

RTO Insider

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

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June 8, 2021

Stakeholders Discuss PJM Capacity Auction Impacts

By Rich Heidorn Jr. and Michael Yoder

The early impacts of PJM's first capacity auction in three years began to emerge Thursday as Exelon reiterated plans to retire two of its nuclear plants, even as cleared nuclear capacity increased by more than 4,000 MW across the RTO.

The long-delayed auction was the third in which PJM procured only Capacity Performance resources and the first applying the expanded minimum price offer rule (MOPR) to state-subsidized resources. At \$50/MW-day, the RTO resource clearing price for 2022/23 was the lowest since 2013/14, and well below the \$90 to \$110 range Morgan Stanley had predicted last month. (See [Capacity Prices Drop Sharply in PJM Auction](#).)

With the departure of Dominion Energy Virginia from the auction, fixed resource requirement (FRR) elections were the second-highest

ever at 33.3 GW. FRR commitments increased by 19.6 GW, nearly equal to the 20.2 GW reduction in capacity offered. (See [Dominion Opt's out of PJM Capacity Auction](#).)

"PJM's capacity bill will drop from \$9.3 [billion] in 2021 to \$3.9 [billion] in 2022; \$1.1 [billion] of that drop is from Dominion FRRing out," tweeted Tom Rutigliano of the Natural Resources Defense Council. "Still, saving \$4.2 billion in unnecessary payments to fossil plants isn't bad."

Changing Fuel Mix

Cleared coal generation dropped by 8,175 MW, adjusted for FRR plans.

Nuclear generators cleared an additional

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Capacity Prices Drop Sharply in PJM Auction (p.35)

Texas Legislators Finish Work on Electricity Market — for Now

By Tom Kleckner

The biennial gathering of Texas lawmakers in Austin concluded on Memorial Day with a few last-minute administrative duties, but not before the 87th Texas Legislature passed an omnibus bill and several other pieces of legislation addressing ERCOT's disastrous performance during February's winter storm.

[Senate Bill 3](#) captured most of the changes. Legislators approved, with little debate, a 56-page document designed to help the state prepare for, prevent and respond to weather emergencies and power outages and to increase administrative and civil penalties. The bill would require generators and transmission lines to be weatherized. However, only gas facilities that regulators consider "critical" by regulators would need to be weatherized, with penalties capped at \$1 million per day per violation.

SB3 would also mandate that the critical gas facilities be mapped and registered with utility providers to prevent a repeat of the dayslong outages; create a new statewide emergency alert system; and bring together electric and natural gas regulators and market participants

in a new energy subcommittee.

A separate bill, [SB2](#), would shrink ERCOT's Board of Directors from 16 seats to 11 and direct that most of the members be appointed by politicians. Previously, a search committee picked five independent directors (those seats have been eliminated) with market segment members electing their representatives. (See [Texas Legislative Response to Winter Storm Leaves Some Doubting](#).)



Katie Coleman, TIEC | © RTO Insider LLC

Attorney Katie Coleman emerged shortly after the legislature

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ERCOT, PUC Deal with 'Trauma' of February Storm (p.19)

ERCOT Moves Quickly to Address Monitor's Recommendations (p.22)

Former PUC Commissioners Weigh in on ERCOT Fixes (p.23)

Clean Energy Wins, Fossil Fuels Lose in Biden Budget

President Wants \$1 Billion/year to Support Existing Nuclear Plants



Biden's 2022 budget would extend the production tax credit for wind through 2031. | © RTO Insider LLC

By K Kaufmann

The U.S. could save \$35 billion by 2031 by immediately eliminating fossil fuel tax preferences, according to a line item in President Biden's 2022 budget. If Biden can get it through Congress — a very big "if" — the budget would also extend through 2031 the federal production tax credit, a major incentive for wind development, at a projected cost

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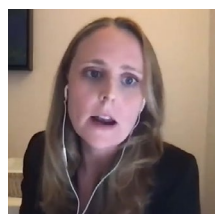
NetZero Insider is now live!
See p.8 for this week's coverage.

FERC Technical Conference on Extreme Weather & Reliability

FERC Tackles Planning the Grid for an Unpredictable Climate

By Tom Kleckner, Michael Kuser, Holden Mann, Michael Yoder and Jason York

Resource adequacy and transmission planning are already challenging using historical weather data; planning for climate change is on a completely different level, panelists told FERC on the first day of a climate-focused virtual technical conference June 1.

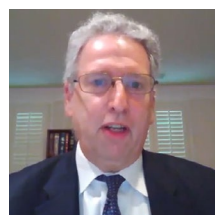


Romany Webb, Columbia University | FERC

“Utilities and system operators have a long history of dealing with extreme weather and weather challenges, but climate change presents these cascading, compounding synergistic risks,” Romany Webb, associate research scholar and senior fellow at the Sabin Center for Climate Change Law at Columbia University Law School, said during the first panel of the day. “Because we have this new challenge, we need to rethink old planning approaches and adjust them and also develop new planning approaches.”

Stakeholders from across the electric industry uniformly derided the resource adequacy metrics currently used by grid planners and called for new approaches to safeguard the reliability of electric service. Speaking on the second panel, Richard Tabors, president of energy and economics consulting firm Tabors Caramanis Rudkevich, called planners’ analytic methodologies and models “woefully and grossly inadequate.”

The discussion came on the first day of this year’s hurricane season, after the first named tropical storm of the year, Ana, already formed last month. It also comes amid warnings of another summer of severe wildfire conditions in the West, and on the heels of a rare winter storm in Texas in February that almost led to the collapse of ERCOT’s grid. These extreme weather events are expected to increase in frequency as climate change worsens.



FERC Chairman Richard Glick | FERC

“How do we better address the fact that utilities need to plan for these extreme weather conditions on a more frequent basis, and how they perform both from a planning perspective but also an operational perspective?” Chairman

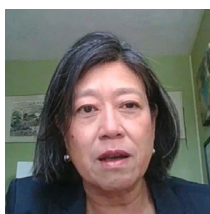


| Duke Energy

Richard Glick asked at the beginning of the conference.

Future Data, Historical Trends, Divergent Paths

FERC posed several questions to help guide the panels’ discussions. Among them was how can futures-based inputs — such as expected future load, weather and temperature — be projected more accurately, rather than simply extending historical trends forward.



Judy Chang, Undersecretary of Energy, Massachusetts | FERC

During the first panel, Judy Chang, undersecretary of energy in the Massachusetts Executive Office of Energy and Environmental Affairs, noted the extra difficulty of predicting future load amid global efforts to electrify building infrastructure. “Heating and cooling loads will increase because we’re transforming our building sector and trying to use more electricity for heating and cooling,” Chang said. “Of course, we know heating and cooling are affected by weather events.”

Webb said the quality and availability of

climate projections — “particularly downscaled climate projections that show impacts regionally and locally” — have improved significantly, but simply integrating some forward-looking projections into existing planning processes are unlikely to be sufficient. “Assuming a consistent average across every hour of the year doesn’t necessarily make sense when we know that extremes, particularly extremes in temperature, can affect those things.”

Jessica Hogle, federal affairs and chief sustainability officer for Pacific Gas and Electric, said her company and state regulators are working to identify a process that determines “what a good climate vulnerability assessment looks like; how do we incorporate and understand that data?” She said that assessment would detail exposure to extreme weather, assets’ susceptibility to climate-driven risks and adaptive capacity of infrastructure.



Jessica Hogle, PG&E | FERC

“A good way to think about that is a transformer sensitive to heat has relatively higher adaptive capacity because we can change

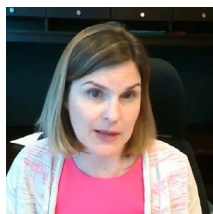
FERC Technical Conference on Extreme Weather & Reliability

that transformer relatively easily,” Hogle said. “However, a substation that is subject to sea-level rise has less adaptive capacity because we would either have to relocate it or raise it, and it would take more to be able to do that.”

FERC’s Role

The panelists advised FERC to incentivize interregional transmission planning, push for industry-wide adoption of best practices, and enhance the equitable sharing of data so that all utilities and RTOs can benefit from the latest technologies and expertise.

FERC should tell RTOs and utilities to “come up with a plan that incorporates the best climate data that you can get your hands on,” Chang said. “Maybe the first time around is not perfect, but having FERC say, ‘Come up with a plan that incorporates climate data,’ is a huge step forward that we haven’t had in this industry.”

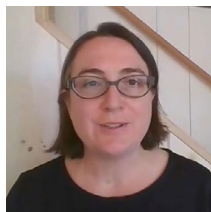


FERC Commissioner Allison Clements | FERC

Commissioner Allison Clements asked about the relationship between local planning and system planning, and whether existing resource adequacy planning processes are appropriate to the challenges of managing a grid at increasing risk of weather-related

disruption.

“In New York City we have a number of different climate change efforts that will be ongoing, but we benefit from having a consistent set of projections,” said Susanne DesRoches, deputy director of infrastructure and energy for the New York City Mayor’s Offices of Resiliency and Sustainability. “Those can be successfully embedded into the distribution network planning as well as at the NYISO level.”



Susanne DesRoches, New York City | FERC

DesRoches referred to a NYISO climate change study released last November, saying that such analysis “should be done consistently across the country.”

Telos Energy President Derek Stenclik also told Clements that planners should incorporate a climate trend in their projections but also go one step further with vulnerability as-



Derek Stenclik, Telos Energy | FERC

sessments to evaluate “what-if scenarios.”

For example, “what if a four-day, low wind or solar event were to occur on the system? Does that impact system reliability?” Stenclik asked. “So, as opposed to the conventional

approach of just doing the probabilistic inputs in the model and seeing what the expectation of reliability out of it is, go inverse and evaluate ‘what if’ scenarios and if they have a material impact on reliability. Then go back to climate folks and meteorological folks and ask if this is plausible in the future.”

If ERCOT had asked him to do a conventional resource adequacy analysis in Texas ahead of February’s blackout, “there is no way I would have caught the magnitude of that event,” he added.

American Electric Power Lisa Barton COO said that the more the regions lean on each other for assistance, the better positioned they will be.



Lisa Barton, AEP | FERC

“Your variable resources may be adversely impacted within your region or within that local utility, but go to the next RTO and all their wind resources are still spinning,” Barton said. “Having those strong interconnections and making sure you can lean on each other is part of the ‘no regrets’ solutions that, when we think about planning, we need to focus on. ... We can use the RTO planning process, but absent FERC pushing on that, I think it won’t happen.”

FERC and state regulators can provide data and a blueprint of how utilities and RTOs/ISOs can do things, but “it is really important to recognize not everyone has the same resources that we have and that we are only as resilient as we are together; we are only as strong as our weakest link,” Hogle said.

Clements said that while she recognizes the “broad spectrum of overlapping resource adequacy authorities” at the state and federal levels, she asked what FERC should consider to encourage utilities to better assess vulnerabilities to extreme weather.

Stenclik said FERC has an opportunity to press regional coordination between different entities to make “consistent assumptions” on how

to better count on each other for reliability and resource adequacy in extreme conditions.

“Some low-hanging fruit is to make sure that when resource adequacy results are shared, all the metrics are provided,” Stenclik said. “You don’t have to change the criteria, but you can at least report the data more holistically.”

1-in-10 Standard ‘Completely Outmoded’

A particular focus of speakers on the second panel was NERC’s so-called “one-in-10” standard, which requires the grid to have sufficient capacity “such that system peak load is not likely to exceed available supply more than once in a 10-year period.”



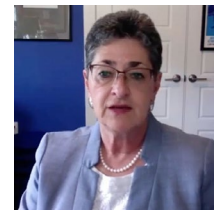
Richard Tabors, Tabors Caramanis Rudkevich | FERC

Given the multiplication of threats in recent years, particularly from shifting weather patterns because of climate change, Tabors said grid planning urgently needs to catch up to the current state of the science.

“There is a lot going on, and the fact that the industry still references an engineering-driven reliability standard of one day in 10 years is close to unbelievable,” Tabors said, explaining that the currently used models don’t consider factors such as the economic consequences of service interruptions while also relying on outdated assumptions of “unit outage independence” and weather trends.

“We have to understand that there are probability distributions out there that we are simply not paying attention to ... [and] we have to get [industry] not to ignore the fact we know more and are able to do more analysis now than has been the case in the past,” Tabors added.

Alison Silverstein, who was an adviser to former FERC Chair Pat Wood III and now has her own eponymous consulting firm, echoed Tabors, calling the one-in-10 standard “completely outmoded.”



Alison Silverstein, Alison Silverstein Consulting | FERC

“It’s generation-centric and ignores all of the other capabilities out there, including demand response and ... the fact that we can actually enlist customers to control their demand and manage it in better ways,” she said. “It [also] ignores ... the fact that the grid is much more

FERC Technical Conference on Extreme Weather & Reliability

energy-dominant and stochastic than it used to be, instead of just turning a dial and controlling a power plant.”

NERC Chief Engineer Mark Lauby also emphasized the expansion of technical capabilities on the modern grid, explaining that the one-in-10 standard was never considered the optimal way to approach system reliability. Rather, it was the product of technological limitations that no longer apply.



Mark Lauby, NERC | FERC

At “that time, in that computer space, [we] only had one event in 10 because that’s all you can model in a 1960s IBM [System/]360,” Lauby said. “Obviously now we can do hours and hours and hours of calculations. ... We can model all the response we want.”

He added that new planning models must incorporate not only the impacts of climate change, but also the ongoing electrification of transportation, heating and other areas of modern life, as well as the growing diversity of the generation mix. All of these factors must be considered by planners trying to “figure out what the one in whatever is.”

Addressing Transmission Planning Shortfalls

Silverstein proposed a national transmission authority that would ensure consistent transmission planning processes and cost allocation across the nation.

“Our current processes and system are not working. ... Making incremental changes means you’re saying the current process isn’t working,” she said. “Transmission planning and its inadequacies matter because our nation cannot achieve our decarbonization goals, period. We can make transmission more effective, and we can open up renewable resources with greater transmission, but more transmission is non-negotiable for the sake of achieving decarbonization.”

Clements jumped into the discussion to ask Silverstein for more specificity on her proposal and how FERC would work with a national entity. Silverstein replied that she has been thinking about the concept and is working on it, giving the impression that she is not ready to roll it out.

“Clearly it needs to be empowered by FERC and supported by the intellectual muscle and funds of the Department of Energy,” Silverstein said. “It’s FERC’s job to get transmission built, or to at least find effective ways to build transmission, and to also find the appropriate

participation, definition of benefits and the cost allocation that comes out of that.”

She suggested FERC might want to determine whether it is just and reasonable to use outdated cost-benefit analyses or cost-allocation methods that don’t reflect transmission’s full scope of benefits.

“I think you have an obligation to pull people together and work on it,” Silverstein said.

But what about jurisdictional issues? Clements asked.

“Almost everything reliability-related is FERC jurisdictional,” Silverstein responded, “and that includes things like whether Texas has an interconnection to the rest of the nation and could have gotten a black start [during February’s winter storm] if it needed it. The answer is, ‘No.’”

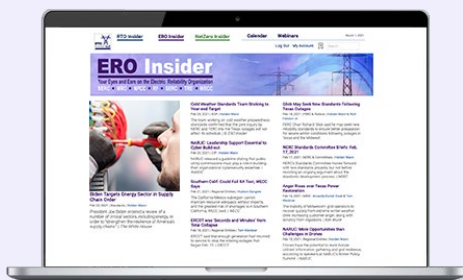
Tabors said that until there’s an economic incentive for transmission owners to be creative and operate efficiently, the ability to plan transmission will be “stuck in a hole.”

“What we all agree to is wrong, [that] we have to build more wires and bigger wires to hook things up,” he said. “In reality, we have a ton of wires. Let’s learn to use them more efficiently. Let’s go back to the drawing board and say, ‘What do we expect transmission to do, and how do we want it to?’” ■

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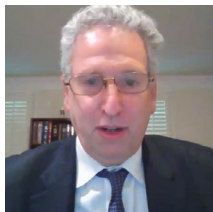
Stakeholders Weigh Climate Adaptations at FERC Tech Conference

By Amanda Durish Cook, Tom Kleckner, Michael Kuser, Holden Mann and Jason York

Speakers during the second day of FERC’s two-day technical conference on climate change and electric reliability risks Wednesday emphasized the need for more transmission to facilitate interregional electricity trading and how to properly compensate demand-side resources.

Panelists also further discussed how FERC can incentivize changes that adapt for climate risks, this time in the RTO/ISO markets. The previous day’s session focused on changes to planning practices and reliability standards. (See related story, [FERC Tackles Grid Planning for an Unpredictable Climate.](#))

Suggestions encompassed the entire electric industry, from fuels to the demand side.

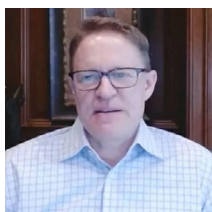


FERC Chairman Richard Glick | FERC

Demand Response and DERs

FERC Chairman Richard Glick recalled that “in California last August during the extreme temperatures, demand response played a significant role in keeping

the lights on.” He asked the first panel of the day for suggestions on how the commission or RTOs could improve the use of flexible demand in addition to the solicitation of voluntary load reductions.



David Patton, Potomac Economics | FERC

“I don’t want to beat a dead horse, but most roads lead back to shortage pricing,” said David Patton, whose firm, Potomac Economics, serves as market monitor for ERCOT, ISO-NE, MISO and NYISO.

DR is “incredibly valuable,” and if most of the incentives for it can be embedded in energy prices rather than capacity prices, “we will be far ahead in terms of providing good incentives for flexible demand response. ... I would say 90, 95% of the objective should be to get shortage pricing correct in all the RTOs,” Patton said.

Extreme weather events “are not events that it would make sense to plan for. ... Many are so low probability that it would be enormously costly to have mandates to try to address them. But incentives provided by shortage pricing will provide correct incentives,” he said.

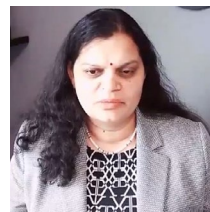


Anne Hoskins, Sunrun | FERC

Anne Hoskins, chief policy officer at Sunrun, said FERC should do more to make sure DR is compensated.

“My main message ... today is: ‘Don’t forget the distributed resources! We have played a critical role

in the past year in dealing where we have had very serious outages,” she said, referencing the California Public Service Commission’s request that Sunrun customers stop charging or share their power without compensation during wildfire season.



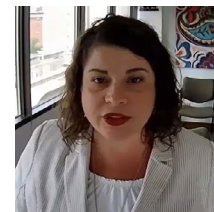
Renuka Chatterjee, MISO | FERC

MISO Executive Director of Systems Operations Renuka Chatterjee said a last-resort public appeal for energy conservation is a wild card and could be better handled by price-sensitive DR.

“The last category of demand response tends to be this voluntary load reduction [from] public appeals ... and that’s too late in the process,” she said. “Thirty minutes before load shed, we’re asking for public appeals, and we are relying on the public to reduce demand in a short time. Most of the public may not be paying attention to announcements, so ... you can get a lot or you can get nothing.”

Gas-Electric Coordination

As the country decarbonizes, it will become more reliant, at least in the short to medium terms, on reliable gas supply for flexible generation to balance out renewables that are coming online, said Amanda Frazier, Vistra senior vice president of regulatory policy.



Amanda Frazier, Vistra | FERC

During the Texas crisis in February, some gas infrastructure was committed to provide DR through the wholesale market and “were incentivized, required really, to curtail their load in response to the call for conservation. It created this loop effect where they weren’t able to produce gas and put it onto the system,”



| Entergy

FERC Technical Conference on Extreme Weather & Reliability

Frazier said.

“So there should be some oversight from the RTOs and ISOs to make sure that we are not creating a situation where DR is cannibalizing a critical fuel supply or infrastructure needed to deliver power reliably.”

Frazier said the introduction of carbon pricing in markets could address both climate change and reliability risks. She said carbon pricing used alongside fuel security incentives will attract the “right collection of resources both to address decarbonization goals along with reliability needs.”

Patton said that the gas procurement and trading that takes place is “OK to reasonably good” on non-stressed days, but it lacks the coordination needed when gas starts to become scarce and participants are trying to acquire it and allocate it.

“It is the reason why you see dramatic spikes in gas prices and then, when the psychology changes and the concern over gas availability goes down, gas prices tend to drop like a stone,” Patton said. “So that signals that we could do a lot better coordinating gas and particularly pipeline capability, though it doesn’t require the same degree of coordination that the delivery of electricity does because the physical characteristics of delivering electricity are far more complicated and rigid than gas.”



Wesley Yeomans,
NYISO | FERC

“If we had unlimited pipeline capability, I believe we’d have no problem with extreme cold weather, but that’s not the case,” NYISO Vice President of Operations Wesley Yeomans said. “We have gone back to the electric utilities to make certain

those large, important, interstate gas pipeline compressors are not on utility load-shed scripts or lists, so we are confident on that, but to be quite frank, [the ISO could] ask more questions [such as] for a comprehensive list of critical loads.”

Transmission

Chatterjee also said MISO could use more transmission to navigate punishing weather. MISO is currently pursuing its first long-term transmission plan in a decade. (See [MISO Execs Defend Need for Long-range Tx.](#))

“As I reflect upon the February arctic event, it is not that we didn’t have enough generation; we couldn’t get it to where it needed to go. So

we can think about having locally sufficient generation, but at the same time you need transmission,” she said.

However, she said MISO’s middle-of-the-country geography afforded it a less painful experience than other markets — such as Texas’ — during February’s weather.

“The biggest lesson learned from the weather event is MISO is well situated right in the middle of the country along with neighbors that allowed us to import power,” Chatterjee said, adding that having a variety of strategies during extreme weather is key.

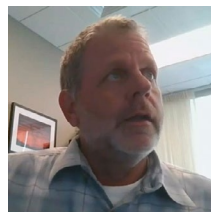
“People are installing batteries with their solar systems ... [because] transmission systems haven’t been working,” Hoskins said. “When there have been the forced outages or the intentional outages by PG&E in particular ... the incentive has been for customers to go out and invest in their own batteries.”

Need for Redundancy

Participants in the second panel focused on recovery and restoration after an extreme weather event, with a particular emphasis on black start units meant to help restore inoperative generating facilities.

But they also echoed the previous panel’s call for more transmission.

Questions about black start services were especially pertinent given the mass generation outages resulting from February’s winter storms that came close to causing a total collapse of the electric grid in Texas. (See [ERCOT: Grid was ‘Seconds and Minutes’ from Total Collapse.](#)) Several speakers referenced an [article](#) published in The Wall Street Journal the previous week that suggested 15 of Texas’ 28 black start units relied on a single fuel source, with no backup if the primary fails.

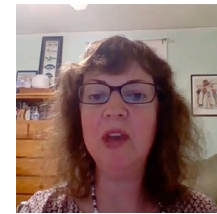


Charles Long, Entergy
| FERC

broader perspective.

“Fuel diversity is valuable in any kind of event — even if it’s not a single unit with dual fuel; dual fuel in an area that might be affected can be very valuable,” Long said. “You should really think about that in a system planning aspect. Maybe if you have a gas generator next to a

nuclear generator, next to a solar generator, those type of things in geographic proximity can be just as valuable as dual fuel.”



Jodi Moskowitz, PSEG
| FERC

a significant financial burden on utilities and called for regulators to help entities make the needed investments with proper incentives.

“Compensation is an issue that we have been dealing with in PJM. ... If there is an expectation that generators are going to offer black start service, there [needs to be] certainty about how they are going to get paid,” Moskowitz said. “The same way that we often hear transmission owners being very concerned about fluctuations in [return on equity] policy ... and the need for regulatory certainty, the same applies for black start.”

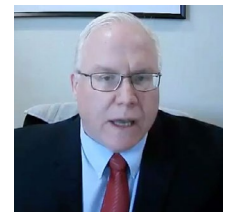


Mike Bryson, PJM
| FERC

While all participants recognized the importance of black start, Mike Bryson, PJM’s senior vice president of operations, reminded his fellow panelists that they are far from the only essential aspects of utilities’ reliability planning.

“From the best practice perspective, I will take one tie with outside systems over any black start units in my system,” Bryson said. “They are great, but ... having an interconnected system with NYISO in New York and [others], that is what we will lean on in terms of trying to restore the system.”

“I could not emphasize more that nothing is better than a very strong, interconnected, reliable and resilient transmission system,” said Kevin Geraghty, senior vice president of electric operations for San Diego Gas & Electric. “Investing and reinvesting in that is incredibly important for us to the most reliable operators we can be.”



Kevin Geraghty,
SDG&E | FERC

FERC Technical Conference on Extreme Weather & Reliability

Geraghty also weighed in on FERC staff's question on whether greater coordination between states and stakeholders that decide restoration priorities will establish more consistency in their decision-making. Given California's wildfire risk, he said, SDG&E holds operational calls with California emergency agencies "every month, regardless of the threat."

The utility also meets quarterly with 40 stakeholders in San Diego County to determine where it might improve the system's resilience.

"I could not stress enough how critical it is to set up one of those advisory councils and just listen and make sure that we are in tune with the county," Geraghty said. "You will know their priorities better, and that leads to great solutions."



Brian Slocum, ITC | FERC

ITC Holdings' Brian Slocum, vice president of operations, spoke from bitter experience when he referenced lessons learned from severe weather. Last August, a derecho storm complex that raced from Iowa to Indiana killed four people, flattened crops and caused an

estimated \$7.5 billion in damages, more than many hurricanes. At one point, much of Cedar Rapids, Iowa, was without power.

"I think what we learned is to do a better job upfront. ... We should be able to know that at a distribution level, this transmission circuit is out of service," Slocum said of the company's eight-day restoration period. "We should be able to highlight that red light on our sheet of outages right away, without having to get that input or phone call from a city. As these loads change, we also need to make sure we're updating our restoration priorities and we can save ourselves at least a little bit of trouble when we get punched by Mike Tyson."

Coordinated Response

The conference's final panel explored what role cross-jurisdictional coordination and cooperation plays in long-term planning, operations and recovery practices in addressing climate change and in the aftermath of extreme weather events.

GridWise Alliance CEO Karen Wayland said she has "long advocated" for a body, either formal or informal, that brings together state and federal regulators "to confront a whole suite of issues that are blurring the jurisdictional lines between the state and federal authorities."

Michigan Public Service Commission Chair Dan Scripps added that the focus of any coordination or collaboration should be on "tangible opportunities," such as forecasting and transmission. For example, he said, following the 2019 cold snap, Michigan Gov. Gretchen Whitmer asked the PSC to complete a statewide energy assessment. He knows other states are doing something similar after the deep freeze in February. He said this is "an opportunity to learn from those deep dives ... and connect the dots between state-specific recommendations with something that addresses broader systemwide reliability."

Carolyn Barbash, vice president of transmission and development policy for NV Energy, said even informal coordination and collaboration "can only help" in Western states like Nevada. She said it has been "relatively easy" to be on the same page as state regulators in Nevada regarding transmission investments. Still, planning for climate change will take regional coordination.

"Any help that we can get, helping coordinate and prioritizing with federal permitting agencies and across different states, would be helpful to increase the resiliency so that we can respond to climate change and natural disasters," Barbash said. ■

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NATIONAL/FEDERAL

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NORTHEAST

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Mass. Looks to Electrify Ridesharing, Increase E-bike Access

Conn. General Assembly Passes Energy Storage Bill

TCI-P Faces Uncertain Future in Connecticut Southeast

Duke Proposes \$56M EV Charging Plan in N.C.

WEST

Honolulu Adopts Near-term Climate Action Plan

Nev. Legislature Wraps up with Host of Energy, Climate Bills

Study to Examine Best Energy Use of Seattle-area Landfill

Wyoming Welcomes DOE-funded Advanced Nuclear Plant

FERC/Federal News



Clean Energy Wins, Fossil Fuels Lose in Biden Budget

President Wants \$1 Billion/year to Support Existing Nuclear Plants

Continued from page 1

of \$38.6 billion.

Released on May 28, the \$6 trillion budget puts solid numbers on the programs Biden has been promoting as part of his climate agenda and infrastructure package, with estimates of future spending through 2031. For example, the \$2 trillion American Jobs Plan calls for the creation of “a targeted investment tax credit” (ITC) to spur the buildout of high-voltage transmission lines with a capacity of up to 20 GW. In the budget, that credit gets a modest \$187 million in 2022, growing, with the expansion of the grid, to \$3.4 billion in 2031.

Critical hits for the oil and gas industry include repeals of intangible drilling costs (a loss of \$2.2 billion in 2022), capital gains treatment for royalties (\$46 million), and expensing for exploration and development costs (\$190 million).

Wins for renewables include a modified ITC that would be extended through 2031, starting with an estimated cost of \$1.4 billion in 2022 and rising to \$35.5 billion by 2027, reflecting an accelerated ramp-up in the industry to meet Biden’s goal for decarbonizing the grid by 2035. Other line items include \$1 billion in support for community solar and storage through 2026, and \$10 billion each through 2026 to support electric cooperatives’ adoption of clean energy and employment of electrical workers for upgrading the grid.

The Department of Energy issued its *own breakdown* of its \$46.2 billion budget for 2022, including \$4.7 billion for the Office of Energy Efficiency and Renewable Energy, a 65% increase over 2021. A new Office of Clean Energy Demonstrations is funded at \$400 million “to keep bringing innovative technologies to market.”

Party-line Split

At the same time, the budget shows Biden trying to perhaps offset the repeal of fossil fuel subsidies with funding for the low- and no-carbon technologies now gaining support in the coal, oil and gas industries. Existing nuclear plants are slated for \$750 million in credits in 2022 to help them stay in operation, with that figure rising to \$1 billion per year through 2031. Federal procurement of advanced nuclear energy will get \$5 billion over the next decade. Investment in hydrogen and carbon capture and sequestration will total \$7.9 billion through 2026.

Brad Crabtree, director of the Carbon Capture Coalition, praised Biden’s “commitment to carbon management as a key component of a national strategy to reach net-zero emissions.” The budget underlines the “bipartisan common ground and growing support for a broader and more complete portfolio of federal carbon-capture policies that are essential to meeting midcentury climate goals, while preserving and growing America’s high-wage jobs base in energy, industry and manufacturing,” he said in a statement.

Judi Greenwald, executive director of the Nuclear Innovation Alliance, said the budget was “a good first step” toward adequate funding to support the development and commercialization of advanced nuclear technologies.

Still, congressional response to the energy spending in the budget split predictably along party lines.

Rep. Frank Pallone (D-N.J.), chair of the House Energy and Commerce Committee, said he was “delighted [with] President Biden’s plan ... for transformative funding and a national clean electricity standard that will help us move toward a clean economy. This budget recognizes the climate crisis for what it is: not just a challenge, but also an opportunity to rebuild our country from the devastation of the COVID-19 pandemic.”

Rep. Cathy McMorris Rodgers (R-Wash.), the committee’s ranking member, took to Twitter, calling the budget “a radical agenda for the government to take over our lives. ... Green New Deal-style policies will crush American jobs, energy reliability and our security.”

A Carbon Tax Alternative

Transportation electrification is another budget winner. With the auto industry now actively engaged in the transition to electric vehicles, Biden wants to spend \$137.4 billion over the next decade to support widespread adoption, along with a \$20 billion investment in electric buses. Another \$3 billion through 2026 is budgeted to electrify the federal vehicle fleet and support the necessary charging infrastructure.

Other funding through 2026 includes:

- \$704 million to increase the use of net-zero technologies in agriculture;
- \$566 million in support for economic development in Appalachian communities;
- \$1.3 billion to increase a tax credit for new

energy-efficient homes; and

- the creation of new tax incentives and credits for heavy- and medium-duty zero-emission vehicles (\$5.3 billion), sustainable aviation fuels (\$3.5 billion) and low-carbon hydrogen (\$1.1 billion).

“Today’s budget request from the Biden administration provides a detailed roadmap of the programs and federal investments necessary to support the renewable energy industry’s drive to decarbonize the power sector by 2035,” American Council on Renewable Energy CEO Gregory Wetstone said in a statement. “The budget’s forward-looking investment in electric grid expansion and modernization will unlock renewable resources, enhance our national security, and increase reliability for consumers and businesses.”

Heather Zichal, CEO of the American Clean Power Association, said the budget’s “funding levels for wind, solar and energy storage research and development will be crucial in keeping our country on the cutting edge of clean energy technology. ... Alongside clean energy itself, this budget rightly acknowledges the importance of transmission infrastructure investments in facilitating the transition to a cleaner, more affordable American electric system.”

Given the current, stalled state of negotiations over Biden’s infrastructure package — with Republicans pushing a \$928 billion alternative focused primarily on “hard” infrastructure like roads, bridges and water systems — the budget will likely face a similar, significantly slimmed-down GOP counter proposal. And the oil and gas industry will line up against any repeal of its subsidies.

Some Republicans could be exploring a carbon tax as an alternative to a repeal of oil and gas subsidies. McMorris and Sen. John Barrasso (R-Wyo.), ranking member on the Senate Energy and Natural Resources Committee, released *a joint letter* to the Energy Information Administration on June 1 requesting an analysis of Biden’s commitment to cutting U.S. emissions by 50 to 52% by 2030 and to net-zero by 2050.

The letter specifically asks EIA to include “future forecasts and run side cases using increasing carbon fees sufficient to meet these emissions targets. ... Such an analysis could serve as an important starting point and baseline for further analyses as the Biden administration and Congress consider various proposals.” ■

FERC/Federal News



Students ‘Double Down’ on Efficiency with Wind Turbine Prototype

Judging Begins for US DOE’s Annual Collegiate Wind Competition

By Jennifer Delony

Judging began in the U.S. Department of Energy’s Collegiate Wind Competition on Wednesday with virtual team presentations.

Students from Johns Hopkins University (JHU) launched the competition with a look at their search for wind turbine efficiency via a counter-rotating dual-rotor design. They entered the design in the Turbine Prototype contest, which includes an optional testing phase that is not part of judging.

“This turbine design combines two separate turbine rotors to harvest energy from the weight of the rotors,” JHU team member Annika Torp said. Theoretically, the dual rotors can be 25% more efficient than a comparable single-axis wind turbine, and the team set out to see if they could achieve that result.

Doing so meant bringing the team together virtually in the early part of the pandemic for the design phase, and building a prototype when students were allowed to work in person again.

“All of our validation testing was performed in our one-meter wind tunnel on campus and in a benchtop setting for electronics,” Torp said. “Basically, what we found in testing was similar to what we had predicted [for efficiency].”

Last year, students were asked to “research, design and build a turbine for deployment in highly uncertain times, with a great degree of unknown risk and delays.”

“The 2021 competition embodied this challenge, as the teams adapted to the uncertainties and the hurdles of attending school and preparing for competition during the pandemic,” acting DOE Assistant Secretary Kelly Speakes-Backman said at the start of judging.

Thirteen teams are competing in three contests and vying for first, second and third place overall. In addition to the Turbine Prototype contest, the competition includes Project Development for a 100-MW wind farm and Connection Creation, which is new this year.

Connection Creation called for teams to conduct outreach and build connections with wind industry members as well as local communities

and media.

Judging *continues* through this week and culminates in an awards ceremony Friday.

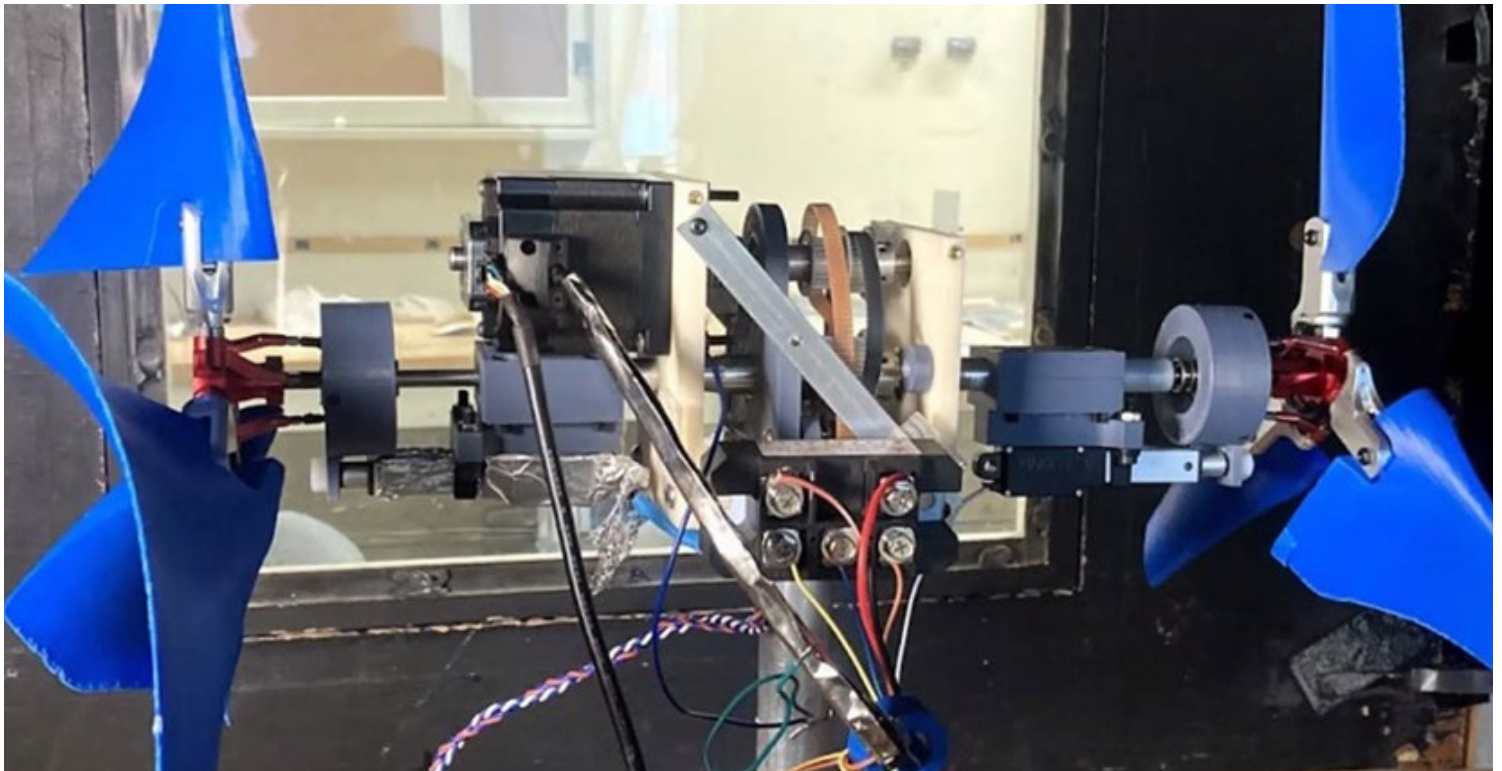
Team NAU

Students from Northern Arizona University (NAU) kicked off presentations on Wednesday in the Project Development and Connection Creation contests.

The team developed a wind farm site plan in South Dakota with 70 wind turbines on property that contains an existing 230-kV transmission. They chose the Siemens-Gamesa 5.8-155 (6.6 MW) wind turbine from a manufacturing facility in a neighboring state.

“We chose this turbine because its high hub heights will capture higher wind speeds, and the higher capacity size of the turbine was chosen to produce high amounts of power, while needing less turbine sites and reducing overall project costs,” NAU team member Natalie McDonald said.

They were able to model the project with an installed capacity of 98.6 MW and capacity



Johns Hopkins University students entered the counter rotating dual-rotor wind turbine design seen here in the Collegiate Wind Competition Turbine Prototype contest. | U.S. Department of Energy Collegiate Wind Competition

FERC/Federal News



factor of 42% generating 368 GWh of energy annually. In addition, the team determined that the project would be economically viable based on a levelized cost of energy of \$0.057/kWh and a levelized power purchase agreement price of \$0.06/kWh.

As part of the NAU team's submission for the Connection Creation contest, they developed an outreach plan that included supporting the Arizona KidWind Challenge and working with Willow Bend, a local environmental education center.

"The Arizona KidWind Challenge is a micro-scale wind turbine competition for kids ... that is very similar to the [Collegiate Wind Competition] but is less competition-based and more for the sake of learning hands-on how the turbines work and how you can make them more efficient," NAU team member Aaron Zeek said.

To accommodate social distancing guidelines,

the team created instructional videos for the KidWind Challenge, with the help of Willow Bend, instead of providing in-classroom instruction. One of the videos showed kids how to maximize the power of a wind turbine through blade design.

At the end of the challenge, the team contributed to judging.

"It was amazing to see what the students created," McDonald said. "The winning teams will be moving forward to compete in the National KidWind Challenge."

Competition Teams

Collegiate team presentations continue until tomorrow.

The 13 participating teams are:

- Brigham Young University
- California State University Maritime Academy

- California Polytechnic State University
- Johns Hopkins University
- James Madison University
- Kansas State University
- Northern Arizona University
- Pennsylvania State University
- Texas Tech University
- University of Maryland
- University of Wisconsin-Madison
- Virginia Tech University
- Washington State University-Everett

Learn-along teams are a new feature of the competition this year. They submit projects and receive feedback but are not eligible for awards. The two learn-along teams are University of Colorado Boulder and University of Wyoming. ■

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FERC/Federal News



Ex-FERC Officials Urge Commission to Expand Organized Markets

By Michael Yoder

Nine former FERC members urged the commission Wednesday to push for organized power markets in all regions of the country, including the West and Southeast.

A letter signed by nine past commissioners and chairs said FERC should employ its “broad authorities and tools available under the Federal Power Act” to create RTOs and ISOs in areas not currently supported by organized power markets, saying it would provide consumer benefits and help integration of renewable energy.

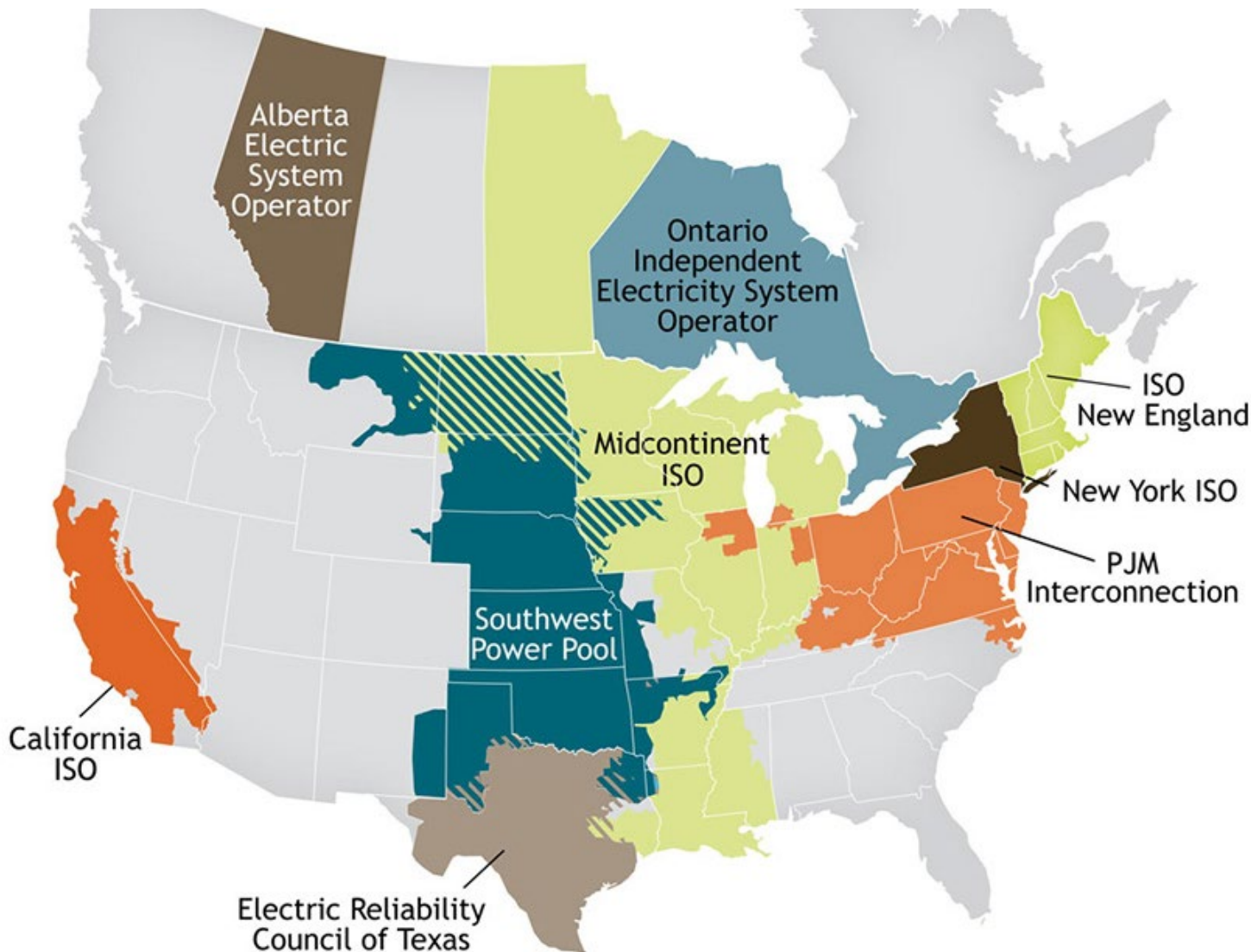
The bipartisan list of FERC officials spanning

more than three decades of public service said consumers in regions not serviced by an RTO or ISO are missing out on benefits seen in regions with organized markets, and that markets are “more essential than ever” as the power sector continues to decarbonize.

“As the pace of decarbonizing the grid accelerates, we are convinced that the time for organized market expansion is now,” they said. “We recommend that FERC get ahead of the curve by getting the basic foundations in place everywhere. Promoting the expansion of organized wholesale markets now ensures that the grid is a powerful enabler of our clean electricity future.”

They said RTOs and ISOs have proven the ability to attract clean energy investment and are a critical component in implementing new technologies to reach a goal of “clean, reliable and affordable electricity for our entire nation.” Changing customer preferences, the “broad electrification” of the economy, reduced costs for clean energy technologies and “climate-related grid emergencies” are all driving issues for FERC to address.

FERC for two decades has pushed organized wholesale markets to “ensure a well functioning and dynamic grid,” the former commissioners said. Initiatives currently underway in the West and Southeast to develop wholesale markets should be encouraged. (See [Multiple Entities](#),



FERC/Federal News



Markets Now Beckon in West and Study: Southeast RTO Would Cut Rates, Emissions.

They cited several features they said allow organized wholesale markets to provide a “customer-centric transition” to a cleaner grid at the least cost, including larger footprints that can incorporate renewables, “level playing fields” for power providers and “non-discriminatory grid access.”

“To prepare the grid for a rapid evolution toward the low-carbon future, we urge you to finish the job of setting up organized wholesale power markets and ensure that they flourish in all regions of the country,” they said. “We know you have a full plate of electricity issues to address; it is our collective opinion that this one is foundational.”

Signees

The letter was signed by former Commissioners Nora Mead Brownell (2001-2006); James Hoecker (commissioner 1993-1997, chairman 1997-2001); William Massey (1993-2003); Elizabeth Anne Moler (commissioner 1988-1993, chair 1993-1997); John Norris (2010-2014); Robert Powelson (2017-2018); Branko Terzic (1990-1993); Jon Wellinghoff (commissioner 2006-2009, chairman 2009-2013); and Pat Wood III (2001-2005).



Former FERC Chair James Hoecker | © RTO Insider LLC

Hoecker said the first Bush administration toyed with developing legislation to create “regional transmission groups.” But the concept of RTOs and

ISOs didn’t take form until FERC Order 888 in 1996, which required open-access transmission, and Order 2000, which formalized the grid operators’ structure in 1999.

Hoecker said he was unable to get enough votes on the commission to make organized power markets mandatory under Order 2000 when he was serving as chair, but he said the order laid the groundwork for future progress.

“It’s been a struggle to establish regional markets,” Hoecker said in an interview. “But I think the ones that did succeed have proven their value.”

Wellinghoff in an interview relayed the story of FERC’s initiative to force Entergy to join an RTO. Wellinghoff said several state commissioners approached FERC in 2009 expressing concern over Entergy’s practices of interconnecting competitive generators in its service territory.



Former FERC Chair Jon Wellinghoff | © RTO Insider LLC

The state commissioners believed Entergy customers were missing out on lower-cost power by not having the generators interconnected in a timely manner, Wellinghoff said, so FERC convened a hearing to address the issue. At the hearing, Wellinghoff offered to have FERC pay for a consulting study to investigate the benefits to consumers if Entergy were to join an RTO.

The study found Entergy consumers would save \$700 million, Wellinghoff said, and each state commission voted to direct the company

to join an RTO. Entergy ultimately would join MISO in 2014.

Wellinghoff cited a *study* included in the letter to the commission that touts similar benefits for an RTO in the Southeast, saying customers could save up to \$19 billion a year with the creation of an organized power market.

“There’s way too much money on the table, and consumers are losing huge amounts of money,” Wellinghoff said. “The time is now for us to move into the future, reject the past and improve the efficiency of our grid by having independent operators everywhere.”

Southeast Energy Exchange Market

In February, more than a dozen utilities and cooperatives, including the Tennessee Valley Authority, Southern Co. (NYSE:SO) and Duke Energy (NYSE:DUK), proposed the Southeast Energy Exchange Market, which they said would reduce “friction” in bilateral trading by introducing automation, eliminating transmission rate pancaking and allowing 15-minute energy transactions.

The sponsors made it clear, however, that unlike an RTO, the utilities would not relinquish day-to-day control of their transmission. Critics said the proposal doesn’t go far enough to increase competition and asked FERC to require more transparency, broader governance and increased consumer protections. Several also requested a technical conference to consider more ambitious market development. (See *Southeast Utilities Defend SEEM Proposal.*)

In the West, the Energy Imbalance Market managed by CAISO has grown steadily, but it also lacks many of the features of an RTO. ■

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FERC/Federal News



SEEM Members Offer Rule Changes

Utilities Respond to FERC Deficiency Letter

By Rich Heidorn Jr.

Sponsors of the Southeast Energy Exchange Market (SEEM) pledged Monday to provide FERC confidential market data and to apply the “just and reasonable” standard to increase transparency and allay market power concerns.

The sponsors made the pledges Monday in their *response* to a May 4 *deficiency letter* from FERC staff that asked 12 detailed questions about how the proposal to automate matching buyers and sellers in bilateral trading would operate (ER21-1111, *et al.*).

SEEM’s sponsors say their proposal would eliminate transmission rate pancaking and allow 15-minute energy transactions.

“The Southeast EEM members continue to believe that the Southeast EEM proposal will materially benefit customers throughout the southeastern United States by enhancing opportunities for competition in the bilateral market and increasing access to lower-cost energy from across the large footprint of the Southeast EEM,” said the group, comprising more than a dozen utilities and cooperatives including the Tennessee Valley Authority, Southern Co. (NYSE:SO) and Duke Energy (NYSE:DUK).

They said the changes to the proposed SEEM agreement would “increase transparency and provide the commission, participants and other stakeholders with the same confidence as the Southeast EEM members that the Southeast EEM will operate to the benefit of all concerned.”

They asked the commission to approve their proposal by Aug. 6.

“It is apparent from many of the deficiency letter’s questions that commission staff is interested in issues related to market power, market manipulation and market oversight,” the sponsors wrote. “The Southeast EEM provides no new opportunities to exercise market power.”

The members proposed the following changes:

- confidential weekly submissions of market data to FERC and the Market Auditor, “comparable” to the data provided by RTOs under Order 760, including participants, bid/offer prices, quantities and locations.

- disclosure of regulators’ questions and answers, as well as Market Auditor reports, to participants, subject to restrictions on access to confidential information by marketing function employees. The Market Auditor will be required to respond to the state regulatory commissions in Alabama, South Carolina, Mississippi, Virginia, Tennessee, Georgia, North Carolina, and portions of Kentucky, Oklahoma and Florida, as well as FERC, NERC and the TVA inspector general.
- a clarification that available transfer capability calculated by participating transmission providers must be provided to the SEEM administrator and must be used in the algorithm for each leg of any contract path to ensure transmission will not exceed available capacity.
- making the “just and reasonable standard” the default for most SEEM rules rather than the lower *Mobile-Sierra* public interest standard.

“While the Southeast EEM members do not believe these changes are needed here to ensure that the proposed market enhancements are just, reasonable and not unduly discriminatory or preferential, the changes are offered to respect and heed the message suggested by the staff questions and the intervenor concerns some of those questions echo,” the members said.

They reiterated that their proposal could only lower power costs for customers because SEEM transactions will only occur when a seller has lower-cost energy available to meet 15-minute non-firm increments than the buyer has available from its owned or controlled firm generation. “Therefore, there is no potential for the Southeast EEM to be used as a tool to increase prices through the exercise of market power,” they said.

SEEM said it was unable to answer FERC’s question about the supply of 15-minute residual energy expected to be offered.

“Before market launch, forward-looking estimates of the level of supply and demand in this voluntary residual market are difficult to make with any precision or certainty,” it said, adding that its consultant, Susan Pope of FTI Consulting, “expects that the market will attract robust participation by buyers and sellers in the Southeast.”

They also emphasized that SEEM will not func-

tion as an imbalance market and that balancing services will continue to be provided by the 10 balancing authorities in the SEEM footprint, unlike the Western Energy Imbalance Market (EIM) run by CAISO.

“The ‘EEM,’ unlike the ‘EIM,’ will have no market clearing imbalance price that could be driven up through an exercise of market power to favor a related position; each Southeast EEM ‘exchange’ will be individually priced, just like the other bilateral transactions for which existing market power mitigation measures are already sufficient.”

Critics: SEEM not a True Market

Clean energy groups have asked FERC to reject SEEM’s proposal, saying it doesn’t go far enough to encourage competition. In March, SEEM filed a response rejecting the critics’ objections as flawed or irrelevant. (See *Southeast Utilities Defend SEEM Proposal*.)

In a *blog* post Monday, Maggie Shober, director of utility reform for the Southern Alliance for Clean Energy, said FERC should require SEEM to be an imbalance market.

“SEEM as proposed is unlikely to deliver on its own promise: small incremental cost savings and marginally reduced renewable energy curtailments. Instead, ratepayers in the Southeast need actual competition, under a neutral administration, with broad participation, market transparency and accountable governance,” Shober wrote. “SEEM does not even attempt to promise these market essentials.”

She said SEEM should have an independent market monitor, eliminate the “split the difference” price settlement to one similar to locational marginal pricing and add a day-ahead hourly market with a resource-sharing construct.

“Right now there are countless utilities across the region that have proposed new gas plants in their queues, far more than regions of the country where markets are in place. One key reason for this is that each utility is doing resource planning largely as an island,” Shober wrote. “We’ve shown before that Southeast utilities do not tend to peak at the same time, and a platform for sharing resources across these utilities (i.e. a market) would reduce the need for all that new gas and would make it more economically efficient for complementary clean energy resources to flow across the region.” ■

CAISO/West News

Far-reaching Energy Bill Sweeps Through Nev. Legislature

By Elaine Goodman

On the final day of Nevada's legislative session last week, lawmakers passed a bill that would require transmission providers in the state to join an RTO by January 2030, among a host of other provisions.

The Assembly on May 31 voted 32-10 to pass [Senate Bill 448](#) by Sen. Chris Brooks (D), followed by a concurrence in the Senate on the bill's final amendment. The Senate previously voted 21-0 in favor of the bill. (See [Sweeping Nev. Energy Bill Passes Senate Unopposed.](#))

SB448 now heads to Gov. Steve Sisolak, who is expected to sign it.

Wide-ranging Legislation

SB448 would require transmission providers to join an RTO by January 2030 unless they can show that they haven't been able to find a viable RTO or that joining an RTO wouldn't be in their or their customers' best interests.

The bill would also create a Regional Transmission Coordination Task Force to advise the governor and legislature. The panel would look at potential costs and benefits of joining an RTO, where to build transmission facilities to achieve the state's clean energy and economic development goals, and businesses that could move to the state as a result of the state's position in a regional wholesale electricity market.

But the wide-ranging bill goes beyond transmission.

Among its many provisions, SB448 would require NV Energy, the state's monopoly electric utility, to develop a plan for \$100 million in investments from 2022 to 2024 for a variety of electric vehicle charging programs.

The bill would address energy storage by adding storage facilities and hybrid generation-and-storage facilities to the Renewable Energy Tax Abatement Program.

SB448 would require electric utilities to align their planning process with state climate goals

by showing how they could reduce their CO₂ emissions by 80% compared to 2005 levels by 2030 and get to net zero by 2050.

The bill would require that at least 10% of an electric utility's spending on energy efficiency programs go toward programs for low-income customers and historically underserved communities.

Rudy Zamora, program director of Chispa Nevada, said SB448 would help address disparities in low-income communities where there is often more air pollution. Chispa is a Latino organizing program for climate action.

"By doubling energy efficiency investments in low-income homes and ensuring at least 40% of new electric vehicle charging infrastructure is deployed in historically underserved communities, we can begin to address energy equity and climate justice," Zamora said in a [news release](#) after the Assembly passed the bill.

Ellen Zuckerman, utility program co-director for the Southwest Energy Efficiency Project, also commended the legislature for passing SB448.

"Senate Bill 448's passage will reduce emissions, eliminate wasteful energy use and make electric vehicles more accessible to low- and middle-income Nevadans," Zuckerman said in a [news release](#) May 31.

Energy Bill Support

The governor appears to support SB448. On May 13, the day it was introduced, Sisolak hosted a "virtual roundtable on energy in Nevada" during which Brooks discussed his bill.

Representatives of the Governor's Office of Energy and Office of Economic Development expressed support for the bill during committee hearings.

The bill's final amendment added co-sponsors to the legislation. It expanded the membership of the Regional Transmission Coordination Task Force that the bill would create to include a representative of the Nevada Indian Commission.

The amendment would also remove a portion of existing law that requires at least three-quarters of money in the state's Renewable Energy Account be used to reduce electricity costs to certain retail customers of electric utilities. Instead, the amendment says money in the fund must be used for purposes that the director of the Office of Energy establishes by regulation. ■



Senate Bill 448 seeks to boost transmission development in Nevada and potentially place the state's network under the oversight of an RTO. | © RTO Insider LLC

CAISO/West News

Puget Sound Energy Contracts for 350 MW of MT Wind

By John Stang

Puget Sound Energy signed an agreement with a proposed Montana wind power project to obtain 350 MW of wind energy, the Seattle-area utility announced Wednesday.

Bellevue, Wash.-based PSE provides electricity to roughly 1.1 million people in eight counties surrounding Puget Sound. The 350 MW would supply power for about 140,000 households.

PSE signed the 20-year agreement with NextEra Energy Resources' Clearwater Wind Project about 60 miles north of Colstrip, Mont. The 750-MW project will be the state's largest, covering southeastern Montana's Rosebud, Garfield and Custer counties and is expected to go online in late 2022.

"We are excited to partner with NextEra Energy Resources, which will move us toward

achieving our goal of reducing our own carbon emissions to net zero by 2045," Ron Roberts, PSE vice president of energy supply, said in a statement. "... We've been saying Montana has great wind resources and this agreement demonstrates PSE's continued investment in Montana's energy economy."

"This is an important step forward in diversifying our regional economy, creating new jobs and bolstering local tax revenues for our schools, roads and county services," said Bob Lee, Rosebud County commissioner. The project is expected to create 350 construction jobs and up to 20 permanent jobs.

Located in Rosebud County, Colstrip is home to a 1,480-MW coal-fired power plant co-owned by PSE, Portland General Electric, PacifiCorp, NorthWestern Energy and Talen Energy. Washington was Colstrip's biggest power customer, but a 2019 law requires the

state to stop using coal-fired power by 2025. Consequently, PSE caused two of the four Colstrip power units to close in 2020 while the other two units are slated for closure in 2025. The Clearwater Project will use the same transmission lines that stretch from Colstrip to Washington.

Montana has two other wind turbine sites in play.

Portland-based PacifiCorp's Pryor Mountain Wind Farm recently went online in southeastern Montana with a 240-MW capacity to serve 76,000 homes.

In late 2020, Houston-based Broad Reach Power bought two local wind and solar power projects based in Billings, Mont. One is a 250-MW project expected to be completed in 2022. The 250-MW solar farm is expected to go online in 2023. ■



| Clearwater Wind

CAISO/West News

Calif. Needs Tx and Gas to Decarbonize, Advocates Say

SB 100 Workshop Tackles Thorny Issues in Push Toward 100% Clean Energy

By Hudson Sangree

Speakers at a California Energy Commission (CEC) workshop Wednesday addressed some of the more difficult problems in the state's transition to 100% clean energy, including the need for new transmission and efforts to keep and decarbonize natural gas.

The daylong workshop — part of a joint planning process by the CEC, the California Public Utilities Commission (CPUC) and the California Air Resources Board (CARB) — dealt with the huge influx of resources needed to comply with Senate Bill 100, the landmark 2018 law that requires utilities to serve retail customers with 100% clean energy by 2045.

Achieving that objective will require an infrastructure buildout of unprecedented proportions and greater cooperation by the CEC, CAISO and the CPUC, the three entities responsible for energy planning and procurement in California, speakers said.

CEC Advisor Liz Gill said her commission's "high-electrification" planning scenario, which anticipates widespread adoption of electric vehicles and heating-and-cooling appliances, shows the state must add 172 GW of new resources to the approximately 80 GW it had as of 2019. (See *Study: Calif. Must Build Renewables at Record Rate.*)

"We're really looking at tripling our electric grid capacity," Gill said. The *SB 100 Joint Agency Report* released in March envisions massive increases in utility-scale solar, rooftop solar, battery storage, and onshore and offshore wind, she said.

New Transmission

More transmission is needed to deliver energy from the threefold increase in generating and storage resources to urban load centers, speakers said.

Neil Millar, CAISO vice president of transmission planning and infrastructure development,

said the pace of development "needs to be considerably accelerated, and that applies not only to the resources but to the transmission development that will underpin those resources."

Developing resources with longer lead times, such as offshore wind, and new transmission lines to serve those resources will require years of planning, "so it's critical that we get going as soon as possible," Millar said.

Jeff Billinton, CAISO's director of transmission infrastructure planning, said the push to add generating and storage resources has led to interconnection queue requests that "exceed all previous levels and expectations."

Over the past decade, CAISO received an average of 113 queue requests per year, he said. In April, the ISO received 363 interconnection requests totaling 106 GW, Billinton said.

"This volume is creating staffing resource challenges for the ISO and, in particular, for the participating transmission owners," he said.

Some speakers urged better coordination and planning to avoid future problems.

James Avery, an energy consultant who serves on the WECC Board of Directors, said the state needs to avoid the "planning paralysis that has plagued us for decades and ... move as expeditiously as possible to evaluate all of the possible transmission projects that are before the ISO in the current [transmission planning process] cycle."

Avery made his comments on behalf of Western Grid Group, which "seeks to accelerate the incorporation of a broad range of cost-effective, low-carbon technologies into the electric system," according to its website.

"In order for California to meet our SB 100 goals, the state must develop a roadmap," Avery said. "There's been a lot of talk this morning about different initiatives, different objectives, but no one has put this all together into a roadmap that clearly lays out what we have to do to meet the 2045 time period."

"Simply connecting renewable resources to the ISO grid will not enable us to reduce our dependence on the natural gas that's used to serve our urban load centers," he said. "If we do not build the transmission to deliver renewable resources to our coastal regions, we will never be able to meet our SB 100 goals."



California must build transmission at a faster pace to connect clean energy resources, CAISO said. | © RTO Insider LLC

CAISO/West News

Most utility-scale renewable resources — solar, geothermal, wind and hydropower — are far from the state’s coastal cities, requiring new transmission connections.

“We all know it takes 10 years to build any new transmission facility,” Avery said.

“Without the roadmap, we will still be talking about what needs to be done when it’s too late to do anything,” he said.

Sticking with Gas

Another difficult issue is what to do with natural gas, a major fuel source for the state’s generators and consumers.

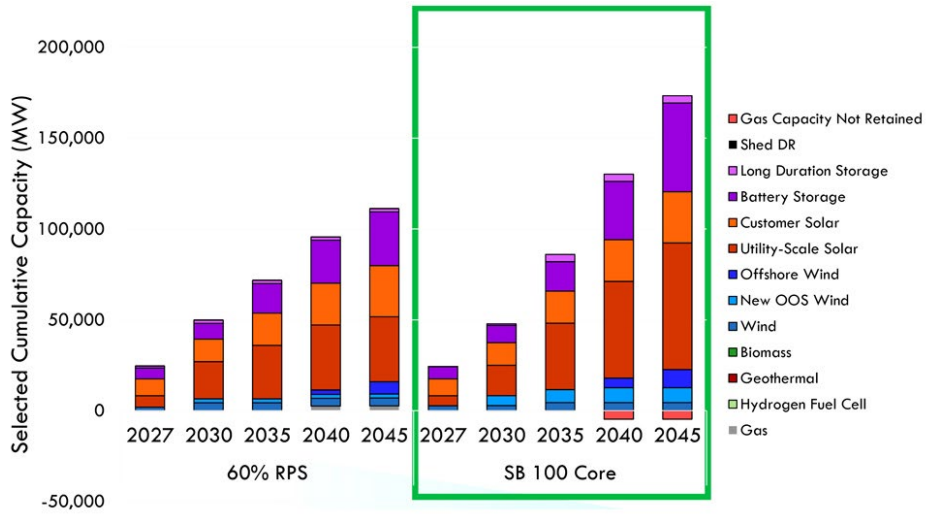
After last year’s rolling blackouts, there has been a growing call to retain aging natural gas plants until viable clean-energy substitutes can come online to provide reliability.

In her presentation, the CEC’s Gill said, “retaining some natural gas power capacity may minimize costs while ensuring an uninterrupted power supply during the transition to 100% clean energy.”

On May 21, the CPUC proposed that utilities procure an additional 1,000 MW to 1,500 MW of fossil fuel generation to avoid capacity shortfalls, which broke with nearly all state policy in recent years. (See *CPUC Proposes Adding 11.5 GW of New Resources*.)

“A failure to provide insurance to keep grid reliability is a far greater threat to public confidence and public health than running state-of-the-art fossil-fueled generators a few extra hours a year,” the proposed decision said.

Utilities that rely on natural gas generation and sell gas directly to consumers said the



The state needs 172 GW of new resources to reach SB 100’s target, the CEC says. | California Energy Commission

fuel could be partly decarbonized using carbon-capture technologies or by mixing it with green hydrogen, produced with excess solar power.

Jan Berman, director of energy strategy and innovation with Pacific Gas and Electric, said gas remains essential for grid reliability because it powers plants that meet peak demand.

“Like many here, we anticipate that decarbonized gas-fueled generation resources will be required in the long run to ensure peaking capability for California,” Berman said. “As California’s current fossil generation fleet begins to retire, these plants will be replaced by new generation that uses decarbonized gaseous fuels. This may be some combination of generation fueled by hydrogen, renewable natural gas ... and possibly fossil [fuels] combined with carbon capture and storage.”

“We think it’s important to maintain flexibility

for the pathways that will emerge as these technologies advance, and it’s really important for all of us to participate in ongoing research on the future of carbon-free gas generating resources,” she said.

Jeff DeTuri, policy and strategy manager at San Diego Gas & Electric, said the utility supports the goals of SB 100 but also remains concerned about resource adequacy.

“Natural gas is a critical partner to provide reliability to support renewable energy in California,” DeTuri said. “It needs to be supported by the joint agencies.”

The definition of a zero-carbon resource “should include combustion of renewable natural gas and green hydrogen and combustion of natural gas with carbon-capture sequestration,” he said. “SDG&E believes that these research types are essential to provide reliability.” ■

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ERCOT News



ERCOT, PUC Deal with 'Trauma' of February Storm

Agencies Focus on Legacy Media as Summer Heat Approaches

By Tom Kleckner

Communications staff from ERCOT and the Public Utility Commission told commissioners Thursday that they are working together to improve their practices and messages after February's near collapse of the grid led to long-term outages, hundreds of deaths and billions of dollars in damages.

"We realized we are dealing with a statewide populace that has been badly traumatized by the events of February," Andrew Barlow, the PUC's director of external affairs, said during the commission's open meeting Thursday.

He told commissioners that while social media are positive channels, the legacy print and broadcast media are "the best [way] to deliver information to the people of Texas." Barlow said communications staffers will engage directly with the "critical reporters" in the state's key markets to ensure they're up to speed with the language and protocols during any severe events this summer and into the future.

"We're making sure ... they're fully informed and fully connected so they can communicate with their audiences," Barlow said.

ERCOT was pilloried for its use of social media

in the runup to the February winter storm. Informal Twitter messages and the use of industry jargon did not adequately prepare Texans for the possibility of power outages, critics said.

The grid operator has since brought on Chris Schein, a 20-year veteran of Texas' electric industry, as its interim communications leader.

"It's been my job to communicate clearly and concisely," said Schein, who marked his 30th day on the job Monday. "One of the things that we heard from February is that ERCOT needs to communicate more clearly, and so we're implementing the practices and policies to do that."

"After talking with the policymakers, it appears you guys are on the right track," Commissioner Will McAdams said. "People are now familiar with ERCOT and the Public Utility Commission. We need to promulgate as many educational products as we can."

Before the meeting, McAdams filed a *memo* saying he would recommend ending a storm-based disconnection moratorium during the PUC's open meeting this Friday. His memo was supported by retail providers and several other companies (51812).



Chris Schein, ERCOT's interim communications leader (left), and Andrew Barlow, PUC's director of external affairs, explain their strategy to clearly communicate with the public. | *Texas Admin Monitor*

Thursday's meeting was designed as a work session to discuss addressing the various energy-related bills that have come out of the Texas Legislature.

"At the very least, these interim workshop open meetings will provide a way to work through the actual details before the decision points come up," McAdams said. ■



Commissioners Will McAdams (left) and Peter Lake conduct their first informational forum to develop solutions to prevent a repeat of the grid's near collapse during the February winter storm. | *Texas Admin Monitor*

ERCOT News



Texas Legislators Finish Work on Electricity Market — for Now

Continued from page 1

adjourned *sine die*, having spent four months lobbying lawmakers on behalf of industrial customers. While *reacquainting herself* with family and friends, she said legislators focused on the right issues in addressing reliability.

“They got done everything that needed to get done. The question is whether we have an eventful summer or not, and there’s no real reason to think we will,” Coleman told *RTO Insider*, referring to ERCOT’s healthy 15.7% reserve margin and the market’s greater attention to resource adequacy.

“Our message was it’s harder to do the work to understand the root causes and address those,” she said. “There wasn’t some big silver bullet to all of this, which is often what people want in a legislative process. This was not a situation that lent itself to that. SB3 really targeted the right issues and will go a long way in making sure something like February doesn’t happen again.”

The bill would not fund weatherization or add energy efficiency standards for homes and other infrastructure, but it would remove requirements that renewable resources pay ERCOT for backup power when their units are offline.

“I’m hoping we can start moving to the implementation phase of this. It’s going to take

some time, the ERCOT piece in particular,” Coleman said.

ERCOT would have until Sept. 1, when the legislation would become effective, to make any changes to its bylaws. Coleman’s attention is drawn more to SB3’s Section 18, which is directed at non-dispatchable generation and would mandate ERCOT establish requirements for ancillary or reliability services “appropriate” during extreme weather and low-supply conditions. It would also direct the Public Utility Commission to establish an emergency pricing program that takes effect when the high systemwide offer cap has been in effect for 12 hours in a 24-hour period.

Pat Wood, former FERC and PUC chair, praised Section 18’s language, which he called “very smart, very intelligent, very nuanced.”

“Section 18 tells the commission to go figure out how that’s going to work long term,” Wood said Friday as he drove home. “We have got to figure out how we keep dependable resources. Let’s not call them dispatchable resources, but dependable resources.”

Legislators also considered proposals by Berkshire Hathaway Energy and Starwood Energy Group Global to build natural gas-fired power plants that would sit on the sidelines of ERCOT’s energy-only market until needed. The proposals didn’t advance far; capacity market discussions never made the table. (See

Legislators “got done everything that needed to get done. The question is whether we have an eventful summer or not, and there’s no real reason to think we will.”

—Katie Coleman, TIEC

Berkshire Hathaway Offers Texas Emergency Power Supply.)

“What you really want here are capabilities that we know the regulators or the market model would support, because we just don’t have weather like [February] often enough and predictable enough to invest around,” Coleman said.

She also has her eyes on *SB1281*, which would reinstate a consumer-impact test of congestion costs and future load growth when ERCOT studies proposed transmission projects. The requirement disappeared from the criteria last decade when generators pushed back against a proposed economic project that would have brought low-cost generation into the Houston region, Coleman said.

“It gives ERCOT more flexibility to include the utilities’ load forecasts,” she said, noting staff currently use a banded approach.

The bill would also require ERCOT to assess the system’s reliability in extreme weather scenarios every two years.

Redefining ERCOT, PUC

During the session, lawmakers frequently said they were acting to “ensure this never happens again.” If so, SB2 left a few observers confused.

“One way to ensure ‘this never happens again’ is to redefine the organizations involved,” the R Street Institute’s Beth Garza said in an emailed statement. “After ERCOT and the PUC were ‘decapitated’ in the aftermath of the storm, they certainly have redefined both organizations.”

Garza, who directed the grid operator’s Independent Market Monitor until 2020, was referring to the mass resignations at both ERCOT and the PUC. Politicians criticized both organizations’ leadership in the aftermath



Texas House Speaker Dade Phelan gavels the 87th Legislature to a close. | *Texas House of Representatives*

ERCOT News



of the storm, with many pointing fingers at the grid operator's five out-of-state independent directors.

"I don't think it matters whether anyone thinks the changes are good or bad. The important thing is the change, and that everyone in a leadership role be a Texas resident," Garza said.

Consultant Alison Silverstein, a former adviser to Wood at both FERC and the PUC, disagreed. She said it's a "disservice" to "disqualify" out-of-staters from serving on the board.

"Although it is superficially attractive to have only Texas residents on the ERCOT board, the power industry here is a small community, and it's unlikely that the pool of candidates can be dispassionate, expert and unbiased on all the issues involved in running the ERCOT grid," Silverstein told *RTO Insider*.

She said using a "politically slanted" selection committee to pick the eight independent directors and the chair and vice chair— with the governor, lieutenant governor and the speaker of the House of Representatives each choosing a member — implies that new board members might have good connections and passed a political screen.

"We need board members with the best expertise, not board members with the best political answers," Silverstein said. "A better board selection committee that seeks to raise all aspects of ERCOT's performance should come from the full board itself, not from politicians."

One of SB2's requirements is that no more than two board members can be university professors. That has drawn snickers from some capitol insiders, who jokingly referred to the criteria as the Cramton Amendment in a dig at former Director Peter Cramton, professor emeritus of economics at the University of Maryland College Park. The academic was fluent in market design and frequently suggested taking ideas from other markets.

"An independent board that only has the interest of the grid and ERCOT as a whole is the right way to go," Coleman said. "Compared to some other proposals, this was a much better approach."

Legislators also sent several securitization measures to Gov. Greg Abbott for his signature. *HB4492* would use \$800 million from the state's "rainy day" account to create a financing mechanism that funds unpaid balances in the ERCOT market. The market was still *short almost \$3 billion* at the end of last week.

Two other bills, *HB1520* and *SB1580*, would securitize natural gas utilities and cooperatives, respectively, for costs incurred during the

winter storm. It remains to be seen whether that keeps Brazos Electric Power Cooperative, which owes the market almost \$1.88 billion, out of bankruptcy.

Senate language to give ERCOT customers a one-time \$350 credit on their bills failed to make any of the final bills.

Other industry legislation on its way to Abbott's desk include:

- *SB2154*, which would expand the PUC from three members to five and only require two commissioners to be "well informed and qualified in the field of public utilities and utility regulation." The other three would need

only five years of experience in business or government administration or as a practicing attorney, certified public accountant or professional engineer. Abbott is expected to move quickly to fill the bench so it can handle the work in front of it.

- *SB713*, which was revised to include the PUC into the Sunset Advisory Commission's current review cycle that determines which governmental agencies are still needed.
- *HB16*, which would ban electric retailers from offering wholesale-indexed products, such as those that led to five-figure bills during the storm. ■

ERCOT REFORM

IN THE 87TH TEXAS LEGISLATURE

SB 3 REORGANIZING HOW WE MANAGE OUR POWER GRID

SB 3 makes multiple reforms to ensure that Texas is prepared for future natural disasters, including:

Making rules preventing lengthy rolling blackouts

Issuing fines to utilities that are not prepared for severe weather events

Creating a statewide power outage alert system so that utilities can quickly react to outages

Making changes to the membership of the PUC to provide greater government oversight

Ensuring that all services necessary to provide power to Texas' homes and businesses are budgeted for and protected from weather emergencies

Creating the Texas Electricity Supply Chain Security and Mapping Committee to better prepare Texas' grid for potential supply-chain disruptions

SB 2 TARGETED ERCOT REFORM

SB 2 reforms the governance of the Electric Reliability Council of Texas (ERCOT) by:

- ⚡ Establishing residential requirements for board members
- ⚡ Requires members to have expertise in industry-specific areas
- ⚡ Prohibits those with fiduciary standing in the electric market from participating
- ⚡ Creates a board member selection committee with representation appointed by the Governor and legislature

MORE BILLS ON THE POWER GRID

HB 16 protects consumers from sky-high electric bills by banning the sale of wholesale indexed products to residential customers, which can leave them vulnerable to extreme fluctuations in electricity prices.

HB 17 ensures homeowners, builders, and businesses have the ability to decide how best to meet their energy needs by preserving customer choice and access to energy sources in Texas.

HB 1510 provides the funding mechanism necessary to ensure winterization of Texas' power grids.

HB 1520 provides securitization financing for gas utilities to recover extraordinary costs from Winter Storm Uri and requires a study of measures to mitigate similar future costs.

Gov. Greg Abbott's list of bills changing ERCOT and the PUC | Gov. Greg Abbott via Twitter

ERCOT News



ERCOT Moves Quickly to Address Monitor's Recommendations

By Tom Kleckner

ERCOT's Independent Market Monitor released its annual State of the Market [report](#) for 2020 last month, finding that the wholesale market performed competitively in 2020 but that February's arctic weather event necessitated raising "initial issues" that need to be addressed.

The Monitor offered two recommendations to address design flaws that "resulted in costly and inefficient pricing" during and after the winter storm. It promised a full analysis of the storm's effects for next year but suggested that regulators and market participants "consider corrective actions soon."

It also advocated that "urgent attention" be paid to including firm load shed in the reliability adder's calculation and capping ancillary services prices in the day-ahead market.

ERCOT staff wasted no time in responding to the Monitor's call. Kenan Ögelman, the grid operator's vice president of commercial operations, told the Public Utility Commission on Thursday that it is ready to file and co-sponsor with the Monitor two protocol changes incorporating the recommendations.

Ögelman said both changes could be implemented before the Texas summer heats up in July and into August. He assured the commission that both software changes would be stress tested.

The Monitor said real-time energy prices should reflect that firm load shed is an out-of-market action with a cost equal to the value of lost load (VOLL). Usually, that's equal to the systemwide high offer cap of \$9,000/MWh. It noted that because one additional megawatt of energy during those conditions allows ERCOT to serve an additional megawatt of load, energy's value must equal the VOLL.

"Efficient pricing during these extreme shortages is essential in an energy-only market because it provides necessary economic signals to increase the electric generation needed to restore the load in the short term and service it reliably over the long term," the Monitor said in the report.

During the February storm, firm load shed was initially excluded from the reliability adder, the Monitor said, causing prices to settle well below the cap. The PUC issued an emergency order to address the problem, but the Monitor

said ERCOT later in the week included other load not yet restored to the reliability adder's calculation, even though it was not subject to a load-shed instruction.

The result was 32 hours of prices clearing at \$9,000/MWh in what the Monitor called "billing errors." The PUC declined to reprice the \$16 billion in market transactions, despite political pushback. (See [Texas PUC Won't Reprice \\$16B Error.](#))

The Monitor is also recommending ERCOT use a penalty price for ancillary services (AS) that is equal to or less than the VOLL and by capping AS clearing prices for capacity at the VOLL. Day-ahead prices for the services were as high as \$26,000/MWh during the week of the storm and were regularly priced between \$16,000 and \$17,000, Ögelman told the PUC.

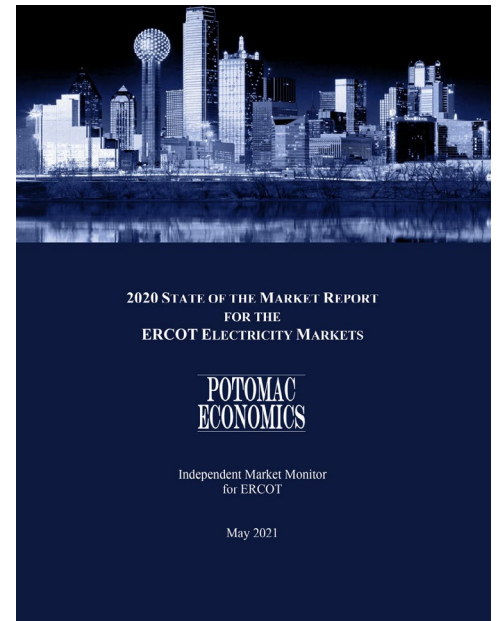
"Ancillary service prices more than VOLL violate fundamental economic principles and generate inefficient market outcomes," the Monitor said. "Since reserves are procured to reduce the probability of losing load, the value of reserves should not exceed the cost of actually losing load (the VOLL)."

The Monitor said this would prevent future "irrational ancillary services" until 2025, when real-time co-optimization (RTC) is scheduled to be added to the market. ERCOT has projected it will cost as much as \$55 million to add the RTC tool, which procures both energy and ancillary services every five minutes.

RTC's implementation has been delayed by staffing constraints as ERCOT continues to address the storm's effects on the system. The Monitor said the tool "promises to significantly lower costs and improve pricing during supply shortages." (See "Passport Pushed Back 18 Months," [ERCOT Technical Advisory Committee Briefs: April 28, 2021.](#))

Average energy prices dropped 45% to \$25.73/MWh in 2020, mostly because of a nearly 20% decrease in natural gas prices, the Monitor said. Real-time congestion costs were up 11% to \$1.4 billion, mostly because of additional renewable resources causing stability issues. It said offer-price caps in smaller areas of the system with transmission limitations helped prevent market power abuses in the wholesale market.

The ERCOT region added more than 7 GW of new wind and solar resources and about 400 MW of natural gas supply in 2020. At the same



ERCOT's IMM has released its 2020 State of the Market report. | Potomac Economics

time, the Monitor said about 1 GW of fossil resources retired in 2020.

The report makes three other recommendations to improve market performance:

- re-evaluate and redetermine the four competitive load zones every four years based on prevailing congestion patterns;
- apply a small bid fee to point-to-point (PTP) obligations that would be consistent with cost-causation principles and would incentivize participants to submit smaller bid quantities that are more valuable and likely to clear than no-charge PTP bids; and
- remove fixed-cost multipliers to ensure only marginal costs are included in mitigated offer caps.

It also keeps two recommendations from prior years:

- modify the allocation of transmission costs by transitioning away from the four-coincident-peak method so that the resulting incentive better reflects the true drivers for new transmission; and
- price ancillary services based on the shadow price of procuring each service.

The report, the first conducted entirely under new Director Carrie Bivens, retired six recommendations dating back to her predecessor's tenure. ■

ERCOT News



Former PUC Commissioners Weigh in on ERCOT Fixes

By Tom Kleckner

Former Texas regulators have combined to produce a report and make recommendations they hope will prevent additional weather-driven blackouts like those that devastated the state in February.

In the *report*, “Never Again: How to Prevent Another Major Texas Electricity Failure,” the Texas Public Utility Commission alumni say there is more work to be done to preserve a deregulated market they so lovingly helped birth and nurture during their tenure.

The gang of five ex-PUC commissioners — Pat Wood (1995-2001); Robert Gee (1991-1997); Becky Klein (2001-2004); Brett Perlman (1999-2003); and Judy Walsh (1995-2001) — and former senior regulatory adviser Alison Silverstein (1995-2001) offer 20 recommendations that either require further legislative action or “can and should be implemented by the PUC under existing authorities.”

“Everyone has an oar in the water. Our only oar in the water is our legacy,” Wood told *RTO Insider* on Friday. “We set this up. We’re not trying to sell soap to somebody. Once you have a job like the PUC chair, you never stop caring about it.”

Wood said the former commissioners and Silverstein have stayed close over the years. They texted frequently with each other during the February storm, he said, conversations that continued over Zoom and telephone as they worked on the report.

In it they remind their audience that the PUC’s mission is to protect customers, foster competition and promote high-quality infrastructure.

“Until this February, the Texas electricity system had largely achieved that goal,” they write, saying the ERCOT system has worked for more than 20 years with “strong, competitive, reliable electricity,” lower bills and an unprecedented level of new natural gas and renewable generation — all despite a 40% increase in the state’s population.

“The events of February 2021 resulted from several policy failures as well as from operational and planning failures across our state’s electric, natural gas and water systems,” the group went on to say in the report. “We must address the causes of this winter’s weather challenge and prepare to deal with emerging economic, technology and extreme weather realities.”



Former Texas PUC Chair Pat Wood testifies before Congress, one of his numerous public events following the February winter storm. | U.S. House of Representatives

To wit, the group called for several measures that strengthen housing efficiency, including retrofits for low-income and multifamily housing across Texas. Over half of the state’s homes were built before building energy codes with insulation requirements were adopted in 2001, they said, and more than 60% of Texas homes are heated with electricity instead of gas.

The report says that if those homes had energy-efficient building shells and heaters before Feb. 14, they could have reduced electricity demand by at least 15 GW, enough to drop peak demand down to 62 GW and offset the loss of most of the generators that failed during the storm’s first two days.

Wood said that was the legislature’s “only dropped ball,” which, considering the state’s reliance on natural gas, doesn’t make sense.

“Electric heat is so much more inefficient than gas heat,” Wood said. He said half of the winter-record demand on Feb. 14, a Sunday, was from residential heating. Demand skyrocketed to 69.2 GW that night, a winter record.

When Wood bought his current Houston home, built in 1964, he said the previous owner had monthly electric bills of around \$900. He spent \$8,000 to put foam insulation in his attic, cutting his power bill in half. “I had to spend that money, but a lot of people can’t,” he said.

The report further recommends future mem-

bers of the ERCOT Board of Directors be selected by the board itself, without any “external political screening to avoid any actual or appearance of political interference with critical, complex board decisions.” One bill that passed the legislature this year would mandate that members be Texas residents and be appointed by politicians. (See related story, *Texas Legislators Finish Work on Electricity Market — for Now.*)

“ERCOT would be better served if the board contains some non-Texans with valuable expertise and insight to complement and broaden the Texas perspective,” the former commissioners write.

Another major recommendation in the report urges Gov. Greg Abbott to direct Texas agencies to release all investigative findings on the February outages, with minimal protection of private companies’ commercial information, and to clearly define price gouging for natural gas under emergency conditions.

“I’m very concerned by the lack of substantive limits on natural gas supply and delivery performance and the lack of limits or definition regarding natural gas price-gouging,” Silverstein said in an email. “Since Texas lost a big hunk of natural gas production before and during the February Arctic event, restricting lightweight winterization requirements to the facilities in the electric supply chain won’t protect us from diversion of scarce natural gas to non-electric customers and scarcity-prompted natural gas price spikes.”

The commissioners also call for mandatory weatherization to minimum standards, with meaningful enforcement, of natural gas production and pipelines; requiring all critical



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ERCOT News



facilities to have two days of backup power in order to survive a brief grid outage or outage management failure; increasing the PUC’s staff and budget to stay abreast of market and oversight issues; and improving ERCOT’s demand forecasting abilities.

Wood said the report offers a roadmap for



Alison Silverstein | © RTO Insider LLC

future state legislation that would strengthen ERCOT and potentially save lives in future grid emergencies. He said the group intentionally waited to see what the legislature passed before releasing their report.

“We look at how we can fix what happened in this crisis, but in a way that is looking forward to the next one,” Wood said. “This is a profound issue that we’re dealing with around the world. How do you deal with extreme climate scenarios with increasing amounts of variable resources?”

Silverstein said the report has been emailed to the PUC, ERCOT, the authors of the omnibus energy bill and legislative committee members.

ERCOT spokesperson Leslie Sopko said the grid operator has received the report and appreciates the former commissioners’ work.

“We are in the process of looking at all of the recommendations,” she said in an email. “At ERCOT, we are always looking for ways that we can fulfill our commitment to Texans to have a reliable grid and healthy electricity market.”

The report, funded by the Energy Foundation and the Cynthia and George Mitchell Founda-

tion, was one of several recently released.

Energy Research & Social Science, a peer-reviewed academic journal, released a *paper* written by 10 researchers and others with industry ties, including Joshua Busby, Caitlin Smith and Michael Webber, familiar names to those covering the February disaster and its aftermath.

In “Cascading risks: Understanding the 2021 winter blackout in Texas,” they offer a “comprehensive retrospective” on what happened and the steps that should be taken to ensure that “weather-related energy crises do not lead to catastrophic outcomes in Texas again.”

Vistra filed a *study* with the PUC that found ERCOT prices would have been about 73% lower during part of the winter storm had not regulators set them at the \$9,000/MWh legal cap. Energy prices would have averaged \$2,404/MWh if they hadn’t been raised, London Economics International said.

The firm said ERCOT’s actions to implement the PUC order were “straightforward” and that it would be a “straightforward matter” for London Economics to unwind the adjustments and revert back to the real-time prices. ■

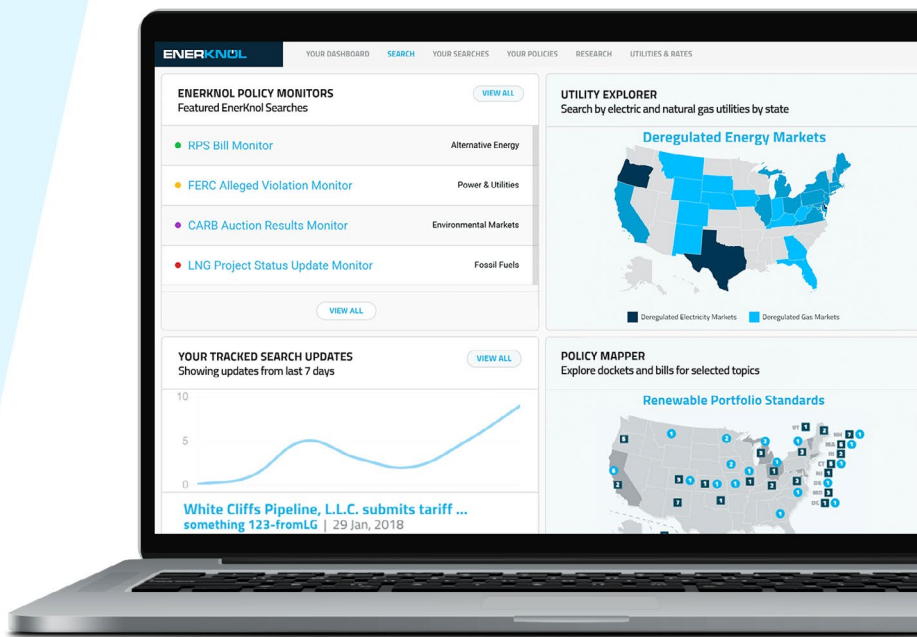
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ISO-NE News

NEPOOL Participants Committee Briefs

NEPGA Formally Approved for Membership

For more than 15 years, the New England Power Generators Association (NEPGA) participated in the NEPOOL stakeholder process through a standing invitation to attend meetings as a guest. Moving forward, NEPGA has a paid seat at the table.

The NEPOOL Participants Committee approved NEPGA's membership application as a non-voting Fuels Industry Participant at its monthly meeting Thursday. According to a memo from NEPOOL counsel Pat Gerity, of Day Pitney, distributed before the vote, NEPGA wanted to "formalize its participation in the NEPOOL stakeholder process."



Dan Dolan, NEPGA | © RTO Insider LLC

NEPGA President Dan Dolan told RTO Insider on Friday that there were "two fundamental reasons" NEPGA applied for membership.

"First is comparable treatment," Dolan said. "Historically, trade associations and other

advocacy groups have not been equal members, but that door opened a couple of years ago, when we saw the American Petroleum Institute and Advanced Energy Economy both seek and receive NEPOOL membership in large part because they didn't have the same guest status that NEPGA has been able to enjoy."

Dolan added that API and AEE have been able to formally propose amendments on their behalf, participate in executive session discus-

sions, such as the consideration of nominees to the ISO-NE Board of Directors. However, as guests in the NEPOOL process, NEPGA could not do either of those things.

"The second element is that formal process of participation. Every time NEPGA proposed an amendment or a concept in the NEPOOL process, it had to be sponsored by an entity that is a NEPOOL member. All [NEPGA] members are NEPOOL members, and so we were always able to do that. As you can imagine, one of the benefits of participating in a trade association is not having to have an individual company lead on a particular issue," Dolan said. "Even the process of getting sponsorship was ... 99% of the time, no issues whatsoever. There are a small handful of times in which no individual company wants to 'own or be behind' [an amendment], and it should be something that comes from the full NEPGA as an organization."

Dolan said he heard that NEPGA was not a Fuels Industry Participant throughout the membership process but decided to apply under that non-voting banner for a specific reason.

"We're not a direct participant in the market; as such we didn't seek a voting right," Dolan said. "I think that's better done by our individual companies and members rather than us as a trade group, but we still want to be able to participate and have the same governance rights as some of the other entities. So, it's simply a codification of the participation that we've largely had for almost 20 years now."

No voting member of the PC opposed NEPGA's membership, though there was an

abstention. Dolan said NEPGA "patted ourselves on the back slightly" after the vote.

"While we absolutely butt heads with a lot of folks on substantive issues, I hope my interpretation is that we participate in good faith and are an important part of the overall conversation," Dolan said.

Energy Market Value Drops

ISO-NE's energy market value for May was \$194 million (through May 25), down \$53 million from the updated April valuation and \$48 million higher than the same month in 2020, according to COO Vamsi Chadalavada's monthly report to the PC.

May natural gas prices were 0.6% lower than in April. Average real-time hub LMPs were 10% lower than in April, at \$23.32/MWh. Average natural gas prices and real-time hub LMPs were up 69% and 30%, respectively, from the same period last year.

Daily uplift or net commitment period compensation (NCPC) payments totaled \$1 million over the period, down \$1.7 million from the adjusted April value and \$1.4 million less than May 2020. NCPC payments were 0.5% of the energy market value.

Chadalavada said that four new projects totaling 209 MW applied for an interconnection study — one co-located battery and solar project, two solar projects and one natural gas project — with in-service dates ranging from 2022 to 2025. ISO-NE is currently tracking 290 generation projects, which total approximately 31,047 MW.

— Jason York

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ISO-NE News

Bill to Dismantle Maine's IOUs Moves Ahead



The Maine Legislature's Energy, Utilities and Technology Committee voted 9-2 in favor of recommending a bill to replace the state's investor-owned utilities with a consumer-owned nonprofit. | *Maine Legislature*

By Jennifer Delony

A bill that would ask Maine voters to decide whether a new consumer-owned nonprofit should replace the state's investor-owned utilities won approval from the Legislature's energy committee last week.

The bill (*LD 1708*) would direct the Public Utilities Commission to oversee an asset sale of Central Maine Power and Versant Power if it determines the utilities are unfit to serve. A new consumer-owned utility called Pine Tree Power would then purchase the IOUs' assets. (See *Legislators Considering Bill to Replace Maine's IOUs*.)

The Energy, Utilities and Technology Committee voted 9-2 on June 1 in favor of recommending that the Legislature pass the bill with

a package of minor amendments to clarify its existing language. Voters would take up the question of whether to move forward with the proposal in November, if the bill passes.

In voting against recommending the bill's passage, Rep. Steven Foster (R) said he is concerned that the board that would run Pine Tree would be "politically motivated." He also said that the bill does not properly consider what the status of current IOU employees would be after Pine Tree is established.

Rep. Nathan Wadsworth (R), who also voted in opposition, said he cannot support a government takeover.

"These companies are privately owned; they're not up for sale. And [in this bill], we are forcing them to sell," he said. "To me that's a government takeover of power, and I'm just not there

yet or probably ever."

While Committee Chair Mark Lawrence (D) said he had been on the fence, he voted in favor, adding that he could not find a reason why the proposal should not go to voters. His primary concern, he said, is how the transition will affect the state's objectives on climate change.

"There is risk in this, no matter what anybody wants to say, but there is also potential reward," Lawrence said.

A poll conducted in mid-May for the nonprofit coalition Our Power found that 75% of Maine voters strongly or somewhat support replacing the IOUs with Pine Tree. Our Power expects the bill to go to the House of Representatives for an initial floor vote this week. ■

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ISO-NE News

Energy Regulations Need to Support Green Tech, Eversource Says

By Emily Hayes

States with ambitious climate goals need to revamp their regulations to support geothermal and low-carbon hydrogen projects to meet their targets, said Nikki Bruno, director of clean technologies at Eversource Energy.

In Massachusetts, for example, “the Future of Gas proceeding will net out some good frameworks that we can provide to our regulators to say, ‘here’s how we want to pivot with the targets that are set out,’” Bruno said at the New England Energy Conference and Exposition last month.

The Department of Public Utilities opened the gas proceeding last fall and directed the state’s local gas distribution companies to determine which pathways to a net-zero industry are feasible, such as low- to no-carbon hydrogen or geothermal energy.

Reports from the distribution companies are due in March 2022.

“Policy does go hand in hand with the technology,” Bruno said. In Massachusetts, there is no regulatory framework for geothermal energy. The state’s comprehensive climate bill signed into law in March was the first piece of legislation that paved the way for gas companies to take on renewable energy projects, such as solar, and investigate options such as geothermal, she said.

Geothermal energy and hydrogen fuel technologies are not new, but widespread use of them is uncharted territory for utilities in the highly developed regions of the Northeast. State energy regulators can support decarbonization by overseeing the creation of a shared pipeline network between service areas, Bruno said.

“Everything underground is just as tight as the real estate above ground,” she said. “Patience and collaboration going forward is needed; these are complex problems that are not going to be solved overnight.”

Eversource is planning a geothermal energy pilot that would include the installation of more than 100 ground source heat pumps in a mixture of low- and middle-income communities, homes and businesses, depending on the final location of the project.

Policy makers who pursue the “singular pathway of electrification to achieve emissions reduction objectives and energy system resilience actually hinder their ability to succeed,”



In Massachusetts, there is no regulatory framework for geothermal energy systems like the heat pump shown here. | Shutterstock

Rick Murphy, managing director of energy markets at the American Gas Association, said.

“The question, or the opportunity as we see it, is how can we leverage the nation’s vast gas pipeline network — 2.6 million miles to be exact — to deliver lower-carbon energy sources like renewable natural gas and hydrogen,” Murphy said.

More Pipelines

Technologies like hydrogen and geothermal, however, are realistically “a little ways out,” said Caitlin Tessin, director of market innovation with gas transmission company Enbridge.

Renewable natural gas is in the “earliest phase of opportunity,” Tessin said during the conference. Created by capturing methane emissions from organic waste, landfills or wastewater treatment plants, renewable natural gas can use existing gas infrastructure to heat homes and reduce emissions in the process.

Enbridge broke ground last year on a \$42

million renewable natural gas plant in Ontario, Canada, that is expected to generate enough energy to heat 8,750 homes and reduce GHG by 48,000 tons every year, according to the company. It also recently received approval to blend hydrogen into a test portion of its gas network in Ontario.

There are opportunities for expansion along existing pipeline rights-of-way to optimize existing infrastructure in the Northeast to meet demand, Tessin said.

But new pipeline expansion does not look promising.

There is little chance that there will be any new pipeline installations in New England anytime soon, John Rudiak, senior director of gas supply for gas utility subsidiaries at Avangrid, said during the conference.

“In terms of possible small-scale expansions of existing systems, if they’re needed to meet customer demand, I can see them going into effect,” he said. ■

ISO-NE News

Vt. Energy Plan Update Will Shift to Strategic Narrative

By Jennifer Delony

Vermont energy officials will be taking the state's comprehensive energy plan (CEP) update in a new direction this year by giving it a strategic focus.

"We're going to look at the tradeoffs among different policies, milestones for identifying success and the need for modification," said Ed McNamara, director of the Regulated Utility Planning Division at the Vermont Department of Public Service (DPS).

As part of the update, the department will identify uncertainties that could affect state policy success, McNamara said during the first of four CEP regional outreach sessions on June 1.

The state's current plan, which was completed in 2016, is based on meeting a 90% renewable energy target by 2050 through 300 recommendations across the heating, transportation and electric sectors. The update will keep the 90% target while looking instead at potential market fluctuations in those sectors and how the state might need to accommodate them in the future, McNamara said.

In addition, the update will make recommendations for enhanced energy planning and climate and renewable energy pathways and recognize standards for regional energy planning that were developed after the state completed the 2016 plan.

DPS also must ensure that the update aligns with work currently underway by the [Vermont Climate Council](#) to develop the state's first climate action plan. The 2020 Global Warming Solutions Act directs the council to complete that action plan by the end of this year. It also sets greenhouse gas reduction targets to 26% below 2005 levels by 2025 and 40% and 80% below 1990 levels by 2030 and 2050, respectively.

There is "significant overlap" between the energy and climate plans, McNamara said.

The primary responsibility of the climate plan is to identify cost-effective GHG reduction measures, going beyond energy to address other issues such as sequestration and non-energy sector emissions. The energy plan, however, will meet the state's GHG reduction requirements "in an affordable manner while maintaining electric system reliability," he said.

DPS expects to release a draft plan in Septem-



Workers in Vermont install a solar awning that will support the state's energy plan of meeting 90% of its energy needs from renewables by 2050. | [SunCommon](#)

ber and publish the final plan in January. It will hold three more regional stakeholder *meetings* to help inform the plan.

Regional Planning

During its first outreach session, DPS heard from three regional planning commissions in southeastern Vermont about their energy plans and challenges.

All three regions have prioritized weatherization in their plans, but representatives say on-the-ground progress is not moving quickly enough.

For the Mount Ascutney Regional Commission (MARC), measuring the success of weatherization efforts is difficult.

"It's really hard, it turns out, to quantify or to categorize what weatherization means," Otis Munroe, MARC's assistant planner, said. "There are a lot of DIY and incremental projects ... that make it much more difficult to track where we are and what's working and what isn't."

A high proportion of the region's housing stock is old, making many homes more expensive to weatherize and heat, he said.

The Two Rivers-Ottawaquechee Regional Commission (TRORC) says its data show low weatherization rates for the area.

"Our region has over 29,000 residential units, and of those, only 144 were weatherized as of 2019," Victoria Littlefield, regional planner at TRORC, said. The progress, she added, may be underestimated because weatherization data is so hard to track, but the region is "definitely behind."

Mount Ascutney and Two-Rivers also are struggling with residential building energy code enforcement.

"While there are residential building energy standards in practice, they are not being followed in most situations," Geoff Martin, intermunicipal regional energy coordinator at TRORC, said. "Our towns don't have a way of enforcing the standards."

Building a strategy for enforcement at the state level, he said, would help increase compliance.

Local Planning

Regional planning commissions in the state also work directly with municipal energy committees to guide local planning efforts. They see a need for better state-level support at the local level.

In its outreach to the region's towns, the Two-Rivers commission has received feedback from local officials that state data for solar and wind potential is not accurate.

"Those maps are created based on a formula that DPS came up with, but ... the formula uses state data layers that aren't updated as often, so it's not quite reflective of what's happening on the ground," Littlefield said. She recommended that the state consider updating those layers so towns can have a "better picture" for siting renewable generation.

And the Windham Regional Commission has found that local energy committees could use some funding.

"Our rural communities are often reliant on volunteers for energy committees, and they have little time [or expertise] to ... achieve their energy reduction goals," Margo Ghia, regional planner of the commission, said.

Funding for local-level energy planners, educational opportunities and access to better data would go a long way in helping committees in their work, she said. ■

MISO News

MISO Warns of Extreme Future Ramp Needs After April Event

By Amanda Durish Cook

MISO said last week that a steep plunge in wind production in late April is a harbinger of the acute ramping needs to come.

The RTO said it experienced a sudden loss of 4 GW of wind generation during an evening peak April 21. Paired with peaking load between 7 and 8 p.m. EST, that led to about 6 GW in net system ramping needs. MISO was ultimately forced to deploy contingency reserves to improve frequency's performance.

J.T. Smith, the grid operator's senior director of operations planning, called the ramp situation "fairly excessive."

"Personally, I believe it's not the last time we're going to see this, and I think it's going to become more common," Smith said at a Reliability Subcommittee meeting June 3.

Congcong Wang, with MISO's day-ahead market and reliability commitment division, agreed that more wind and solar generation will make dramatic ramping needs commonplace.

"This is definitely the most extreme ramping event in the history of MISO ... and it's only the

beginning," Wang said. "It was a race against the clock, and our operators worked to make commitments. ... It was a stressful evening in the control room."

Wang said wind forecasts underestimated pressure changes and the dip in wind speed.

James Bostwick, a balancing authority operator, said the experience was "a very disturbing picture," with operators managing a 100- to 150-MW drop of wind generation per minute.

The extreme ramp led to an 18-minute violation of NERC's BA ace limit (BAAL). The agency requires BAs to report BAAL violations that last 30 minutes or longer.

Otherwise, April was a relatively calm month for MISO.

Systemwide demand averaged just 66 GW, with a 78.2-GW peak occurring on April 1.

"April was another calm month," Smith said. "Thank goodness, as we were in the heat of outage season."

Stakeholders Urge Return to In-person Meetings

Smith said that MISO is pursuing a "soft open-

ing" for its office staff through the summer "so it's not such an abrupt transition as when we were kicked out of our offices last spring."

"MISO is on a path to back-to-normal, and it's going to take place over the summer," he said.

The RTO's control room operators are no longer sequestered and have returned to MISO's headquarters in Carmel, Ind., for all shifts.

However, Smith said MISO probably won't hold on-site, in-person stakeholder meetings until next year.

Customized Energy Solutions' Ted Kuhn asked that staff consider the return of in-person meetings sooner than early 2022.

"I would encourage MISO to rethink this. ... There's just frankly no reason for this to go until December," he said, citing widespread vaccine availability and falling case numbers. Kuhn said if MISO didn't start planning in-person meetings, stakeholders will likely begin gathering on their own.

"I personally find in-person meetings invaluable in terms of hallway meetings and being face-to-face with MISO staff," Ameren's Ray McCausland added. ■



| Pattern Energy

MISO News

MISO Annual Tx Investment Falls in 2021

By Amanda Durish Cook

MISO's annual transmission expansion costs are trending downward after two recent robust packages.

The RTO's draft 2021 Transmission Expansion Plan (MTEP 21) includes 358 new projects valued at \$3.11 billion. During the previous two years, MTEP investment has been around \$4 billion for roughly 500 projects a year, the priciest packages since the RTO's 2011 \$6.7 billion, 17-project Multi-Value Project portfolio.

The MTEP 21 package will undergo multiple alterations and reviews before the Board of Directors puts it to a vote in December.

Most of this year's investment — \$2.07 billion across 241 projects — falls into MISO's "other" project category, which includes those that address load growth, reliability, existing assets' age and condition, and other local needs. It also includes 67 baseline reliability projects valued at \$619 million and 49 generator interconnection projects at \$319 million.

The MISO South planning region currently accounts for 41 projects and \$582 million. MISO West will receive a larger share of this year's investment.

Zheng Zhou, manager of expansion planning, said MISO West's proposed projects — which includes Minnesota, Iowa, parts of the Dakotas and western Wisconsin — will *cost* around \$1.04 billion, up from \$1.03 billion in MTEP 20.

"For the West region, we're actually seeing a slight increase ... in investment dollars from MTEP 20," Zhou said during a West subregional planning meeting June 1.

The largest project in MISO West is a new, \$71 million, 161-kV line and breaker stations proposed by ITC Midwest in Southern Iowa. The project is needed for reliability and is double the cost of any other proposed project in the region.

MISO West has been routinely singled out by stakeholders for its scarce transmission capacity and prohibitively expensive system upgrades for interconnecting generation. (See [MISO West Risks Becoming 'Dead Zone,' Stakeholders Warn](#).)

The Natural Resources Defense Council's Sustainable FERC Project *calculated* late last year that about 35 GW has withdrawn from MISO's



| MISO

interconnection queue in recent years because of inadequate transmission capacity.

The MTEP 21 doesn't include any projects from MISO's ongoing long-range transmission plan. The grid planners have said the first long-term projects could be approved later this year. (See [Modeling Hitches Delay MISO Long-range Tx Work](#).)

Stakeholders asked how the MTEP 21 plan might interact with the long-range planning. Zhou said that while the processes are considered separate, both MTEP and long-term planners are aware of one another's work.

"I'm very interested in how we're going to integrate the normal MTEP cycle with the course of the [long-range transmission plan]," WEC Energy Group's Chris Plante said. He added that some long-range projects might negate the need for other reliability projects in the annual planning cycles.

During a South subregional planning meeting Wednesday, MISO's Edin Habibovic said while MISO planners are coordinating on both

MTEP 21 and the long-range plan, some long-range projects could supplant smaller reliability projects.

"There could be some overlap in those needs and how they resolve," Habibovic said. "It's going to take some coordination."

Clean Grid Alliance's Natalie McIntire urged MISO to look for ways to combine projects in the MTEP 21 package. She noted that the grid operator hardly ever suggests more efficient project alternatives to transmission owners' proposals.

"MISO, it seems to me, has the best view of the system and the best view of the projects being proposed to make sure they're cost effective," McIntire said.

Zhou said with so many of the proposed projects being hyperlocal this year, it's difficult for MISO to recommend substitutes.

"It's hard to find alternatives to these types of projects," he said. ■

MISO News

Regulators Press on SPP-MISO Rate Pancaking

By Amanda Durish Cook

MISO and SPP state regulators, eager for the RTOs to address rate pancaking, are trying to find ways to inventory the instances and costs of duplicate transmission charges along their seams.

The MISO-SPP Seams Liaison Committee (SLC), comprised of regulators from the Organization of MISO States (OMS) and SPP's Regional State Committee (RSC), met virtually last week with their newly formed rate pancaking working group.

American Clean Power Association's Daniel Hall urged regulators to study pancaked rates' adverse cost impacts on long-term supply contracts.

"This has real impacts on consumers, on the rates they pay," he said during the June 4 call.

American Electric Power and other utilities

have complained about the transmission service fees involved with serving load on both sides of the RTOs' borders. Some, like Missouri River Energy Services, a member of both MISO and SPP, have split their power supply in order to avoid paying for SPP transmission service.

Some in the working group suggested that regulators ask MISO and SPP members to quantify their annual pancaking costs through a survey.

Others said researching MISO and PJM's elimination of rate pancaking years ago could help guide regulators' recommendations for MISO and SPP.

"I'll say it was a long process to go through that," said Missouri Public Service Commission economist Adam McKinnie.

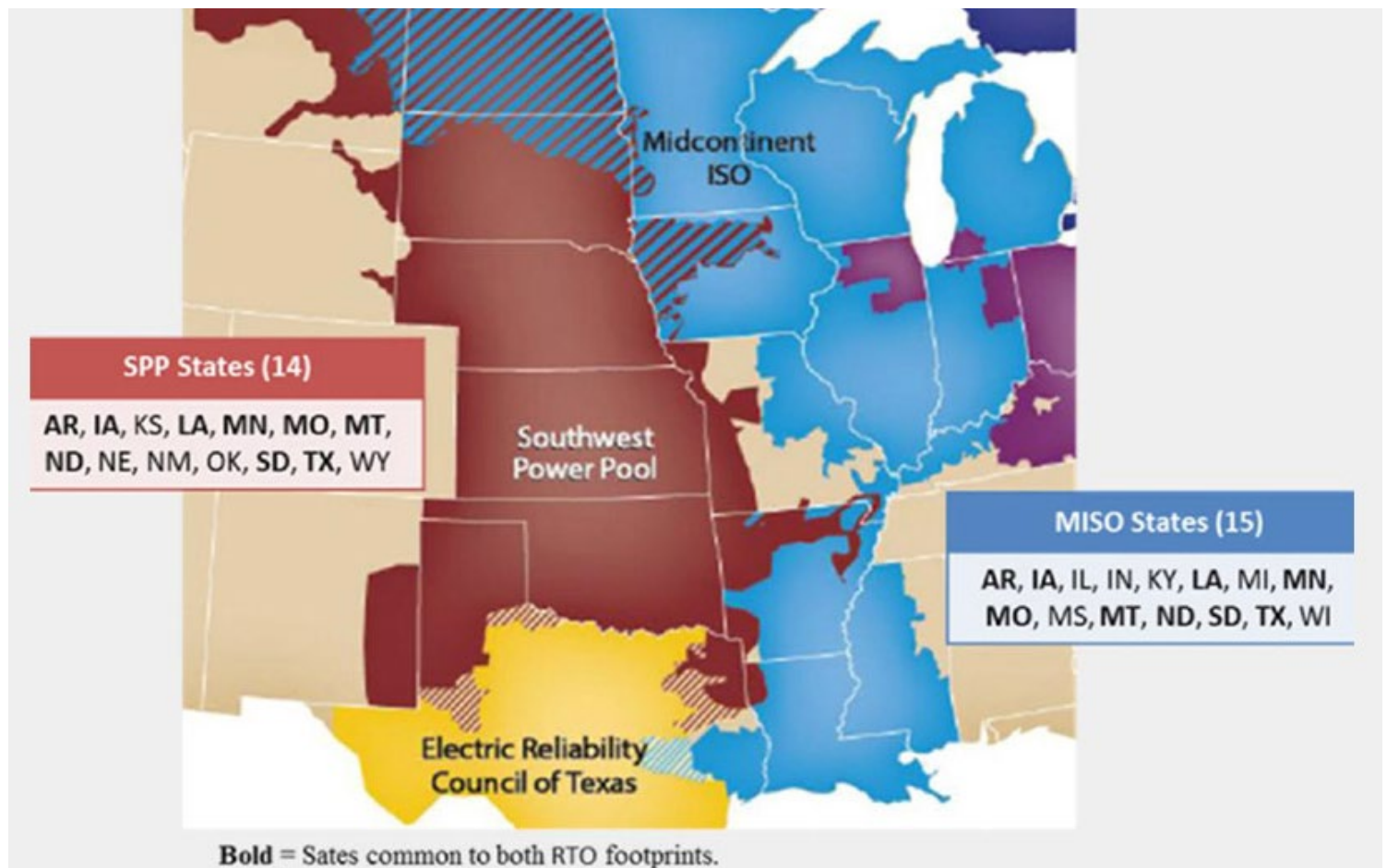
Xcel Energy's Carolyn Wetterlin pointed out that new flows created from any MISO and SPP interregional projects might also be sub-

jected to pancaking charges. MISO and SPP are pursuing an interregional study that could result in transmission projects to help ease their respective logjams in their generation interconnection queues. (See [MISO-SPP Targeted Interconnection Study Moves Forward](#).)

"With rate pancaking, you're paying for the benefits of the project, but you're also paying for transmission service associated with that project, so it's like a double pancake," Wetterlin said.

Had the RTOs pursued the \$5.2 million Split Rock-Lawrence project in South Dakota in 2017, the route would have looped from MISO into SPP then back to MISO, triggering pancaked rates. (See [MISO Axes Remaining SPP Interregional Project](#).)

The OMS and RSC's working group is working through how it might collect data on the fees. Regulators promised more information for the SLC's next meeting July 15. ■



The MISO-SPP seam | [Organization of MISO States](#)

NYISO News



NYISO Soliciting Stakeholder Input on Changes to BSM

By Michael Kuser

NYISO on Thursday unveiled a plan and timeline for revising its buyer-side mitigation (BSM) rules to expand resources' exemption eligibility by the end of the year.

The first *draft* of NYISO's 2021 Master Plan, which will be finalized by year-end, lists the ISO's Comprehensive Mitigation Review project as key, saying it will simplify the BSM process and "mitigate or eliminate BSM risk" for resources necessary to achieve New York's clean energy goals. (See [NYISO Outlines Goals for Capacity Market](#).) The state's Climate Leadership and Community Protection Act (CLCPA) requires the procurement of huge amounts of renewable energy resources to get to 100% zero-emission electricity by 2040.

NYISO is asking for stakeholder feedback in the form of the following questions:

- Should changes to BSM be focused primarily on exempting CLCPA resources, and how would such resources be defined?
- Should an exemption be explicit, or implicit/mechanical?
- Should the changes be focused on allowing revenues for attributes valued by state policy and not procured by the NYISO-administered wholesale markets?
- Should NYISO consider an approach similar to PJM's *proposal* in April to push minimum offer price rule (MOPR) determinations to FERC? (See [PJM Proposes Shifting MOPR Determinations to FERC](#).)

"We're going to try to look at the broader BSM reforms ... and one of the quick wins that we continue to look for some guidance on, and we're hopeful that moves forward, is the Part A rules. We still find that if those got approved, that would certainly take some pressure off in the short run," Michael DeSocio, NYISO director of market design, said in a *presentation* to the Installed Capacity Working Group. Part A exempts a new resource from BSM if the forecast of capacity prices in its first year of operation is higher than the default offer floor.

"I'd really like folks to think through how we might be able to devise such a mechanism and how we would justify that as you move it down to FERC," DeSocio said. "We're really trying to come up with a set of rules that will stand the test of time and we don't need to constantly deal with new Band-Aids." ■

- **Begin BSM discussions with stakeholders in early May on a proposed approach**
 - Although the NYISO is not ready to make a proposal, the NYISO is working diligently to explore all options that would meet stakeholders expectations and allow the ICAP market to continue to meet the just and reasonable standard
- **Discuss Capacity Market Accreditation improvements that would allow the ICAP market to operate effectively with large modifications to BSM**
- **The updated plan is below**



NYISO's plan and high-level timeline for modifications to its BSM rules | NYISO

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PJM News



Stakeholders Discuss PJM Capacity Auction Impacts

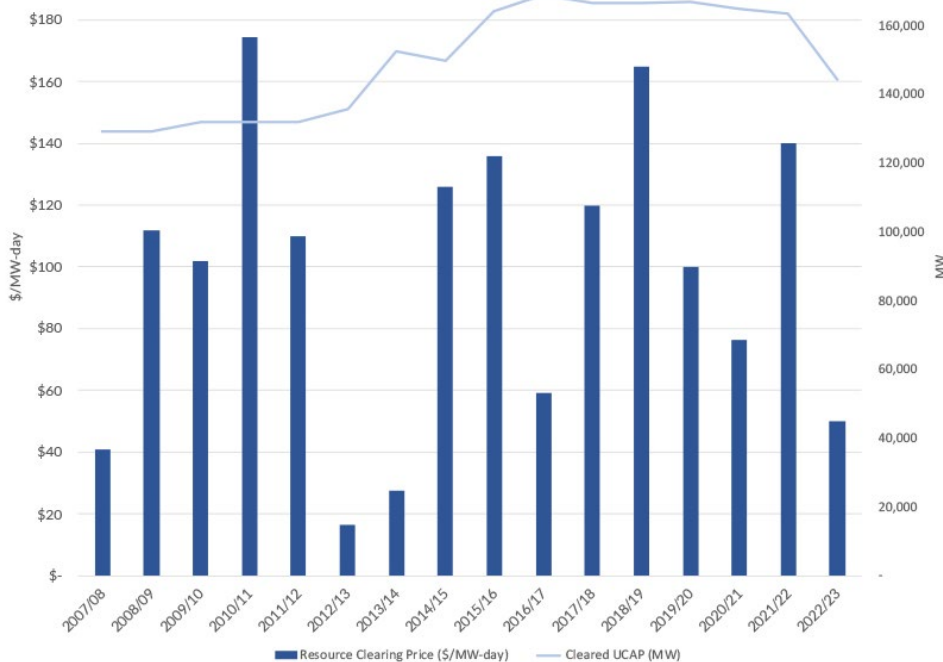
Continued from page 1

4,460 MW compared to the last auction, adjusting for FRR elections. But Exelon (NASDAQ:EXC) reported in a Thursday [filing](#) with the Securities and Exchange Commission that its three units in the ComEd region – Byron (2,347 MW), Dresden (1,845 MW) and Quad Cities (1,403 MW) – failed to clear the auction.

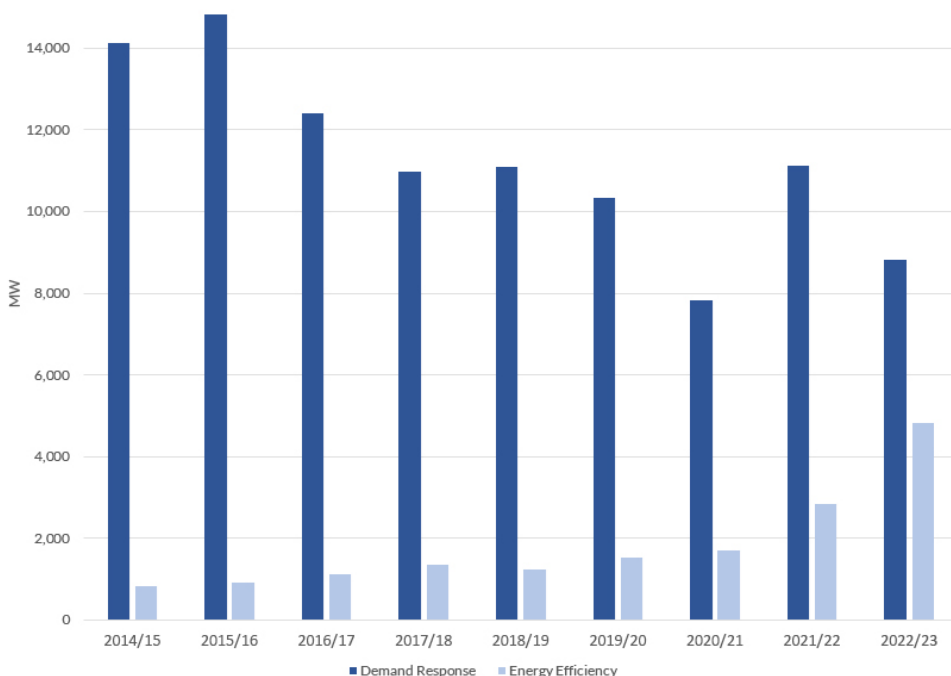
Exelon already announced in August that it intended to prematurely close the Byron and Dresden plants this fall. (See [Exelon to Close Ill. Nukes as Gov. Touts Clean Energy Plan.](#)) Exelon said it will continue operating Quad Cities because of state subsidies provided under the Illinois Future Energy Jobs Act. The company said those same subsidies that subjected it to the MOPR prevented the plant from clearing.

“The result is that customers in Northern Illinois and throughout PJM will pay for more capacity from polluting generation instead of securing carbon-free megawatts from Quad Cities, at what would have been a lower cost absent the MOPR,” Exelon said.

Exelon’s Braidwood and LaSalle nuclear plants were able to clear the capacity auction, the company said, but also face premature retirement “due to unfavorable market rules



The RTO resource clearing price for 2022/23 was the lowest since 2013/14. | © RTO Insider LLC



Energy efficiency has grown steadily since 2014/15 while demand response has seen increases and decreases year-to-year. | © RTO Insider LLC

that favor emitting generation.” The company said a commitment to operate the two plants through May 2023 will provide a window for the logistical and technical planning necessary

“to ensure a safe and orderly retirement in the event policy changes are not enacted.”

Exelon has been lobbying the Illinois legislature for years to provide support to its nuclear plants in the state. Media reports indicate Gov. J.B. Pritzker struck a deal late last month to charge ComEd customers more to support the Dresden, Byron and Braidwood nuclear plants, but details of the deal have yet to be officially made public.

Vistra (NYSE:VST) said in a press release it had cleared 7,218 MW at a weighted average price of \$66.89/MW-day for a total of \$176 million. “Including Vistra’s incremental revenue of \$55 million to \$60 million from existing retail bilateral sales above the capacity auction clearing price, Vistra’s total revenues for the period as of June 2, 2021, are approximately \$231 million to \$236 million,” it said.

Renewables had their biggest incremental increases ever in 2022/23, with wind adding 355 MW of new capacity and uprates and solar adding 1,491 MW. But they were still dwarfed by natural gas, which represents about three-quarters of all additions. Combined cycle plants added 5,943 MW and combustion turbines added 688 MW.

Generation’s success in clearing the capacity auctions has dropped from near 100% to below 90% as demand response and energy effi-

PJM News



ciency have played larger roles. But generation still represents 91% of capacity resources.

The auction showed a continuation of energy efficiency's steady growth since 2014/15. DR was down, continuing its ping-ponging between increases and decreases year-to-year.

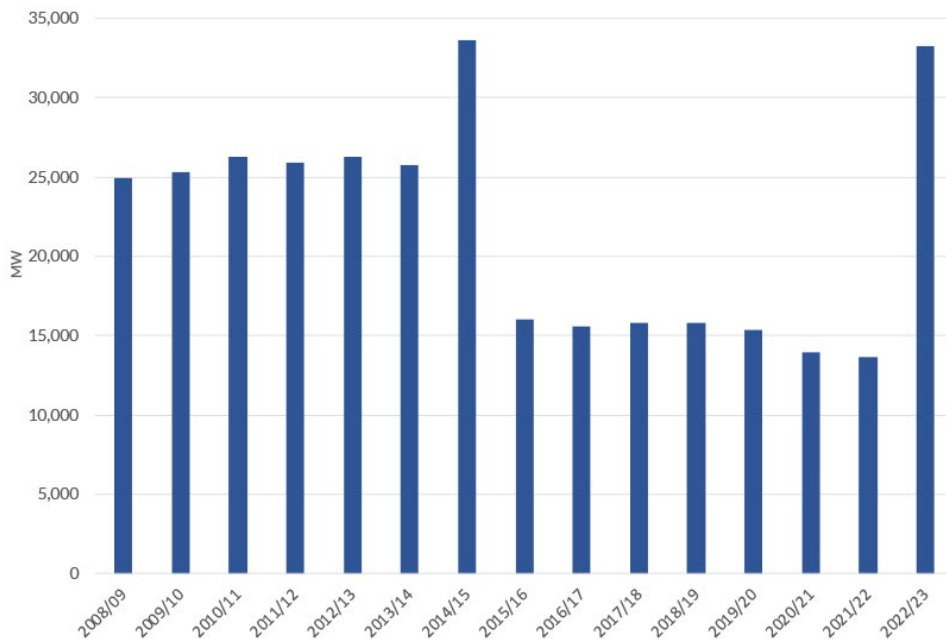
Market Power

Another constant in the auction was the presence of market power. PJM said the RTO as a whole failed the three-pivotal-supplier test, triggering market power mitigation for all existing generation resources. That limited offers by existing generation resources to their approved market seller offer cap (MSOC).

In March, FERC ordered PJM to revise the MSOC, siding with the arguments made in separate complaints filed in 2019 by the Independent Market Monitor and several consumer advocate groups (EL19-47). The Monitor said the MSOC has been inflated by the "unreasonable and unsupported" expectation of 30 performance assessment hours (PAHs) annually. (See *FERC Backs PJM IMM on Market Power Claim.*)

Monitor Joe Bowring said in an interview that he believes the MSOC issue allowed market power to be exercised in the latest auction, and plans on referring "a number of participants" to FERC as the commission requested in the March order.

Bowring said many dynamics influenced the



Fixed resource requirement (FRR) elections were the second-highest ever for 2022/23. | © RTO Insider LLC

clearing price, including a reduction in demand because of PJM's reduced load forecast and an increase in transmission into key areas like ComEd and PSEG. He said Dominion Energy Virginia's choice of the FRR option also had a "downward effect on prices" for the rest of PJM.

Bowring said he expects to release a report on the auction results within a month.

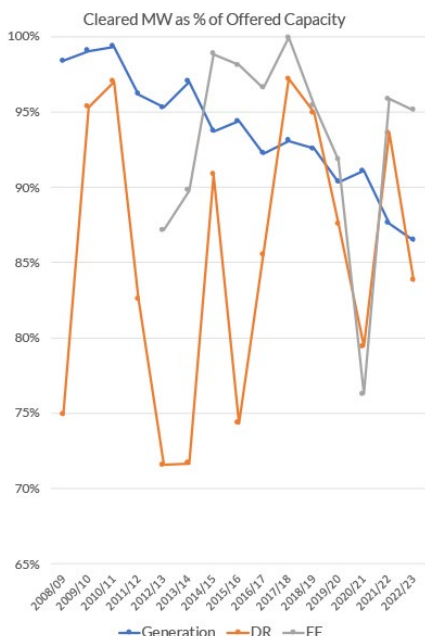
'No Urgency' on MOPR Changes

Other PJM stakeholders urged the RTO and FERC to reconsider any hasty action on MOPR reforms, saying the auction results showed the competitiveness of renewable resources in the market.

Todd Snitchler, CEO of the Electric Power Supply Association (EPSA), said the results of the capacity auction provided several key take-aways, including "no urgency to rush additional reform" of the MOPR. Snitchler said EPSA has advocated that PJM run auctions under the current MOPR rules to see the results before making dramatic changes.

Snitchler said the results of the latest capacity auction demonstrate PJM's current path to eliminate the MOPR doesn't have to be rushed and that stakeholders have time to "holistically address market reforms." He said a well-designed approach to reforms can ensure that reliability is maintained while costs are affordable and carbon emissions goals are accomplished.

"The application of the MOPR did not raise prices for PJM consumers," Snitchler said. "Nor did the application of the MOPR provide a financial windfall to fossil generators. Today's results can, at long last, put an end to speculation — from all sides — about market outcomes." ■



Generation's success in the capacity auctions has dropped from near 100% to below 90% as demand response and energy efficiency have played larger roles. But generation still represents 91% of capacity resources. | © RTO Insider LLC

PJM News



Capacity Prices Drop Sharply in PJM Auction

Wind, Solar, Nukes, Gas Gain; Coal Drops

By Rich Heidorn Jr.

Capacity prices in PJM fell sharply for delivery year 2022/23, the RTO announced Wednesday, with rest-of-RTO prices dropping by nearly two-thirds to \$50/MW-day and prices in the Eastern and Southwest Mid-Atlantic Area Council (MAAC) regions falling to their lowest on record.

Nuclear generators, natural gas, renewables and energy efficiency increased their market share, while coal saw its contribution shrink.

Overall, the Base Residual Auction, held May 19 to 25, cleared 144,477 MW of resources for the June 1, 2022, through May 31, 2023, delivery year, at a cost of \$3.9 billion. That is \$4.4 billion less than the 2018 auction for 2021/22, after adjustments for an increase in those choosing to skip the auction by using the fixed resource requirement (FRR). The auction gives PJM a 19.9% reserve margin, above the 14.5% requirement, including load and resource commitments under FRR.

Prices in five areas – ComEd (\$68.96), Duke Energy Ohio and Duke Energy Kentucky

(\$71.69), MAAC (\$95.79), Eastern MAAC (\$97.86) and Baltimore Gas and Electric (BGE) (\$126.50) – cleared above the overall PJM price.

The MAAC region comprises Atlantic City Electric, BGE, Delmarva Power, Jersey Central Power & Light, Met-Ed, PECO Energy, Penelec, Pepco, PPL, Public Service Electric and Gas, PPL and Rockland Electric. The Eastern MAAC region is Atlantic City Electric, Delmarva, JCP&L, PECO, PSE&G and Rockland Electric.

The 2021 results continued the historical year-to-year price volatility. Prices in most of the RTO had cleared at \$140/MW-day in 2018, an 83% increase from the year before. (See [Capacity Prices Jump in Most of PJM.](#))

Load Forecast, CONE, Tx Capacity Cited

Stu Bresler, PJM's senior vice president of market services, said the drop resulted from a lower load forecast, a reduction in the net cost of new entry (CONE), increased transmission capacity into constrained locational deliverability areas (LDAs) and lower offer prices.

PJM said net CONE was down 19% for the RTO and 28% in the ComEd LDA. Net CONE

“anchors the demand curve,” he said. The lower load forecast and the increased transmission capacity in LDAs shifted the demand curve to the left.

“If you combine a shift down and to the left of the demand curve and a downward shift in the supply curve, those two conditions together will result in lower prices,” he said.

Wind resources cleared 1,728 MW (an increase of 312 MW over 2018) while solar cleared 1,512 MW (+942 MW), increasing the RTO's total nameplate capacity for those resources to 11,761 MW.

Energy efficiency rose by 1,979 MW (70%), while demand response declined 2,314 MW (-21%) to 8,812 MW.

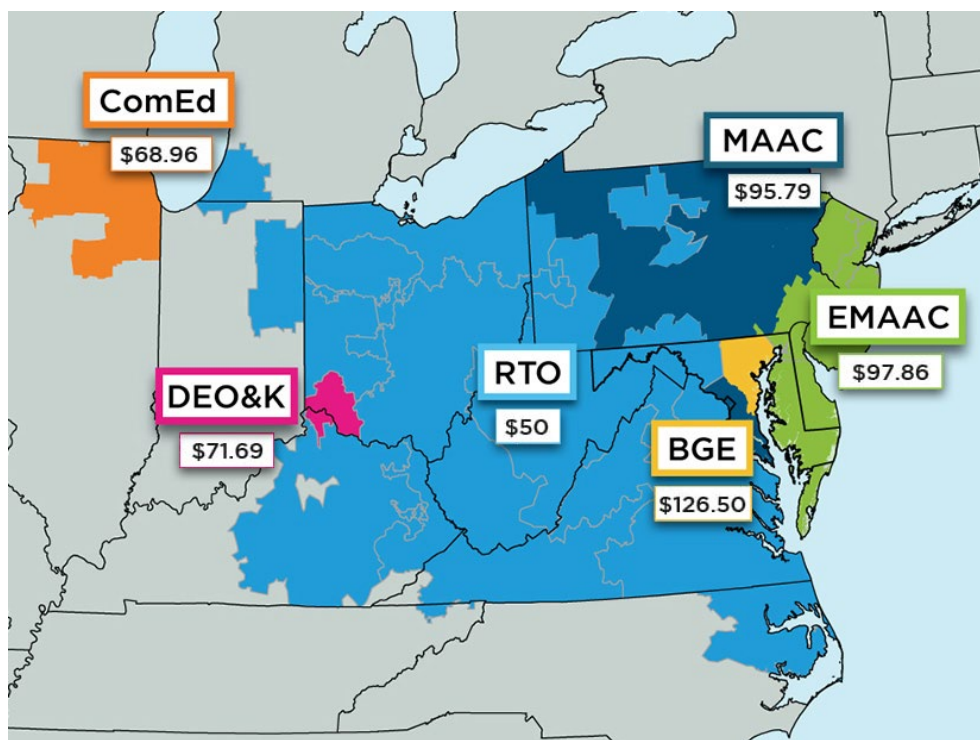
Bresler said the drop in DR may have been caused in part by the one-year gap between the BRA and the delivery year, rather than the normal three-year forward period. “It seems to have been a trend in the past for demand response providers to ... offer demand response on the basis of an ability to sign customers up between when the auction clears and the delivery year starts. So part of the effect here could be due to the fact that we are so much closer to the start of the actual delivery year, which limited the opportunity to adjust the portfolio through the incremental auctions.”

Combined-cycle gas plants added 3,414 MW and nuclear increased by 4,460 MW, adjusted for FRR elections. Cleared coal generation dropped by 8,175 MW, adjusted for coal units committed to FRR plans.

Dominion Energy Virginia chose the FRR option beginning with this year's BRA over concerns an expanded minimum offer price rule (MOPR) would undermine its ability to meet Virginia's renewable energy targets. The utility's FRR election covered more than 60 generating units totaling more than 18.1 GW, including its 1.7-GW Surry nuclear power plant. All told, 175 generating units chose the FRR for this BRA, the second highest on record and more than double the 85 units that chose the FRR option for 2021/22. (See [Dominion Opts out of PJM Capacity Auction.](#))

MOPR Impact

The 2022/23 auction, originally scheduled for 2019, was canceled by FERC after the commission ordered the RTO to expand its MOPR to state-subsidized resources. (See [FERC Halts](#)



Capacity prices in most of PJM dropped by nearly two-thirds for 2022/23, with EMAAC recording its lowest prices ever. | PJM

PJM News



PJM Capacity Auction.) PJM will hold its next BRA, for 2023/24, in December.

Bresler said the impact of the expanded MOPR appeared to be modest.

“I can tell you there were some resources that were subject to the MOPR that did not clear in the auction. It’s very difficult to say whether or not they would have cleared but for the MOPR because we don’t know what they would have offered in the auction,” he said. “It’s hard for us to know some of these causes because we don’t have a whole lot of insight into the market sellers’ offer behavior.”

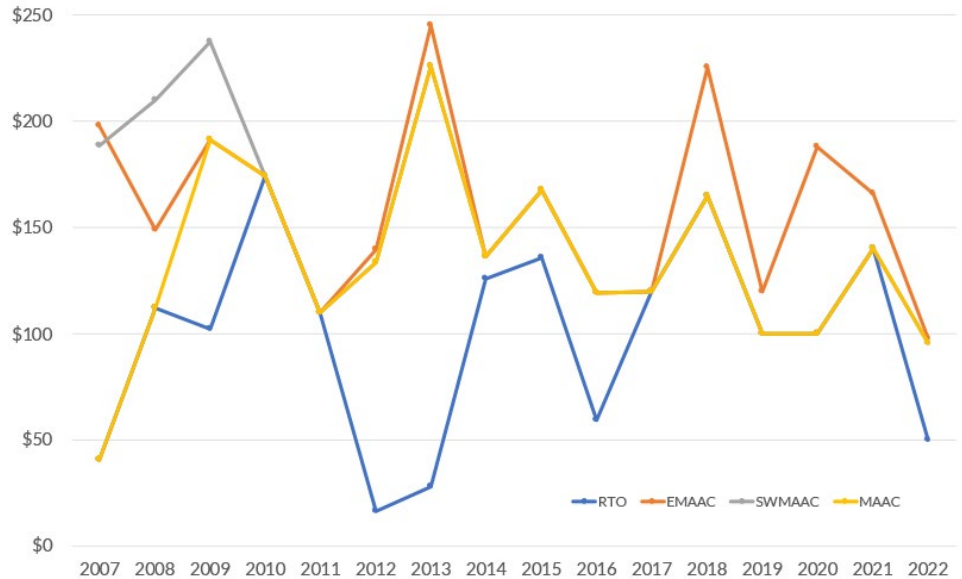
“However, when you look at the pricing results from this auction, together with the fact that there were significant increases in wind and solar and committed nuclear resources, it’s hard to see how the MOPR had any significant or large impact on this auction. That’s really what we expected.”

The expanded MOPR was ordered by FERC in December 2019 under then-Chair Neil Chat-terjee, a Republican. But at a FERC technical conference in March, new FERC Chair Richard Glick, a Democrat, and PJM CEO Manu Astha-na both said the MOPR is not “sustainable” because it is frustrating state decarbonization efforts.

In April, PJM proposed FERC take respon-sibility for determining what resources are subject to MOPR, rather than having the RTO and the Independent Market Monitor make such decisions. (See *PJM Proposes Shifting MOPR Determinations to FERC.*)

P3 Protests PJM MOPR Plan

On June 1, the PJM Power Providers Group (P3), which represents owners of 67 GW of capacity, *wrote* a letter to the RTO’s Board of



BRA clearing prices (\$/MW-day) | © RTO Insider LLC using PJM data

Managers lambasting PJM’s position.

“While P3 generally would not offer a letter to the PJM board about a stakeholder matter that is still being actively discussed in the stakeholder meetings, the PJM-proposed revisions to the minimum offer price rule (MOPR) are so ill-conceived and completely incompatible with FERC’s authority and PJM’s mission that our organization feels compelled to bring certain matters to the board’s attention at this time,” P3 wrote.

It called PJM’s proposal “legally flawed” and “a dramatic departure from many of its founda-tional principles.

“PJM’s proposal starts with the unsupport-ed premise that PJM can take no action to

preserve a competitive market outcome if that action could be viewed as interfering with a state policy. From there, PJM’s current pro-posal puts forth a complete retreat from the notion of a competitive capacity market and instead sets up a market design that will allow subsidies rather than market signals to dictate market exit and entry.

“P3 is increasingly questioning whether PJM continues to believe in the promise of markets or if other priorities have supplanted this historical priority of the organization,” it added, urging the board to “communicate clearly to PJM management that the organization remains committed to markets and expects to review a MOPR-related proposal that is consistent with PJM’s historical commitment to competitive capacity markets.” ■

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Company Briefs

7-Eleven to Install EV Charging Ports

7-Eleven last week said it will install 500 direct-current fast-charging ports at 250 locations across North America by the end of 2022. The ports will be owned and operated by 7-Eleven.

The ports will join the company's existing network of 22 charging stations, which are located at 14 stores across four states.

More: [TechCrunch](#)

AEP Announces Leadership Changes



AEP last week announced several executive leadership changes, including the promotion

of Therace Risch to executive vice president and chief information and technology officer.

Energy Supply Executive Vice President Charles Zebula and AEP Energy Partners President Greg Hall have also been named executive vice presidents.

The position of Brian Tierney, the executive vice president of strategy, is being eliminated and he is leaving the company.

The moves are effective July 1.

More: [AEP](#)

BP Buys 9-GW Solar Portfolio

BP last week announced it has agreed to

acquire a 9-GW solar project pipeline from developer 7X Energy for \$220 million.

BP said it will buy the portfolio, together with 1 GW of "safe harbor" equipment and expects the purchase to be completed within 30 days. The projects are in 12 states, with the greatest concentrations in Texas and the Midwest.

More: [Renewables Now](#)

Dominion Building US' First OSW Installation Vessel



Ørsted and Ever-source said last week they will charter

the first Jones Act-qualified offshore wind turbine installation vessel in the U.S. for the construction of Revolution Wind and Sunrise Wind, two of their planned offshore wind farms in the Northeast. Dominion Energy is building the vessel, the *Charybdis*.

The 472-foot, \$500 million *Charybdis* is being built with 14,000 tons of steel in Texas at global marine shipbuilder Keppel AmFELS' shipyard. It is expected to be sea-ready by late 2023.

The Jones Act is a federal law that requires goods shipped between U.S. ports to be transported on vessels that are built, owned and operated by U.S. citizens or permanent residents.

More: [Electrek](#)

NV Energy to Add Solar, Storage Projects



NV Energy last week said it will add two new

solar-plus-storage projects totaling 600 MW of energy and 480 MW of storage.

The Iron Point Solar Project (250 MW with 200 MW storage) will be in Humboldt County and is expected to be operational by December 2023. The Hot Pot Solar Project (350 MW with 280 MW storage), also in Humboldt County, is expected to be in service by December 2024.

The projects are being proposed to replace the coal-fired North Valmy Generation Station by 2025.

More: [Solar Power World](#)

Oil Giant Total Rebrands

Shareholders recently approved oil company Total's name change and new logo, as it will now be called TotalEnergies.

The name change reflects a strategy of transforming itself into a broad energy company that produces green power as well as fossil fuels, with a goal to become net-zero by 2050.

More: [Houston Chronicle](#)

Federal Briefs

FERC Approves North Bakken Pipeline Expansion

FERC last week approved a certificate of public convenience and necessity for WBI Energy's \$260 million North Bakken Expansion project.

The company said the project includes construction of about 62 miles of 24-inch natural gas pipeline and 20 miles of 12-inch pipe, a new compressor station and additional infrastructure. The expansion will add 250 million cubic feet of natural gas per day to the network.

The project should be completed by early 2022.

More: [The Associated Press](#)

FERC Doesn't Take Action Against Alabama Power, PSC Solar Power Fees

FERC last week rejected a request from environmental groups to take action against the Alabama Public Service Commission and its approval of Alabama Power's home solar panel fees.



However, Chairman **Richard Glick** and Commissioner Allison Clements issued separate statements expressing concerns that the PSC may be violating federal policies designed to encourage

the development of co-generation and small power production facilities and to reduce

the demand for fossil fuels.

Alabama Power charges a \$5.41-per-kW fee on people who use solar panels to generate part of their electricity. The PSC upheld the fees, which Alabama Power says are needed to maintain infrastructure that provides backup power to customers when solar panels don't provide enough energy.

More: [The Associated Press](#)

Granholm says Adversaries Have Capability to Shut Down US Grid

Energy Secretary Jennifer Granholm last weekend warned "State of the Union" viewers that the U.S. power grid is vulnerable to attacks and that adversaries have the capability of shutting it down.

"There are thousands of attacks on all aspects of the energy sector and the private sector generally," she said. "It's happening all the time."

Last week, the White House issued a letter to companies asking them to take the threat of ransomware attacks more seriously following the attacks by hackers on the

Colonial Pipeline and the JBS meatpacking plant.

More: [CNN](#)

State Briefs

CALIFORNIA

PUC Orders SCE to Make Changes to Public Safety Power Shutoffs



The Public Utilities Commission last week ordered Southern California Edison

to make significant changes to how it goes about turning off electricity in high fire-risk areas during red flag alert days.

The PUC said SCE did a poor job communicating with the public about the protective outages and used the utility's hard-to-read maps as an example. The commission noted that while SCE set up community resource centers in blacked-out communities, the public didn't know about them and the services provided were not sufficiently helpful.

The PUC also ordered SCE to hold off on billing customers whose power is cut during future public safety power shutoffs (PSPS) until it improves the way it identifies and reports the harms done to its customers during outages.

More: [LAist](#)

CONNECTICUT

PSEG Power Retires Last Coal Plant

PSEG Power, one of the principal operating subsidiaries of Public Service Enterprise Group, last week retired the 400-MW Bridgeport Harbor Station Unit and is now a 100% coal-free utility.

The unit, which was placed in service in 1968 and converted to a full-time coal unit in 2002, operated only during times of peak energy demand.

More: [Renewables Now](#)

KENTUCKY

Duke Energy Seeks Natural Gas Rate Increase



Duke Energy last week filed a request with the Public

Service Commission, seeking permission to increase its natural gas rates by around \$15.2 million.

If the increase is approved, residential customers who use an average of 57 100-cubic-feet (Ccf) per month will see an \$8.77 (12.7%) increase on their monthly bills.

Duke officials said the request was made because the company has invested nearly \$190 million into capital projects since it last asked for an increase in 2018.

More: [Cincinnati Inquirer](#)

MONTANA

Missoula County, City File to Intervene in NorthWestern Gas Plant



Missoula County and the city of Missoula last week filed a motion to intervene

in a Public Service Commission process that would give NorthWestern Energy clearance through pre-approval to invest in more fossil fuel resources, namely new natural gas plants.

NorthWestern last month announced plans to build a \$250 million natural gas plant with reciprocating internal combustion engines that would burn natural gas to generate 175 MW by January 2024. The city and county look to intervene in the process, saying it will hurt ratepayers and commit Montana to a future reliant upon fossil fuels, even as the rest of the nation moves toward renewables.

The state's pre-approval statute says the PSC can give utilities such as NorthWestern pre-approval for energy sources prior to their acquiring the resource or starting construction on new generating plants.

More: [Missoula Current](#)

PSC Audit Finds 'Comfort Class' Airfare, 'Falsified' Receipt

A legislative audit of the Public Service Commission from June 2018 to June 2020 showed a number of "abuses."

The abuses included a \$1,414 "comfort

class" ticket to D.C.; a backdated \$185 receipt; expenses for which a business need wasn't obvious; and costs without receipts such as a hotel stay. The audit tested 26 transactions worth \$17,000 and then expanded testing to include all commissioners' out-of-state travel totaling \$47,000 based on initial concerns.

The audit noted the PSC failed to implement three out of six recommendations from previous audits, although it did address two items, while one is no longer of concern.

In a response to the audit, Chairman James Brown, who took office after the audit period, said the commission agrees with the audit's recommendations and it has already been making headway on culture and financial controls.

More: [Missoula Current](#)

NEVADA

Legislature Passes Mining Tax Bill

The legislature last week approved a major rewrite of mining industry taxes that will channel hundreds of millions of dollars into education budgets.

The tax bill would create a new tiered tax structure for larger gold and silver mining companies and send those funds, along with additional existing mining tax revenue, directly to education and could inject more than \$300 million into the education system over the next two years.

The bill passed the Assembly with a 28-14 vote and the Senate with a 16-5 vote.

More: [Las Vegas Review-Journal](#)

NEW YORK

Cuomo Names Minister to LIPA Board of Trustees

Gov. Andrew Cuomo last week appointed the Rev. Alfred L. Cockfield II, a minister and Rockaways resident, to the Long Island Power Authority Board of Trustees.

Cockfield, who is the CEO of God's Battalion of Prayer Ministries and the executive

director of the Battalion Christian Academy and the Lamand Charter School in Brooklyn, is the only trustee of African-American descent on LIPA's nine-member board, and one of the few from the Rockaways, the only region in which LIPA operates in New York City.

Cockfield fills a seat vacated by Ralph Suozzi, the former LIPA chairman, who left after his term expired last month.

More: *Newsday*

RHODE ISLAND

Bill with 100% Renewable-sourcing Goal Passes Senate

The Senate last week voted 30-5 to pass the Renewable Energy Standard Act that would require all the state's electricity originate from renewable sources by 2030.

A statement released by the General Assembly explained the schedule of increasing renewable-source electricity annually by 1.5% through 2025, 4% in 2022 and 9.5% each year from 2023 through 2029. A final 10.5% increase in 2030 would round off the total to 100%.

A House version of the bill remains in the Environment and Natural Resources Committee.

More: *ecoRI News*

TEXAS

El Paso Electric Proposes Rate Increase

According to a rate case filed last week with the Public Utility Commission of Texas, El Paso Electric is looking for a rate increase of \$41.8 million (7%).

The average El Paso-area residential customer's bill would increase by \$11.76 per month (13.4%) if the request is approved.

The company said the new rates, which it would like to go into effect on Nov. 3, are needed to help pay for \$953.3 million in improvements to its electrical system over the past five years.

More: *El Paso Times*

VIRGINIA

SCC Conditionally Approves Solar Project



The State Corporation Commission last week granted certificates of public convenience and necessity (CPCNs) to Cavalier Solar A to build and operate solar generating facilities in Surry and Isle of Wight counties. The certificates are subject to conditions.

Last October, Cavalier filed an application for CPCNs to build and operate facilities totaling 240 MW, as well the necessary transmission lines to interconnect the facilities to the grid. The commission added that the proposed facilities include about two miles of 34.5-kV medium-voltage feeder line to interconnect the facilities with the collector substation, and an approximately 0.35-mile, 500-kV generation-tie line to interconnect the substation to the grid.

More: *T&D World*

WEST VIRGINIA

Gov. Justice Liable for \$700M Coal Company Loan



Gov. **Jim Justice** last week confirmed that he is personally liable for \$700 million in loans taken by his coal companies from a lender in the United Kingdom that went bankrupt.

Greensill Capital U.K. sold the loans to investment funds managed by Credit Suisse Group AG, which froze the funds in March and is in talks with Justice's Bluestone Resources Inc. and other borrowers to get paid. Justice said the loans were acquired to rebuild the coal company after a period of decline.

Justice's businesses face several other woes, including penalties totaling \$3.2 million from the federal government and lawsuits over claims his companies failed to deliver coal.

More: *The Associated Press*

WISCONSIN

PSC Approved Xcel Solar Farm Purchase



The Public Service Commission last

week approved Xcel Energy's purchase of a \$104.5 million solar farm currently being developed by Ranger Power.

The 74-MW Western Mustang facility is the company's first large-scale solar investment in the state, though it owns three 1-MW community solar gardens.

More: *Wisconsin State Journal*

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