which are areas of the city most impacted by climate change and sets aside resources for those areas.

One of the next steps of the plan will be implementing a community choice aggregation plan to allow the city to purchase greener electricity in bulk at a lower cost. The city will put out a request for proposals for a vendor that provides competitive rates and uses a higher percentage of renewable energy than National Grid, which is currently the default energy supplier for Providence residents. All customers would be automatically switched to the new supplier unless they opt out.

More: *Providence Journal*

VIRGINIA

State to Buy Energy from Solar, Wind Projects to Power Government

Dominion Energy and Gov. **Ralph Northam** agreed to a 20-year contract that commits the state to buying electricity from a proposed wind farm in Botetourt County and four other solar facilities under a power purchase agreement.

Under the contract, the state will purchase enough electricity to help the government meet Northam's recent executive order to use renewable energy for 30% of its electricity needs by 2022. For Dominion, the contract will help the company meet its commitment under a state law adopted in 2018 that requires it to develop 5,000 MW of power from new renewable energy projects by 2028.

"With this landmark contract, Virginia is leading by example and demonstrating how states can step up to combat climate change and advance a clean energy economy," Northam said.

More: *Richmond Times-Dispatch*