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RTO Insider

YOUR EYES AND EARS ON THE ORGANIZED ELECTRIC MARKETS

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COVER: Regulators and public advocates from Ohio, New Jersey, Kentucky, D.C., Maryland and Delaware spoke to FERC during the forum's third panel. | *FERC*

RTO Insider
Your Eyes and Ears on the Organized Electric Markets
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In this week's issue

Infocast Transmission & Interconnection Summit

Future of Grid Planning Debated at Infocast Tx Summit

Experts Say More Long-term Thinking Needed

By James Downing

ARLINGTON, Va. — The electric industry must improve its long-term planning to account for a changing generation mix and new load patterns, experts at Infocast's Transmission & Interconnection Summit said last week.

While MISO's long-range transmission planning and CAISO's 20-year transmission outlook both stand out as exceptions, the industry generally does not think far ahead when it comes to grid planning, Grid Strategies President Rob Gramlich said at the summit. (See *MISO Board Approves $10B in Long-range Tx Projects*.)

But FERC's Notice of Proposed Rulemaking requiring the industry to adopt long-range, scenario-based planning has started to change that. (See *FERC Issues 1st Proposal out of Transmission Proceeding*.)

"I think the push has been helpful in the establishment of a sort of a vision that you should be proactively looking at the anticipated future resource mix and … the load forecast. And both of those things are, of course, uncertain, but the industry has had to deal with that for its entire history," Gramlich said.

The uncertainty can be addressed by using scenarios to determine the best transmission options to link future supply and demand. While that would be the ideal, most of the country is not doing that even at the regional level, Gramlich said.

"What happens then is all the pressure for the limited capacity goes into the interconnection process," Gramlich said. "And it's a self-reinforcing downward spiral of studies and re-studies and queue churn — and all of those things that can be greatly alleviated if we had the infrastructure."

In SPP's 2021 interconnection process, most interconnecting resources were saddled with more than $1 million in transmission upgrade costs — often for lines rated at 345 kV and above, said ICF Vice President Himali Parmar.

"That clearly tells you that the system — the planning process — is broken somewhere in SPP," she added.

Stuart Nachmias, CEO of Con Edison Transmission, agreed that the transmission planning process needs to start looking ahead to a grid dominated by renewables and responsible for the electrification of both transportation, which has already started, and heating, which he said is not far behind.

Maine PUC Chair Philip Bartlett II, Cypress Creek Renewables Matthew Crosby, Clearway Energy Group's Ling Hua, ICF's Himali Parker, and Consumer Advocates of the PJM States' Greg Poulous at the Infocast Transmission & Interconnection Summit on Tuesday. | © *RTO Insider LLC*

"There is much more robust planning process that we need. We need to identify the transmission … and distribution that needs to be expanded to meet the future needs," Nachmias said. "Because the one thing I know for sure is that the day reliability is not what customers expect is the day that everything comes to a standstill. And none of us want that to happen."

The industry has a spotty record when it comes to planning lines required to meet public policy mandates, but FERC could be doing more under existing rules to make that more common, said Sharon Segner, senior vice president of transmission policy at LS Power.

"There's whole sections of the PJM operating agreement that are not being enforced right now relating to public policy planning and requirements," Segner said. "And there's more than this FERC could be doing under existing law."

PJM's Order 1000 compliance rules call for the RTO to perform an annual sensitivity analysis on public policy transmission requirements, which are not being used, she added.

Transmission planning processes were all designed around slow and deliberate change to the power system, but bigger changes are coming now, said Kris Zadlo, chief commercial and technology officer at Grid United.

The "institutional framework" was "set up for something that was relatively static," Zadlo said. "And now we don't have a very static system, the system is changing in front of our eyes, and the whole planning process must adapt accordingly."

An increase in computing power has made planning much quicker. Where it once took hours for a mainframe to process one power flow, modern machines can now go through thousands of scenarios across an interconnection in just hours, Zadlo said. That extra analysis has led to paralysis: Instead of focusing on so many options, transmission planners should pick the best plan and move forward with it, he added.

At the request of New England states, ISO-NE started to plan further into the future with its

Infocast Transmission & Interconnection Summit

2050 study, in which the states helped identify what resources would be developed and how load would grow in response to their policies, said Maine PUC Chair Philip Bartlett II. (See *ISO-NE Planners Outline Potential Solutions for 2050 Tx Overloads*.)

Bartlett said state officials hope the change will ensure the region can "right-size" investments in larger projects that improve efficiencies. "Because the only way we're going to get through this transition cost-effectively is if we think thoughtfully, we don't miss opportunities for lower-cost upgrades, and we avoid some of the expensive costs down the road by making smarter decisions through our planning today."

While New England has spent plenty on transmission in recent years, the spending has been directed at curing reliability issues, and not nearly enough has gone to help states meet long-term policy goals, he added.

PJM is also spending on transmission now, but its process often favors local projects that lack outside scrutiny, said Greg Poulos, executive director of the Consumer Advocates of the PJM States.

"We pay a lot of money for local transmission, and the local transmission process doesn't typically allow for any oversight," Poulos said.

Coordinating policies can be challenging in both RTOs. PJM states have a wide range of policy goals, while in ISO-NE, one state has no climate goals, while many others call for net-zero emissions by midcentury.

But transmission provides other benefits for all states, from improving reliability and resiliency to reducing emissions covered by existing federal laws, Bartlett said. The key to getting needed transmission built regardless of state policy differences is to define those benefits and allocate associated costs in a way that achieves agreement, he said.

By using separate planning processes to meet different goals, RTOs dilute the value of the kind of multipurpose transmission lines that are often praised as most effective, said Matthew Crosby, senior director of policy and strategy at Cypress Creek Renewables.

"There's a clear need to look at the sequencing of these tests," Crosby said. "And right now, without someone that's independent of the transmission owner, or the regional transmission operators, enforcing that and guiding that process — I'm not sure how we disrupt the status quo."

That role could be filled by an "independent transmission monitor," an idea FERC floated in its advanced NOPR on transmission but that did not make the cut in its planning NOPR. Reliability often takes precedence because the issues need to be fixed quickly and a multivalue planning process takes longer, but Crosby suggested some of those issues could be dealt with using grid-enhancing technologies while giving planners enough time to come up with more efficient, long-term transmission fixes.

State Perspectives

In states participating in organized markets, grid planning is typically led by the RTO, but that seems to be changing, as FERC and ISO-NE have started to recognize that states should lead when it comes to planning lines for policies, said Vermont Public Utility Commissioner Riley Allen. States in his region are represented by the New England States Committee on Electricity (NESCOE), which gives them a cohesive voice on RTO issues.

NESCOE should be able to come up with a plan to build out the grid regionally to meet its members' policies, both through the ISO-NE's 2050 outlook and nearer-term planning, Allen said.

"Something that is relatively robust and amounts to a more postage stamp-type framework is probably preferable over time to kind of a state-by-state approach and addressing some of the challenges associated with that," Allen said.

Allen sits on the Joint Federal-State Task Force on Electric Transmission with North Carolina Utilities Commissioner Kimberly Duffley, who said the Order 1000 process is working in the Southeast without resulting in capital flight to local projects with less oversight, which she attributed to her agency's robust IRP process. (See *Federal and State Regulators Look into How to Improve Grid Security*.)

"If you do this type of top-down approach of transmission planning in non-RTO regions, you really are infringing upon the state's resource planning that they're doing where the state is looking at transmission, as well as generation, for solutions to meet the goals in a least-cost manner," Duffley said.

Her state also has a robust transmission siting process, issuing certificates of public convenience and necessity in a process where the commission's "public staff," which represents state residents, can intervene to oppose unneeded projects. Another major difference is that North Carolina utilities can recover 70% of their transmission costs in retail rates, so FERC does not even control most of the funding.

Colorado is considering joining an RTO, but in 2021 it created the Colorado Electric Transmission Authority (CETA) to facilitate development of new transmission, said the agency's Kathleen Staks.

CETA was established by the same bill directing the state's utilities to join an RTO by 2030, so it was conceived to consider the broader regional perspective of better connecting the state with the rest of the West, Staks said.

Colorado modeled CETA on New Mexico's Renewable Energy Transmission Authority, which helped clear the way for approval of Pattern Energy's Sunzia line, which was designed to bring New Mexican wind output to markets further west, Staks said. (See *Sunzia Project Wins Final Approval, Signs Offtakers*.)

DOE Sees State Collaboration as Key

While the U.S. Department of Energy has limited authority to designate National Interest Electric Transmission Corridors, it will be increasingly important for it to collaborate with states as it studies the issue of transmission buildout, according to Jeff Dennis, deputy director for transmission at the agency's Grid Deployment Office.

The nascent offshore wind industry could benefit from such a collaboration. The sector is currently driven by state contracts and dominated by an inefficient radial approach to transmission, where each project runs its own connection to the onshore grid. But that approach won't scale as more projects get built, Dennis said.

DOE has been working on recommendations to help expand the industry, including getting Atlantic states to collaborate on a networked transmission system and share the costs.

"The obvious example is landing points, right?" Dennis said. "If we continue this radial approach, we're going to impact lots of communities. We're going to impact lots of offshore industries outside of energy, like fisheries."

Offshore wind's most obvious impacts are along the coast, but the resource will require an expansion of the onshore grid that will impact even inland states such as Vermont, he added.

"We're not the regulator, of course, so that gives us some opportunities, I think, to provide support to collaboration [and] to try and provide good information that will help the states in those collaborations make decisions collectively," Dennis said. ■

Infocast Transmission & Interconnection Summit

Iterative Changes to Interconnection Queues Discussed at Tx Summit

Infocast Transmission & Interconnection Summit Examines Queue Issues Around the US

By James Downing

ARLINGTON, Va. — Interconnection requests continue to grow, and grid operators have had to adopt waves of changes to try to keep pace with them over the years, experts said at Infocast's Transmission & Interconnection Summit last week.

Lawrence Berkeley National Laboratory's Joseph Rand opened up the conference going over the latest national queue figures he helped produce, which show 2,000 GW waiting to connect to the country's grids. (See *LBNL: Interconnection Queues Grew 40% in 2022*.)

"Interconnection requests are growing across the country, in really every grid operator region that we analyze," Rand said.

One exception in 2022 was CAISO, where it had to pause taking on new projects after a massive spike in requests in 2021. The ISO is processing its first batch of interconnection requests since then, and Rand said it is "another massive one," which will turn that regional trend around.

While the queues signal plenty of interest in building out renewables, which are the dominant sources for new generation everywhere, most of the projects will not get built.

"People might say, 'Well, maybe the queues are working the way they should: We're encouraging generators to come online where it makes sense, in terms of the transmission system where there's capacity on the system, and where it's kind of most economically viable to do so,'" Rand said. "But on the other hand, I think it's a little bit concerning to see completion rates as low as 20% and, by capacity, only about 14%."

FERC has a pending Notice of Proposed Rulemaking on interconnection queues that would update its *pro forma* rules from a serial, first-come, first-served system to a cluster-approach that favors projects that are ready to go, Rand said. (See *FERC Proposes Interconnection Process Overhaul*.)

Some of the changes proposed by FERC have been in place in different markets for years, and they have had to continually improve their processes as the queues grew, he said.

MISO went to a cluster process 15 years ago, and it instituted a first-ready, first-served system years ago with an additional seven waves of changes since then, said Grid Strategies Vice President Richard Seide.

"So, one clear takeaway that everyone should understand: Queues are a work in progress," he added.

Queue reform is a complex topic, so it makes sense that grid operators would take their time and tweak rules over years to see what works, said AES Vice President of Strategic Development Alexina Jackson.

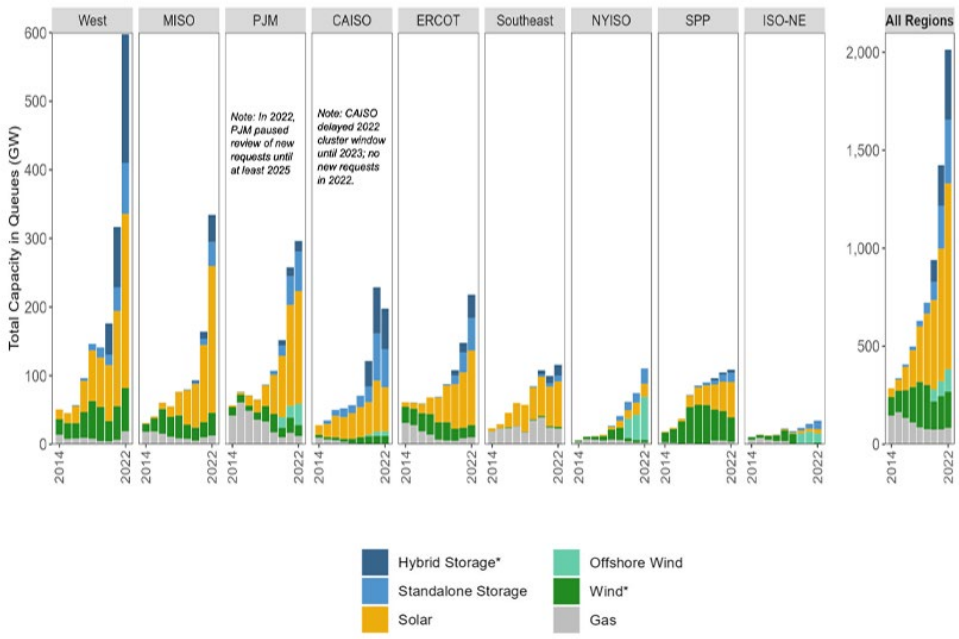
"I really commend the last panel for recognizing that what we're doing should be iterative," Jackson said. "Queue reform is challenging."

While FERC's proposed revisions — and the changes PJM recently instituted that are largely in line with the NOPR — should speed up the process, Jackson said it was important to move some of the work around queues into the planning process. (See *FERC Approves PJM Plan to Speed Interconnection Queue*.)

The energy transition is in the queues, as the resources there represent the clean energy mix the grid is moving toward, said RMI Manager Katie Siegner. She agreed with Jackson on FERC's NOPR and PJM's revisions.

"All of that is a really promising signal that we're finally mustering the will and the resources to tackle the interconnection backlog that has become one of the thorniest challenges in the transition to a more carbon-free electricity mix in the U.S.," she added.

PJM's move to a cluster approach in studying projects in the queue will help move them forward by cutting the costs of network upgrades, but Siegner argued more would be needed if the RTO were going to meet the demand of state renewable portfolio standards, corporate clean energy contracts and federal policies pushing renewables.



| *Lawrence Berkeley National Laboratory*

Planning Transmission to Clear the Queues

Beyond connecting individual projects, the grid is forecast to have to double or even triple in size by midcentury to meet decarbonization goals in the power industry, while electrifying others, and that is a huge task, said Michael Colvin, the Environmental Defense Fund's California energy program manager. That

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transmission expansion should include trunk lines out to renewable, resource-rich regions to bring them to market.

CAISO released a 20-year transmission plan that looked ahead to see how the grid would need to evolve as the state meets its clean energy and climate targets, said the grid operator's vice president of infrastructure and operations planning, Neil Millar.

The 20-year plan was voluntary, but planners used some of its suggestions, and the extra information helped give the industry a lot more comfort that everything was moving in the right direction, Millar said.

CAISO went to a cluster approach back in 2010, and it has worked on reforming its queue every couple of years since then, said LS Power Senior Vice President Sandeep Arora. But projects entering the queue today probably won't be built until the end of the decade.

"There's only so many real estate opportunities, and every developer is after those same opportunities, right?" Arora said. "So, the cost of doing businesses is going up on the real estate side."

Real estate is a major issue in developing new resources in the Northeast, especially anything along its coasts, with the high land values and the abundance of historic and cultural sites, said POWER Engineers Senior Project Engineer Ken Fortier. Given those realities, it makes sense to plan transmission corridors that can accommodate future generation to minimize the overall permitting process.

"We want to make sure we're not going back and having to knock on those same landowners' doors and say, 'Hey, we built this line five years ago; I guess we're going to be building it again,'" Fortier said.

The planning process in New England would have to be updated for such lines to be built, because right now it lags behind other regions, such as New York, in terms of planning for public policy, said NextEra Energy's Michelle Gardner.

Demand is expected to grow in New England by 40% by 2035 and 72% by 2040 because of electrification, all while about 32,000 MW of renewables remains in the queue, said Eversource Energy Vice President of Transmission Policy Vandan Divatia.

"We can't look at these in silos; we've got to try to co-optimize," he added.

A major issue is who is going to pay for all the new transmission. Divatia argued that it should not be left to renewable energy developers; expanding the grid has societal benefits, so consumers should help pay, which will speed up the transition to cleaner energy. Eversource is doing that on Cape Cod, where its customers have paid for the equivalent of a 115-kV line, but it is building a 345-kV line with the difference footed by an offshore wind farm.

New England's grid can handle about 5 GW of offshore wind without major upgrades, and the states have contracted for enough wind that now is the time to start thinking about expanding the grid to accommodate more, Gardner said. That could be handled by the states coming together and working with ISO-NE to figure out what upgrades are needed to make their offshore wind procurements feasible, she added.

The transmission planning side is generally more important than the queue in New England, Gardner said. While some projects have been stuck in the queue for years, they include wind farms in Northern Maine that face huge costs to connect.

"There may be some projects in the queue now that have been here for a long time, but it's not because the queue is broken," Gardner said. "It's because they just can't get down to the load. But projects in Connecticut or Massachusetts generally have processed appropriately through the ISO study."

MISO-SPP JTIQ

In parts of MISO and SPP, all of the projects are impacted by other "affected systems," which the two hope to overcome through the Joint Targeted Interconnection Queue (JTIQ) study, said NextEra Energy's Matt Pawlowski.

"We have a lot of projects in both regions," Pawlowski said. "We've had a lot of issues with affected systems and the timelines for affected-system studies that don't align with our commercial time frames or the interconnection studies in each of the regions. So, if you have an SPP project, [you've] got to be hindered by the fact that there's affected systems that don't necessarily align with the study time frames in SPP and vice versa in MISO."

Those delays can cause power purchase agreements and generation developments to be canceled, he said.

The JTIQ will lead to major, central lines designed to resolve any affected-system issues in northern MISO and SPP, said Sunflower Electric Power's Clifford Franklin. In the past, the cost of dealing with affected systems has been so high that individual projects have not been able to bear it.

The plan invests close to $1 billion in major transmission upgrades, and while 90% of the cost is expected to be picked up by generation developers, load could be on the hook for cost overruns. That has led to some opposition, Franklin said.

Planning lines to deal with such issues will give project developers the certainty they need to move forward. "This stability of the rate, the entry fee, is what is hoped will reduce backlogs," Franklin said.

Speculative Projects?

Projects have often pulled out of queues when faced with the need to fund transmission upgrades that erase any chance for them to profit, but some developers on the panel argued that they have reasons other than hunting for the cheapest grid connection to file "speculative projects."

NextEra had some of those projects looking for a cheap connection back when the costs of doing so were low, but the nation's largest renewable developer still has plenty of projects — for different reasons, Pawlowski said.

"Those speculative projects needed to be in there," Pawlowski said. "And the reason why they needed to be in there is because if it's going to take me five to six years, or even seven years, to go through the interconnection queue, I cannot provide my customers with projects if that study process is that long."

If a client asks for a contract for a wind farm, they will not want to wait the six or seven years it would take NextEra to move a development through the queue process and then actually build it, so the firm has projects in the queue that it can sell to clients in years' less time. The way to get around that is to make the process as quick as possible, Pawlowski said.

The Inflation Reduction Act put interconnections on steroids, and while the queues were busy before the law and its bevy of energy subsidies were passed, it has created a new dynamic, Seide said.

"The fact is, all of this money out there — private equity funds — they want interconnects, right?" Seide said. "So, when that process of dollars at risk would cause people to withdraw. That doesn't happen today."

In the past, some developers were scrappy, and raising the deposit amounts to weed out speculative projects from the queues would have worked, but that is no longer the case, he added. ■

EEI 2023

Overheard at EEI 2023

Feds Come Bearing Gifts for Clean Energy Industry

AUSTIN, Texas — The Edison Electric Institute's annual thought leadership forum, EEI 2023, celebrated its 90th anniversary early last week with a focus on the clean energy transition and by sharing its vision of a carbon-free energy future with about 1,200 attendees.

EEI says "assessing the viability of new and emerging technologies is crucial to deploying clean energy reliably and affordably."

It also helps to have a government or private investors willing to fund those technologies. Among those who came to Texas bearing the offer of gifts were U.S. Energy Secretary Jennifer Granholm and John Podesta, senior adviser to President Joe Biden for clean energy innovation and implementation.

The Inflation Reduction Act has given Granholm billions of dollars to hand out. The Transmission Facilitation program offers $2.5 billion for interregional transmission lines, and the Department of Energy's Loan Programs Office can provide another $400 billion in loan guarantees. And then there's the $10.5 billion Grid Resilience and Innovation Partnerships program to help build transmission, and that has attracted significant interest from MISO and SPP, among others. (See *DOE Clears JTIQ Projects to Proceed with Funding App*.)

"Do you ever remember the secretary of energy coming through one of these conventions in the past with so much resources?" Podesta asked during a panel discussion with Granholm and Portland General Electric CEO Maria Pope.

"We have so much money we want to give it away," Granholm responded.

"Deploy! Deploy! Deploy!" a more politically correct Pope interjected.

Granholm pointed out that by one estimate, about $23 trillion of global investments will be made in clean energy by 2030.

"The question is, which nation is going to capitalize on it?" she asked. "We think you know now because of the most aggressive incentives in the world, the United States has become irresistible for investing in energy manufacturing, particularly those manufacturing plants. There's about $200 billion of manufacturing plants that have been announced as the president took office and require a lot of electricity demand. Obviously, you are the tip of the spear.

DOE Secretary Jennifer Granholm and presidential adviser John Podesta discuss the clean energy transition. | *© RTO Insider LLC*

"So please, if you haven't already, apply for these programs," Granholm told her audience.

"We need a transformation of the global economy and the size and scale that's never occurred," Podesta said, also addressing the attendees. "What can you do to help and work in partnership? I think building that energy system, taking on the challenge of increased supply of electricity so the rest of the economy can reduce its emissions as we move forward."

"Sometimes, when you're in the middle of history, it's hard to tell," Granholm said. "I guarantee that we are in the middle of this incredible moment in history that you'll look back on and say, 'I was in that business when we made incredible strides and set the table for us to reach these big, hairy, audacious goals.'"

Nuclear Needs a Breakthrough

Julie Kozeracki, a senior adviser with DOE's loan office, said her group's *$300 billion in loan authority* is untouched.

"Nobody wants to be building nuclear right now," Kozeracki said. "The industry is stuck in a stalemate, where utilities are staring at reactor developers, and reactor developers are staring at their suppliers, and no one is really ready to move or make real capital decisions about building new nuclear."

Julie Kozeracki, DOE | *© RTO Insider LLC*

She suggested establishing a mandate for clean, firm power when there are few good options will help break the standoff.

"If we want to get serious about decarbonizing and live in a society where the lights turn on, that's going to cost more," Kozeracki said. "When you look at the value that nuclear provides for a resilient decarbonized grid, it means that nuclear doesn't really have to compete with solar by itself or natural gas by itself. I think there's this perception that nuclear is uniquely expensive or uniquely risky, or uniquely far off, but when you look at the competitor set for your clean, firm options, I actually see nuclear as having a pretty good competitive shake [at] 200 GW of that 700 or 800 GW of clean, firm capacity that we're going to have to add to the grid by 2050."

EEI 2023

The loan office has shelled out about $12 billion to help Southern Power build two new units at its Plant Vogtle nuclear site. The construction is seven years behind schedule and has cost $35 billion so far. However, Kozeracki said "no one is more excited" than she is that Unit 3 is coming on line, and Unit 4 will soon follow.

Later in the week, on Friday, Southern subsidiary Georgia Power said Unit 3 has been *delayed for at least another month* after discovering a problem in the hydrogen system used to cool the main electrical generator. The unit's testing is 95% complete, and it has already been generating power.

Kozeracki called for a "level of humility" around lessons learned from Vogtle, saying she is happy to talk about the controversial plant where others aren't.

"Vogtle has a lot of lessons around ensuring that your design is complete enough before you begin construction; around ensuring that you do a detailed resource-loaded schedule before you put a shovel in the ground; around ensuring you have a quick enough turnaround in the [quality assurance] process," she said.

"I sometimes hear people not really wanting to talk about it, and I think quite the opposite. We should all be talking about Vogtle, learning from it as much as possible and ensuring we incorporate that into new builds to ensure that we're set up for success," Kozeracki added.

Long-duration Storage is Key

Clean technologies will be crucial to reducing carbon emissions across the U.S. economy, several speakers said. Among the emerging clean technology is long-duration energy storage, whose proponents say could strengthen grid resilience, increase renewable power generation's adoption and improve energy security.

"There is just no energy transition without decarbonizing the grid," Quidnet Energy CEO Joe Zhou said during a panel discussion. "One of the harshest realities facing this transition is just how expensive it is to store electricity. Imagine going to the store and spending $10,000 on a bottle to store $1. That pretty much sums up the state of electricity storage today. We need to make that drastically cheaper."

Enter, then, DOE's chief commercialization officer and director of its Office of Technology Transitions, Vanessa Chan.

"We want to try to get renewables onto that grid and to do that, we need to make sure that we're able to get the energy when the sun isn't shining and the wind isn't blowing," Chan said. "How do we get that flexibility and reliability that is not present in renewables without utility storage? What do we have to do at the state and ISO level in terms of the regulatory and market changes needed to happen so that people actually get compensated for this flexibility and reliability that is being done?

Ameren Corp.'s Warren Baxter (right) leads the applause for EEI CEO Tom Kuhn, who is retiring at year's end. | *© RTO Insider LLC*

"Right now, there is no business model for them," she said. "We want to make sure that we are able to help the established players and navigate this because it's a new thing."

Mateo Jaramillo, co-founder and CEO of storage developer Form Energy, said he has the scars from 20 years in the battery business. His company has developed an iron-air battery that takes advantage of the rusting process to store electricity for 100 hours that he said is cost competitive with legacy power plants.

"How do [utilities] functionally replace the thermal plants that they know are going out of their system?" Jaramillo said, explaining his thought process. "To sort of prove to myself that there was something that could cost-effectively address that and really try and precisely answer the question, well, what is it that you need? How many hours do you need? Do you need eight hours? Do you need 100,000 hours? By going through a lot of analytics, I ended up settling on roughly a 100-hour duration as the duration that really solves that capacity problem."

During the forum, Form *announced* it had signed a definitive agreement to sell Georgia Power a 15-MW/1,500-MWh iron battery system to come online by 2026. It is also working with Xcel Energy on a multiday energy storage project that the company's CEO, Bob Frenzel, was only too happy to discuss.

"We've reached a point in [Xcel's] penetration [of the renewable energy market] where long-duration storage is a very interesting resource for us to pursue," Frenzel said. "We recognize that to move a technology forward, we have a role to play as a company and an industry. Doing it effectively from the standpoint of our shareholders and customers means it needs to be cost-effective."

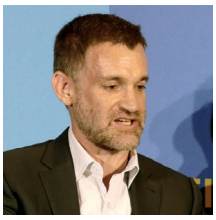
"What's next for long-duration energy storage? It is starting to make real these projects and products in the market," Jaramillo said. "The future is happening right now. It is imperative to scale up and deploy."

Tx Developers Get Creative

Transmission developers, faced with permitting and siting challenges that can add years to a project, are looking for innovative financing solutions that involve new partnerships. Others, like *commodities trader John Arnold*, a former Enron executive and a billionaire since 2007, have put their millions into building HVDC transmission lines.

"This industry kind of ran out of funders, and so that's where I really saw the opportunity

EEI 2023



John Arnold, Grid United | © RTO Insider LLC

to step in," said Arnold, who has partnered with former Clean Line Energy Partners CEO Michael Skelly to create Grid United. The joint venture has nearly a dozen projects underway or in the pipeline. (See *Skelly's Grid United Quickly Making Waves*.)

"I became convinced that interregional transmission is a necessary component of [integrating renewables], and every study that has come out has shown that," Arnold said. "When I started to come around to this in 2019 and 2020, my question was, 'Why isn't anybody doing this?'"

He said many of the hindrances to developing HVDC lines began falling away in recent years.

"I think it's very clear now: Utilities that are trying to meet goals or mandates for 2030's decarbonization need to do this," Arnold said. "I think the permitting has gotten easier and some of the federal incentives have gotten easier. I think the big challenge in the 2010s was how do you take wind and solar from very expensive resources to being cost-competitive with natural gas. The challenge this decade is how do you take a portfolio of low-carbon generation assets and have that match the load profile from the utility space and do that with the reliability that Americans expect and demand."

Joseph P. Kennedy III, Citizens Energy | © RTO Insider LLC

Citizens Energy, a Boston-based nonprofit founded by Joseph P. Kennedy II, has added a transmission business that helps finance projects in return for a share of the profits. The company has collaborated with San Diego Gas & Electric on a 500-kV project through California's hard-scrabble Imperial Valley.

"We partner with developer and incumbent utility, anybody that is willing to take us on and say, 'Hey, rather than our partner financing 100% of the transmission line, let's let Citizens finance a portion of that,'" said Joseph P. Kennedy III, the company's managing director. "We essentially purchase a 30-year interest in the capacity of that line."

Citizens then takes half the profits it generates from its ownership percentage and turns that over to local communities so they can invest it. "It is the only scalable, replicable model that I know of that treats stakeholders as truly stakeholders and communities as stakeholders in the project without increasing costs, while also giving investors the same rate of return off their portfolio," Kennedy III said.

SDG&E CEO Caroline Winn said the valley is rich with solar, wind and geothermal resources, the electricity from which now flows to San Diego.

"But because of the work that Citizens did, it immediately provided these clean energy benefits to the lowest low-income communities in the valley," Winn said. "So they very much were a big part of the successful line in really working with stakeholders and giving back to the community. What I really saw of the Citizens model was being able to ensure that constituents and the communities that are impacted by these lines can also benefit from the clean energy that the lines are bringing."

Pizarro, Pope to Lead EEI Board

New EEI board chair Pedro Pizarro, Edison International's CEO | © RTO Insider LLC

EEI's board of directors, comprising its members companies' CEOs, on June 12 elected Edison International CEO Pedro Pizarro and PGE's Pope as its chair and vice chair, respectively.

Pizarro replaces Warner Baxter, executive chair of Ameren. EEI's chairmanship rotates on an annual basis.

EEI CEO Tom Kuhn, who is retiring at the end of the year after 35 years at the helm, thanked Baxter for his "sustained engagement and clear commitment to deliver resilient clean energy to customers" during the organization's work with lawmakers to pass the Infrastructure Investment and Jobs Act and the Inflation Reduction Act's clean-energy tax package.

"These historic laws are driving significant investments in critical energy infrastructure and represent an unprecedented commitment to addressing climate change and to deploying more clean energy affordably and in ways that directly benefit our customers," Kuhn said in a *statement*.

Awards

EEI *honored* PPL Electric Utilities with the 95th Edison Award for being the first electric utility in the U.S. to install and integrate the dynamic line ratings (DLRs) on its transmission system into market operations. PPL now sends hourly day-ahead ratings forecasts to PJM's market operations to help coordinate more efficient generation and ensure reliability.

NFL Hall of Famer Deion Sanders entertains the audience during EEI's awards dinner. | © RTO Insider LLC

EEI said the company's functionalities and methodologies that it has developed and implemented while integrating DLRs into real-time and day-ahead market operations with PJM are novel for the U.S. electric power industry.

The organization also *recognized* Italian transmission system operator (TSO) Terna with the 2023 International Edison Award for its interconnection between Italy and France. Terna partnered with RTE, France's TSO, on a DC line that, at 118 miles, will be the world's longest electrical infrastructure, crossing the Alps. The line is fully integrated into existing road infrastructures with "zero impact" on the surrounding environment, according to EEI.

EEI's Thomas F. Farrell II Safety Leadership and Innovation Award went to CenterPoint Energy's Al Payton (member company executive), Florida Power & Light's Joe Suarez (member company employee leader) and Duke Energy (organization). ■

— Tom Kleckner

FERC/Federal News

FERC Approves More Extreme Weather Rules

Phillips: 'Winter is Coming'

By Michael Brooks

FERC on Thursday approved two new rules intended to strengthen the grid against extreme weather events.

The commission ordered NERC to either update reliability standard TPL-001-5.1 (transmission system planning performance requirements) or create a new rule that would require responsible entities to plan specifically for both extreme heat and cold weather events (*RM22-10*). Either way, entities will be required to create a corrective action plan to mitigate any occasions where performance requirements for extreme weather have not been met.

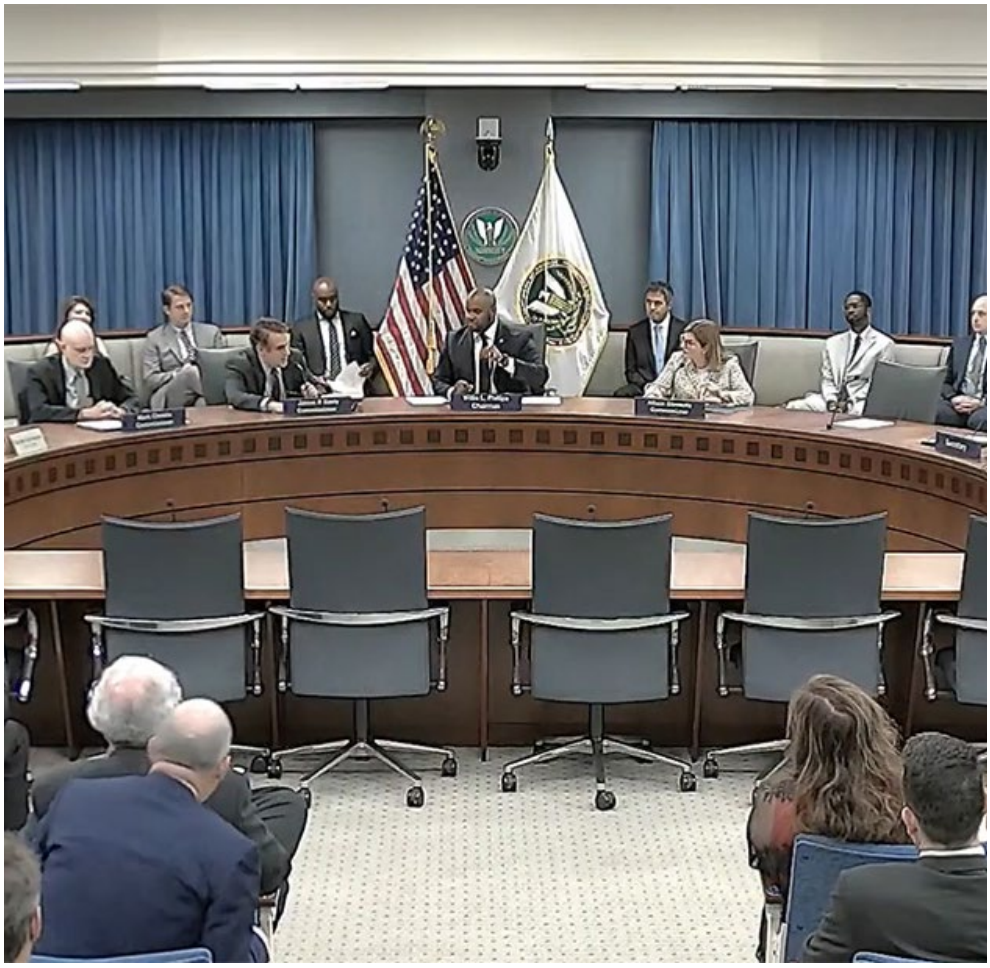
FERC also directed transmission providers to submit a one-time report detailing their policies and processes for conducting extreme weather vulnerability assessments and mitigating identified risks (*RM22-16, AD21-13*).

Based on the staff's presentation at FERC's monthly open meeting in Washington, D.C., the commission made only minor alterations from when the rules were first proposed about a year ago. (See *FERC Approves Extreme Weather Assessment NOPRs*.)

Both rules will take effect 90 days after their publication in the *Federal Register*, and transmission providers will be required to submit their reports within 120 days of publication. FERC had originally proposed that the reports be due in 90 days. The commission also approved extending the public comment period on the reports to 60 days, from the 30 originally proposed. In doing so, FERC agreed with the Edison Electric Institute and other commenters that the time periods were too short. (See *ERO Supports FERC Weather Assessment Proposal*.)

According to Alyssa Meyer, an energy industry analyst in FERC's Office of Energy Policy and Innovation, the final rule also requires transmission providers to include in their reports how they define extreme weather and how RTOs and ISOs account for differences between transmission owner members' assumptions and results.

"For the first time, reliability standards will require planning for extreme heat and cold weather," acting FERC Chair Willie Phillips said in a statement. "NERC will develop the standards, and once we approve them, transmission owners and operators will identify the elements of their systems that are vulnerable to extreme heat and cold and develop solutions to address those vulnerabilities."



FERC holds its monthly open meeting June 15. | *FERC*

Elliott: Different Storm, Same Outages

Before the commission approved the orders, FERC staff presented some preliminary findings of the commission's joint inquiry with NERC into the December 2022 winter storm, also known as Winter Storm Elliott.

Unplanned generator outages exceeded 70 GW of capacity. The three main causes of the outages, staff said, were mechanical problems, equipment freezing and lack of fuel availability. Natural gas production, processing and shipping was hindered by compressor facility and well outages.

The observations are familiar: They are essentially the same as those in a 2021 technical conference held in the aftermath of a February winter storm (Uri) that nearly led to the collapse of the Texas Interconnection. Thursday's orders stemmed from that conference.

"We're seeing the same three causes, so therefore we think that it makes all the sense in the world to continue full steam ahead on implementing prior recommendations" from Uri and other previous severe winter storms, said Heather Polzin, an attorney adviser in FERC's Office of Enforcement. Those include weatherizing equipment, inspecting facilities before winter and reviewing emergency operations plans.

Phillips said after the presentation, "Let me be clear: I want to join [staff] in encouraging, urging, cajoling all the utilities — every covered entity — to not wait. Implement these recommendations now. Right now. We know, to borrow a phrase, 'Winter is coming.'" ■

FERC/Federal News

FERC's Danly, Christie Again Warn Congress of Looming Reliability Crisis

By Michael Brooks

From left: FERC Chair Willie Phillips, Commissioner James Danly, Commissioner Allison Clements and Commissioner Mark Christie | *House Energy and Commerce Committee*

FERC's two Republican commissioners told members of Congress last week that the U.S. is heading toward a reliability crisis driven by the rapid retirements of dispatchable fossil fuel-fired generators.

Appearing before the House Energy and Commerce Subcommittee on Energy, Climate and Grid Security on June 13, each of the four sitting commissioners painted a different picture of the state of grid reliability in the country. While they gave different critiques of the resource mix, Commissioners James Danly and Mark Christie had ominous outlooks, harshly criticizing FERC-approved market designs in the RTOs and ISOs.

"The United States is heading towards a reliability crisis in our electric markets," Danly said. He cited two primary factors: "the effect of subsidies" for intermittent renewable resources, "and the commission's, let's call it, 'abandonment' of its longstanding commitment to the rule of law."

"I think we're headed toward potentially very dire, potentially catastrophic consequences in the United States," Christie said. "The basic reason is we're facing a shortfall of power supply. ... The problem is not the addition of wind and solar. The problem is the subtraction of coal and gas and other dispatchable resources."

The commissioners' statements were similar to those they gave to the Senate Energy and Natural Resources Committee last month. (See *Senators Praise Phillips, FERC's Output at Oversight Hearing*.)

Republican members of the subcommittee agreed, though they were eager to blame the Biden administration, particularly EPA's newest proposal to reduce power plant emissions, for the impending doom.

"The commission must do more to resist such regulations that run contrary to its core mission," proclaimed subcommittee Chair Jeff Duncan (R-S.C.). "Electric reliability has significantly degraded over the past few years. Blackouts and energy rationing are now commonplace in wholesale electricity markets like California and Texas. The nation's largest grid operator, the PJM Interconnection, issued a dire warning earlier this year that it may face significant capacity shortfalls because of, in large part, rules like the EPA has proposed."

"It's essential the commission return to its core mission of facilitating the delivery of abundant, affordable energy resources, like natural gas and electricity, to Americans," said Cathy McMorris Rodgers (R-Wash.), chair of the full committee. "FERC must resist calls by the radical left to circumvent the commission's mandated priorities."

Acting FERC Chair Willie Phillips (D) sought to assure the subcommittee that "reliability is, and always must be, job No. 1." He listed several actions the commission has taken related to reliability and grid resilience since he took the helm at the beginning of the year, including directing NERC to develop new cybersecurity standards.

Phillips also said his highest priority "in the near term is to finalize a proposed rule that will greatly improve our processes for interconnecting new electric generating resources, reducing the time it takes to bring those resources online."

Neither side of the aisle of the subcommittee gave that statement much attention. For their part, Democrats used much of their time to question how, if at all, FERC accounts for environmental justice when approving natural gas infrastructure.

Ranking member Diana DeGette (D-Colo.) did ask Phillips whether the recently enacted Fiscal Responsibility Act, which ordered NERC to study interregional transfer capability, would delay FERC's work on the issue. (See *Debt Ceiling Bill Provides 'Mini-deal' on Permitting*.)

"NERC is directed to do a study under the debt limit deal; we also have an ongoing proceeding at FERC," Phillips responded. "It is my belief that those two proceedings can move forward in parallel. ... It is not my intention to wait" for NERC to complete the study. ■

National/Federal news from our other channels

NERC, Trade Groups Oppose Call for Quick Fix on CIP Standards — ERO Insider

House Energy and Commerce Examines Moore County Attack — ERO Insider

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FERC/Federal News

Order 881 Timelines Need Explaining, FERC Says

FERC: Implementation Tools Will Help, but not Done

By Amanda Durish Cook, Tom Kleckner, Jon Lamson and Hudson Sangree

Continuing its recent trend, FERC on Thursday found that another set of transmission providers had mostly complied with Order 881 but failed to adequately explain their timelines for calculating and submitting ambient-adjusted line ratings (AARs), as the order requires.

The transmission owners and operators that FERC told to submit additional compliance filings for AAR timelines included ISO-NE and its participating transmission owners (*ER22-2357*, *ER22-2467*), MISO (*ER22-2363*), Idaho Power (*ER22-2292*), Public Service Co. of New Mexico (*ER22-2335*), Puget Sound Energy (*ER22-2361*) and Golden Spread Electric Cooperative of Amarillo, Texas (*ER22-2161*).

The decisions followed a similar grouping of orders in April in which FERC found that a handful of transmission providers, including NYISO and Arizona Public Service, had not complied with Order 881's timeline requirements. (See *FERC Approves Batch of Line Ratings Compliance Filings*.)

In each of the cases, FERC acknowledged that software and other implementation tools are still being developed, so that "timelines may not be determined until closer to AAR implementation and that additional time may be necessary to comply with this requirement."

Order 881 takes effect July 12, 2025. The commission gave the parties until November 2024 to submit further compliance filings.

Issued in December 2021, Order 881 requires transmission providers to employ AARs for short-term transmission requests of 10 days or less on lines affected by air temperatures. Seasonal ratings will be required for long-term service.

The commission said the current practice of rating lines based on conservative assumptions about worst-case weather scenarios has caused underutilization of available transmission capacity and driven up wholesale electricity prices. (See *FERC Orders End to Static Tx Line Ratings*.)

FERC did not specify timelines by which transmission providers must submit their AARs. Instead, it said transmission providers "already manage similar timing issues" for load forecasts, renewable generation and generation bid deadlines.

| *MISO*

"It may be that the deadlines for AAR calculation and submission are not significantly different from existing deadlines for submission of updates to generation supply offers and load," FERC repeated in its recent orders.

FERC found additional compliance problems in some of Thursday's cases.

Citing Order 881's requirements, it directed ISO-NE to revise its filing to "specify that transmission service at ISO-NE's seams use AARs as the basis for evaluation for near-term transmission service requests or explain why it should not be required to do so."

The commission found that proposals by ISO-NE and its transmission owners related to a transmission line ratings database fell short.

In MISO, FERC instructed the ISO to address "whether or how its proposed tariff language requires MISO to use updated AARs" in its day-ahead and real-time markets, including reliability unit commitment and look-ahead commitment processes, as required by Order No. 881.

It gave MISO 60 days to update its filing.

MISO has said it plans to function as a ratings clearinghouse for real-time and forecasted AARs by gathering "all known line-rating information, including from neighboring reliability coordinators," and sharing that information with interested parties.

Late last year, MISO said its top priority for Order 881 compliance was creating an interface for its transmission owners to submit variable ratings starting as soon as the fourth quarter of 2023. Two of its transmission owners (TOs) started AAR pilot programs in 2022, with more to follow this year.

The RTO has said it's "ready and able to add additional real-time AARs as TOs are ready." (See *MISO, Members Debate Deploying AARs*.) ■

CAISO/West News

Summer Looks Better with Caveats, WECC Says

Up to 13 GW Should Come Online by End of Summer; NERC Warns About Heat Events

By Hudson Sangree

The West's summer reliability outlook is better than it has been the past few years, but shortfalls could arise if new resources fail to materialize or imported electricity does not flow as expected, WECC analysts said last week in a technical session that preceded the organization's Board of Directors meeting.

"Yes, we are improving," WECC principal analyst Matthew Elkins said. "We've delayed retirements. We've expedited new resources online. Things are getting better in the near term."

However, with supply chain holdups, fuel constraints and other problems, "I think we're just kicking that can down the road," Elkins said.

With more than 4,000 MW of coal-fired generating resources expected to retire by 2025, the supply chain issues need to be resolved and large amounts of new clean energy and storage resources need to be built if the West is to avoid further shortfalls, he said.

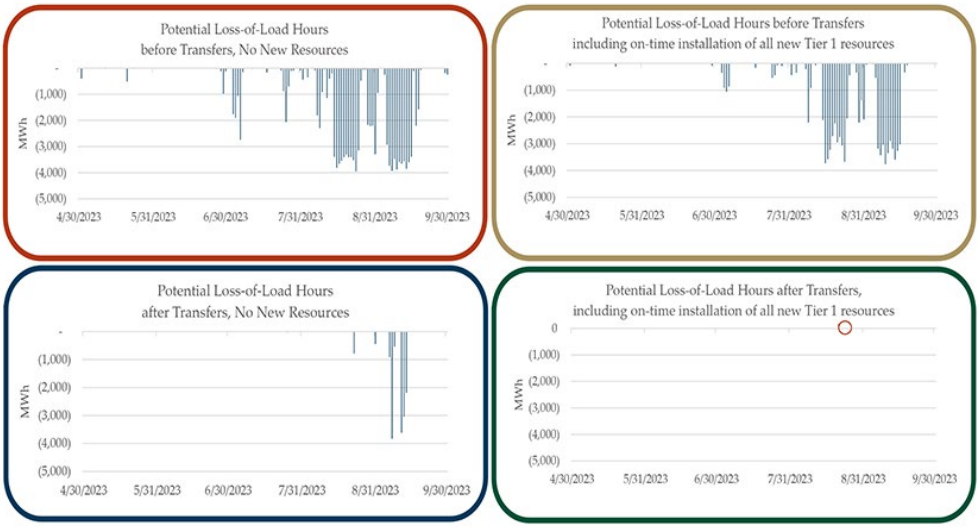
"We need to keep track of this," Elkins said.

In its *2023 Summer Reliability Assessment*, NERC said resources in the Western Interconnection are sufficient to support normal peak demand, but warned that a wide-area heat event could create problems for multiple subregions that normally rely on regional transfers to meet peak demand when solar production falls off.

The assessment also noted the risk of wildfires to the transmission network, which can limit transfer capacity and lead to localized load shedding. (See *NERC Warns of Summer Reliability Risks Across North America*.)

Elkins discussed those potential pitfalls and others in the *technical session*.

WECC analysts developed a matrix that shows hours at risk of shortfalls without new resources or imports in its four planning regions: California-Mexico, the Northwest, the Southwest and Canada.



A chart shows hours at risk of shortfalls in California-Mexico this summer without new imports and/or resources (red, gold and blue) and with planned new resources and imports (green). | *WECC*

In California-Mexico, there should be minimal loss-of-load hours if imports are not limited and all new Tier 1 resources come online this summer. Without those resources or transfers, the loss-of-load hours increase substantially, WECC's analysis shows.

The same is true to a lesser extent in the Northwest and Southwest, WECC predicts.

Up to 13 GW of new generation and storage resources are planned to come online in the Western Interconnection by the end of this summer, but supply chain disruptions could undermine those plans, WECC says. (See *Western Plan to Add 13 GW by Summer Comes with Risks*.)

Most of the new resource additions will be solar, battery storage and wind, with some natural gas and biogas generation.

Last year, new solar installations in the West fell nearly 3 GW short of expectations because of tariffs on solar panels from Southeast Asia and supply chain constraints.

Many battery components still come from China, which has experienced COVID-related supply chain disruptions, as well as increasing tensions with the U.S. that could affect trade.

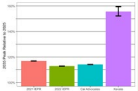
Planned battery installations last year fell short in WECC's Northwest and Southwest regions, but not in California-Mexico, where the new batteries added to the grid exceeded expectations.

Through the end of 2023, more than 25,000 MW of new resources are planned to be installed. Elkins called the figure "historical."

"We've never been over 10,000 MW," Elkins said. "We've never built that much. This is two and a half times what we've actually built in the past."

Whether most of those planned resources get built remains to be seen. ■

West news from our other channels



Calif. EV Grid Fixes Could Cost $35B Less than Estimated

NetZero Insider

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CAISO/West News

Reliability Panel Highlights Benefits of Interregional Transmission

Panel also Notes Extreme Weather Concerns

By Jon Lamson

As more clean energy comes online and extreme weather accelerates, states need to work together to unlock the reliability benefits of increased interregional transmission, said a panel of experts convened by the American Council on Renewable Energy to discuss NERC's *Summer Reliability Assessment*.

The assessment found that while all regions have adequate supply to cover peak load under normal conditions, most regions face elevated risk of shortfall during extreme weather conditions. NERC said this elevated risk is due largely to retirements of fossil fuel generators and above-average projected summer temperatures across most of North America, consistent with long-term climate trends. (See *NERC Warns of Summer Reliability Risks Across North America.*)

"My review of the NERC summer assessment is there's nothing particularly surprising," said Commissioner Andrew French of the Kansas Corporation Commission. "I think it continues to highlight trends and concerns that we've seen crop up over the last several years. I definitely don't view it as a specific indication that anything will happen, or anything won't happen."

French said the loss of dispatchable fossil fuel generators has reduced the state's safety cushion of excess generating capacity, which is driving reliability risks. He said that in the short term, policymakers should focus on retaining resources that provide reliability benefits, while focusing in the long term on the reliability attributes of expanding demand response programs and interregional transmission.

To put a better value on the reliability benefits of transmission investments, French said planning processes should incorporate a calculation related to the value of lost load, along with potentially valuing "large-scale interregional transmission as a generating capacity resource."

Simon Mahan, executive director of the Southern Renewable Energy Association, said the summer outlook looks manageable for the Southeast but cautioned against settling into a false sense of security. "There are extreme weather events that could come in and radically change your plans quickly. When that happens, it's important that we have the regional and the interregional transmission capability available to us so that we can import power if we need it, or we can export power to our neighbors if they need it."

Danielle Mills, principal of infrastructure policy development at CAISO, said California is in a better position than last year because of improved hydro conditions and the addition of 3,000 MW of battery storage in the state.

"We still do see some risk associated with those periods after 8 p.m. when the solar generation is declining if we have high loads and a lack of availability of imports" Mills said.

Mills said the state is "looking at opportunities to improve transmission planning across the West and look at interregional transmission planning projects, as well as projects that can provide power to California from out of state."

Nicole Hughes, executive director of Renewable Northwest, said nothing in the report was too concerning, but instead "more of an indication of risk to come."

Hughes agreed with the assessment that expanding the grid will be essential to mitigating reliability risks in the future. She said the inadequate transmission infrastructure has made it difficult to bring renewable energy generation online to meet the region's clean energy goals.

With CAISO being the only ISO on the West Coast, Hughes touted the benefits of a potential Northwest RTO.

"Pretty much it's across-the-board accepted in our region that we need … more of an RTO that can bring us all together and limit the number of balancing areas, and I think the Western Resource Adequacy Program is going to be a good test model for that," Hughes said.

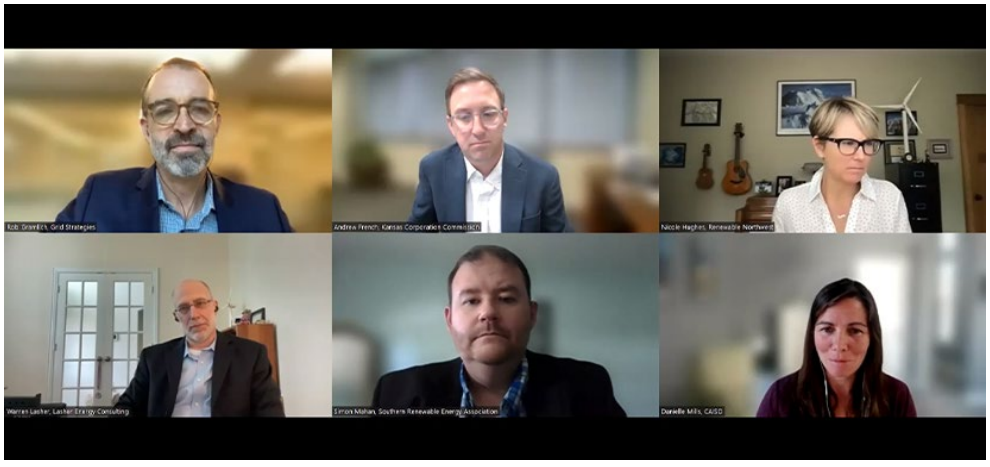
Led by the Western Power Pool and approved by FERC this year, the Western Resource Adequacy Program will coordinate resource adequacy efforts across 10 Western states and British Columbia. (See *FERC Approves Western Resource Adequacy Program.*)

Mahan also highlighted potential benefits of an RTO for the Southeast to limit the number of balancing areas and improve reliability. He noted that a Brattle Group *report* released this year for South Carolina found that the state would generate about $300 million in net benefits by integrating with PJM.

Warren Lasher, former senior director of system planning at ERCOT, said that growing electricity demand poses a significant challenge for Texas. He added that increasing frequency of extreme weather events can make it difficult to project reliability based on historical data.

Hughes said the impacts of climate change on both wildfire risks and the capability of hydroelectric resources in the Northwest will be difficult but essential factors to model in the future.

"We rely significantly on the hydropower system, and there's a lot of questions about what that's going to look like going forward," Hughes said. "What is average seems to be changing, and that's why diversity of resources across a larger grid is so important." ■



Clockwise from top left: Rob Gramlich, Grid Strategies; Kansas Corporation Commissioner Andrew French; Nicole Hughes, Renewable Northwest; Danielle Mills, CAISO; Simon Mahan, Southern Renewable Energy Association; and Warren Lasher, Lasher Energy Consulting | *American Council on Renewable Energy*

ISO-NE News

ISO-NE Outlines Economic Challenges of Decarbonization

By Jon Lamson

Significant decarbonization of the grid relying on solar, wind and storage is possible, but will be extremely expensive and may require updates to markets and compensation mechanisms, ISO-NE told its Planning Advisory Committee last week, reporting on the policy scenario results from its Economic Planning for the Clean Energy Transition (EPCET) pilot study.

The results highlighted the need for dispatchable generation as weather-dependent renewables come online and found that long-duration storage will become increasingly valuable in the coming decades.

"Longer duration storage becomes more valuable because it is more effective in shifting larger quantities of energy to the declining number of emitting hours," said Benjamin Wilson of ISO-NE. "Seasonal storage, which could move large volumes of energy from the shoulder months to the winter, would be very useful but would be expensive to compensate."

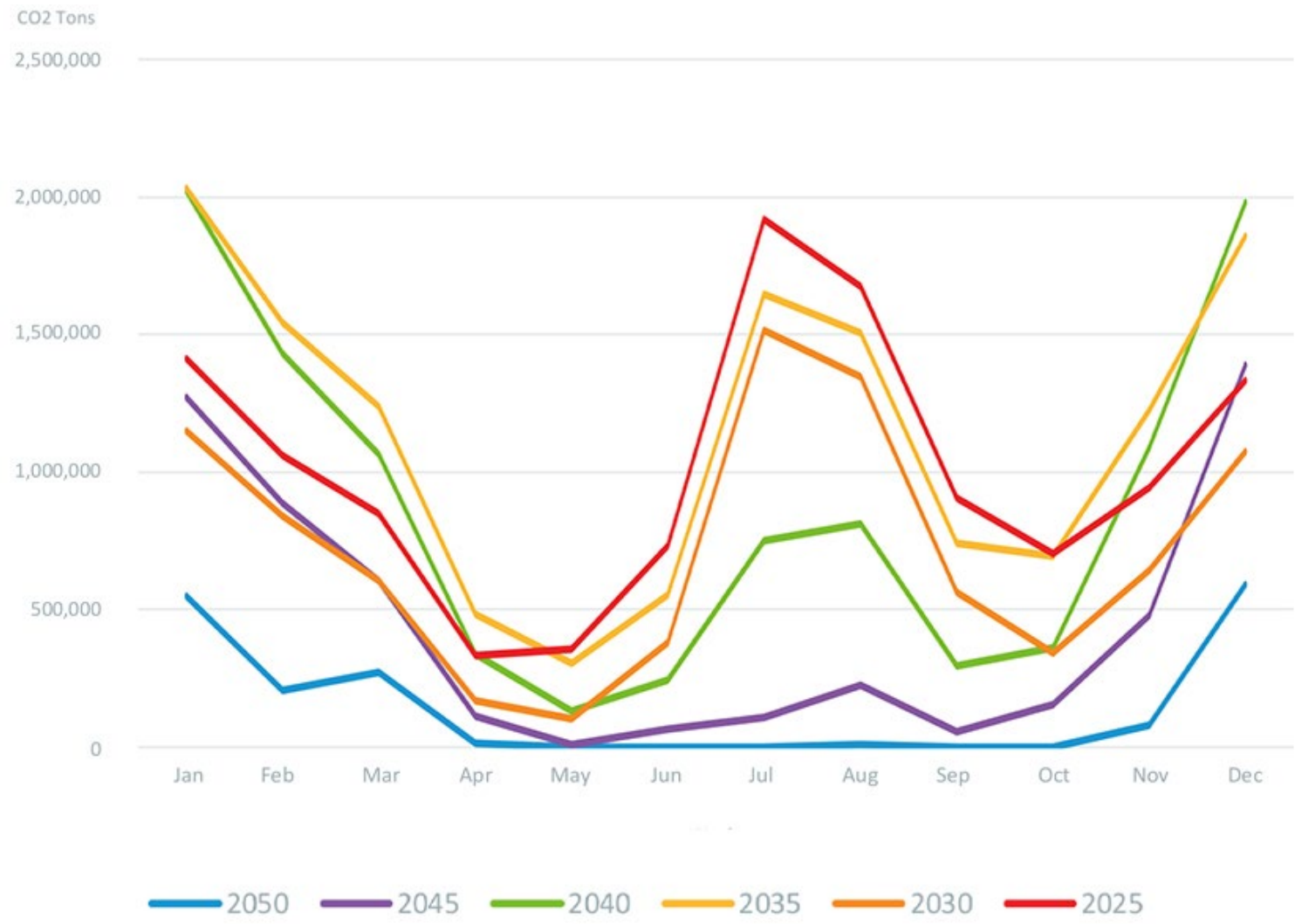
ISO-NE said that carbon reductions will become increasingly costly over time as the system decarbonizes.

"Subsequent additions of a given resource type have declining economic and carbon-reduction value," Wilson said. "Emission reduction becomes an effort to procure new intermittent or energy limited resources to displace peakers."

The RTO's model still included some dispatchable fossil fuel generation in 2050, totaling about 1.4 million tons of annual emissions, as well as some generation from municipal solid waste, landfill gas and wood.

"When the majority of generating resources are intermittent and weather-driven, there will be conditions where dispatchable generation must be relied upon," Wilson said. ""The worst-case reliability hours may not be the highest load hours. Instead, the indicator for worst-case reliability may be hours of dunkelflaute (dark wind lull) which coincide with moderate loads."

The modeling did not include a significant generation role for low-carbon fuel alternatives, but Wilson said that future EPCET analyses could include these options. The presentation did not compare the energy costs of the carbon-constrained scenario to a



Monthly distribution of carbon emissions through 2050 | *ISO-NE*

ISO-NE News

business-as-usual case, which Wilson also said could be considered in the future.

The economy-wide costs related to climate impacts of unconstrained emissions are also projected to be extremely expensive — a 2022 *white paper* by the White House Office of Management and Budget estimates that the financial impacts of climate change to the U.S. could reach $2 trillion annually by 2100, or a 7.1% reduction in federal revenue.

Future Capacity Requirements

ISO-NE also presented an overview of the results from its installed capacity requirement (ICR) and operational capacity analysis to the Planning Advisory Committee on Thursday.

The ICR is the minimum amount of installed capacity needed to ensure grid reliability for the region, while the net ICR — used to determine the amount of capacity procured by the RTO in the Forward Capacity Auction — equals the ICR minus the Hydro-Québec Interconnection Capability Credits.

Projecting out through 2033, the RTO expects the Net ICR, along with the gross peak load, to slightly increase as electrification increases. ISO-NE said this increase in electrification will cause elevated winter reliability risks in the early 2030s.

"With the growing load, primarily due to the increasing electrification forecasted in the 2023 CELT Report, we observed some loss of load risk during the winter, particularly during the later years of the forecast cycle," said Helve Saarela of ISO-NE.

"Assuming that the amount of CSOs (31,370 MW) procured in FCA 17 stays in-service and assuming additional Sponsored Policy Resources, there should be an adequate amount of capacity to meet the resource adequacy needs," Saarela added.

Asset Condition Projects

Also at the PAC meeting, Eversource outlined plans to spend approximately $577 million on three asset condition projects:

Eversource plans to replace two underground 115 kV cables — covering about seven total miles — near Southwest Hartford, Connecticut, with a projected cost of $301.6 million and an in-service date of late 2026. Eversource said the replacement would reduce hazards related to deteriorating infrastructure, improve reliability and increase capacity.

The utility company proposed to spend $269.9 million to replace over 800 wood structures with steel structures across 10 115 kV transmission lines in New Hampshire. Many of these structures are relatively new laminated wood structures installed between 2000 and 2014. Eversource said this is the final phase of the company's Laminated Wood Structure Replacement Program and said the new structures would increase resilience and reliability and enable larger conductor sizes in the future. The projected in-service dates ranged from early 2024 to the second half of 2025.

Finally, Eversource said it plans to spend $5.5 million to replace 15 relays at a substation in Deerfield, Massachusetts, saying suppliers are no longer making replacement parts for the equipment. The projected in-service date is the first half of 2025. ■

ISO-NE News

Public Power Groups Seek Information on Mystic Agreement

Groups Target Details on Fuel Supply Costs, Audits, Selection of Auditor

By Jon Lamson

A group of municipally owned utilities from across New England is seeking additional information related to the cost-of-service agreement between ISO-NE and the Mystic power plant in Massachusetts, arguing that the RTO has not provided adequate transparency to consumers.

ISO-NE entered into the two-year agreement with Constellation Energy in 2018 (*ER18-1639*) to address fuel security in the region. The Mystic generation station, the primary customer of the Everett Marine Terminal, was slated to retire when its capacity supply obligation expired in 2022. The Mystic agreement will keep the plant operating through the winter of 2023/2024.

Everett is one of just three LNG import terminals serving New England and therefore is not subject to gas transmission reliability concerns. Mystic and Everett are both owned by Constellation.

Under the agreement, ISO-NE is responsible for the bulk of Mystic's and Everett's operating costs, which are eventually passed on to New England ratepayers. The agreement gives ISO-NE the right to perform detailed audits of Constellation's compliance with the agreement to ensure that it is operating at the least cost to ratepayers.

FERC in 2018 *ordered* ISO-NE to "allow redacted versions of its reports to be publicly available and allow less redacted versions to be available to state commissions and other administrative nonparticipant bodies."

The D.C. Circuit Court of Appeals denied a challenge to the agreement in 2022, but it did require FERC to *order on remand* that "interested parties may review and challenge the tank congestion charges during the true-up process."

In a *May 19 filing*, a coalition of groups representing municipally owned utilities — including Massachusetts Municipal Wholesale Electric Co., Connecticut Municipal Electric Energy Cooperative, New Hampshire Electric Cooperative and Vermont Public Power Supply Authority (dubbed "Public Systems" in the proceedings) — argued that ISO-NE has not disclosed enough information for consumer groups to review and challenge the charges. They called for the release of a wide range of information related to the Mystic agreement.

Mystic Generating Station, on the Mystic River in Everett, Mass. | *Shutterstock*

The request said the agreement cost ratepayers more than $436 million in its first 10 months, "most of which appears to reflect the cost of rejecting or disposing of excess LNG procured by Constellation."

As LNG costs skyrocketed this winter, the costs associated with the Mystic agreement dramatically increased, despite the fact that lower temperatures and natural gas prices reduced energy costs overall across the region. Much of the LNG procured by Everett was ultimately unnecessary to meet the region's energy needs, with a large portion of the costs going toward managing the LNG storage tanks as new shipments came in. (See *ISO-NE Market Monitor Reports Decreased Winter Energy Costs*.)

"Given the magnitude of the charges passed through so far and how little information ISO-NE and Mystic have made public to justify them, we respectfully request that the commission act to require disclosure of information necessary to ensure that ISO is doing an adequate job of supervising Mystic's fuel-management practices," Public Systems wrote in their May request to FERC. "Requiring disclosure should help to enable New England ratepayers to take appropriate action to protect themselves against unwarranted charges."

Public Systems' letter included requests for monthly details about specific fuel supply costs related to the Mystic agreement, documents used to evaluate Constellation's fuel supply plan and documents concerning the results of the monthly fuel supply audits conducted by Levitan & Associates Inc. (LAI) on behalf of

ISO-NE News

ISO-NE. The letter also requested information regarding ISO-NE's selection of LAI to conduct the audits, as well as the contract between ISO-NE and LAI.

In responses to this motion June 9, representatives from Connecticut's Department of Energy and Environmental Protection, Office of Consumer Counsel and Office of the Attorney General expressed their *support* for the motion, while Constellation Energy *opposed* it, citing procedural issues and calling it "unnecessary and potentially harmful."

ISO-NE *proposed* to make limited additional disclosures, smaller in scope than Public Systems' request. It offered to disclose redacted versions of the fuel supply audits and hold three question-and-answer sessions for stakeholders with LAI. However, ISO-NE resisted the broad disclosure demands, arguing that "Public Systems have made no showing that the ISO's exercise of its audit rights under the agreement has been deficient, that LAI's auditing has been deficient or that charges incurred to date under the agreement are erroneous."

The RTO in May released a *public summary* of the audits and the auditing rights of the RTO related to the Mystic agreement.

The Connecticut agencies argued that the audit summaries released by ISO-NE thus far remain inadequate, saying the disclosures "offer insufficient insight into how the auditor reached its conclusions, let alone facilitate an independent evaluation of whether the procurement strategies that have been employed, and their resultant costs, are just and reasonable."

Conversely, ISO-NE argued that the audits commissioned by the RTO have been in line with the agreement and that Public Systems' requests go beyond the level of disclosure required.

"The breadth of Public Systems' requests here suggests an effort to 'audit the auditor,' a process that would enmesh the ISO in highly burdensome discovery over the audits' conclusions," the RTO wrote.

Constellation argued in its response that factors related to weather and global LNG prices are beyond the companies' control and are not a valid reason to alter the existing agreement.

"It was always well understood that Mystic would manage its fuel supply to provide reliability and that such tank management could be costly," Constellation wrote.

The company added that some of the information requested could lead to security issues, violate nondisclosure agreements and lead to the release of competitively sensitive information.

"The only 'new' fact here — the increase in global LNG prices that is the primary basis given by movants for their requested relief — was not of Constellation's making and provides no basis for second-guessing the already audited tank-management decisions made by Constellation," the company wrote.

Representatives of Constellation, ISO-NE and the Public Systems declined to comment for this article.

Audit Impartiality

Public Systems specifically asked for additional information about how ISO-NE selected LAI to audit Constellation's fuel supply activities and charges, requesting disclosure of the RTO's request for proposals to perform the audit along with the audit contract.

They added that ISO-NE has not disclosed "the basis on which ISO-NE determined that Levitan — which has testified repeatedly about the importance of retaining Everett and the need for Mystic to fund Everett's operations — is sufficiently impartial to conduct the fuel supply audit."

In its response to the filing, ISO-NE resisted disclosing additional information about the selection of LAI to perform the fuel supply audit.

"The ISO employed a request-for-proposal process that was typical of similar contracting efforts by the ISO, received multiple responses, and selected LAI based on qualifications and cost," ISO-NE wrote. "The ISO respectfully submits that, in the absence of a showing that LAI is unqualified to perform the audits capably, these requests distract from the task of administering the" agreement.

Richard Levitan, president of LAI, said the disclosure of information related to the RFP and the contract is ISO-NE's decision.

"If they're comfortable, then we're comfortable. If they're not comfortable releasing it, we understand," Levitan told *RTO Insider*. "I just would want to be sure that commercially sensitive information to Levitan & Associates is not swept up with such disclosure."

Levitan dismissed concerns about the impartiality of the firm and said LAI is well positioned to identify any issues, given its specialization in fuel and renewable energy procurement.

"If after 30-some-odd years of business we failed the impartiality test, we would have long since shut our doors," Levitan said. ■

MISO News

MISO Modeling Line Options for 2nd LRTP Portfolio

By Amanda Durish Cook

MADISON, Wisc. — MISO says it's on track this year to map the new transmission lines required for its second long-range transmission plan (LRTP) portfolio.

"We're facing unprecedented circumstances, new conditions coming at us faster," Aubrey Johnson, vice president of system planning, said last week during the Board of Directors' System Planning Committee meeting.

Johnson said resource churn is driving MISO's need to pull together a second Midwestern LRTP portfolio. He said staff are planning to regularly update 20-year transmission planning futures after a refresh this year revealed dramatic changes since the previous update in 2020 (See *MISO: Long-range Tx Needed for 369 GW in Interconnections*.)

"The system we're operating, and the plans our members have are dynamic, and they're changing day by day," Johnson said.

The grid operator has finalized the second of the portfolio's three futures, a mostly decarbonized scenario that anticipates a 2042 energy mix comprised of 51% wind, 22% solar, 8% battery, 8% other resources and 7% nuclear. It also includes a 2% hybrid with renewables paired with storage and a 1% contribution each from coal and natural gas.

MISO hopes that the last 0.3% of the energy mix will come from 29 GW of "flex" resources, yet undefined resources that are expected to be a dependable, on-call source of firm capacity.

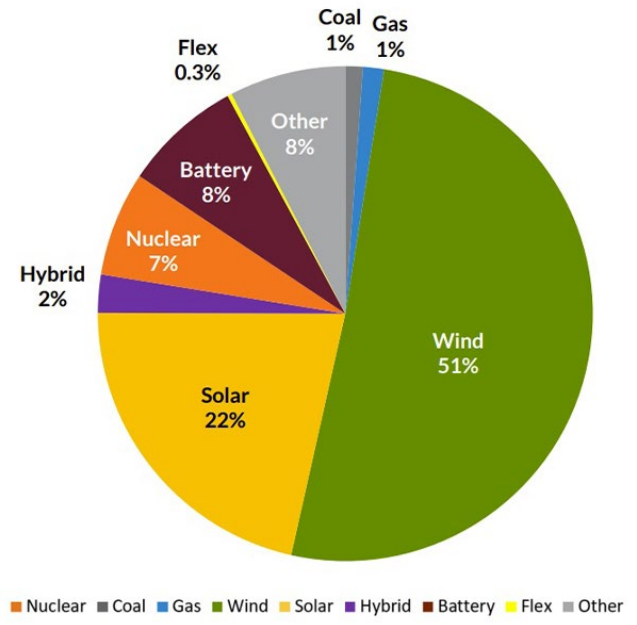
The second future projects MISO will operate with 466 GW of nameplate capacity. That is broken down into 160 GW of wind generation, 112 GW of solar, 65 GW of natural gas, 41 GW of other generation, 31 GW of battery storage, 29 GW of "flex" resources, 12 GW of nuclear, 10 GW of storage and 6 GW of coal.

Johnson said though the RTO still expects to operate several gigawatts of gas and coal facilities, their energy contributions will be on a strictly as-needed basis.

"We need to have these resources, but they're going to be used very infrequently. But when they're needed, they're needed," Johnson stressed.

MISO foresees risks during calm, hot summer days when the wind doesn't pick up after sunset and during winter daytime load peaks, where there's a risk of unserved energy before sunrise and after sunset. Johnson referred to those risky periods as the grid operator's "twilight problem."

He said staff are anticipating escalating thermal generation retirement requests and are preparing to study them. MISO plans to complete the second LRTP portfolio's modeling by early fall. That modeling will inform which projects MISO ultimately recommends.



MISO's anticipated 2042 energy mix | *MISO*

"We're getting ready for the sprint, if you will," Johnson said.

Johnson said it's getting more challenging to feasibly model a future system that can reliably serve load with the resource mixes on the horizon.

"In reality, we're probably behind in the way we've done some of our economic analysis," he told board members.

Senior Director of Transmission Planning Laura Rauch said MISO's resource expansion tool currently used for transmission planning was intended to account for large baseload power sources, not siting a host of scattered wind and solar facilities.

Johnson said the RTO's forthcoming proposal to tighten rules around when developers can enter and exit the interconnection queue should make clear to planners the future mix they're planning for. (See *MISO Wants Tougher Obligations on Queue Entry and Exit*.)

He said MISO is hoping to encourage generation plans that are "targeted toward completion rather than targeting holding a place in the queue."

The grid operator's current generator interconnection queue contains 1,379 active projects totaling a little more than 237 GW. Almost all of that is renewable energy or battery storage.

"Future generations are depending on this to get this done and get it done right," director Mark Johnson said of the expansion planning.

Ciaran Gallagher, with nonprofit Clean Wisconsin, said MISO is neglecting storage resources in its annual transmission and LRTP planning. She said there's "insufficient" representation of battery storage in modeling and the RTO's assumptions don't represent the projects in the queue.

Gallagher said storage and hybrid resources can "bolster the grid with attributes" that MISO is losing through thermal generation retirements. She said more battery storage incorporation must be considered "to plan the optimal grid."

ROFR Developments May Complicate LRTP Planning

Johnson also addressed right-of-first refusal (ROFR) legislation activity in the MISO footprint.

He said staff are monitoring developments in Illinois and Iowa. A bill in the former that would specifically give Ameren Illinois exclusive rights to build regional MISO lines has passed both houses and is awaiting the governor's signature (*HB 3445*). Iowa's ROFR law has been temporarily overturned, pending a final ruling from a district court. (See *Iowa Regulators Ponder MISO Tx Projects After ROFR Ruling*.)

Both developments could determine which utilities are allowed to construct some projects in the LRTP portfolios.

"There's a lot of activity we're following and working with our legal team to understand the implications," Johnson told board members. ■

MISO News

JTIQ Portfolio Cost Estimate Nearly Doubles to $1.9B

Portfolio Could Get Federal Money; Previous Estimate was Old, Theoretical

By Amanda Durish Cook

MADISON, Wis. — The cost estimate for MISO's and SPP's package of 345-kV lines meant to facilitate the interconnection of generation at the seams has nearly doubled, the RTOs have said in the past week.

The portfolio's costs have climbed from $1.1 billion to $1.9 billion because of the mounting cost of materials and labor and the transmission owners providing more precise routing options.

Aubrey Johnson, MISO's vice president of system planning, updated the joint targeted interconnection queue's (JTIQ) cost estimate during the grid operator's Board Week in Madison, Wis., last week.

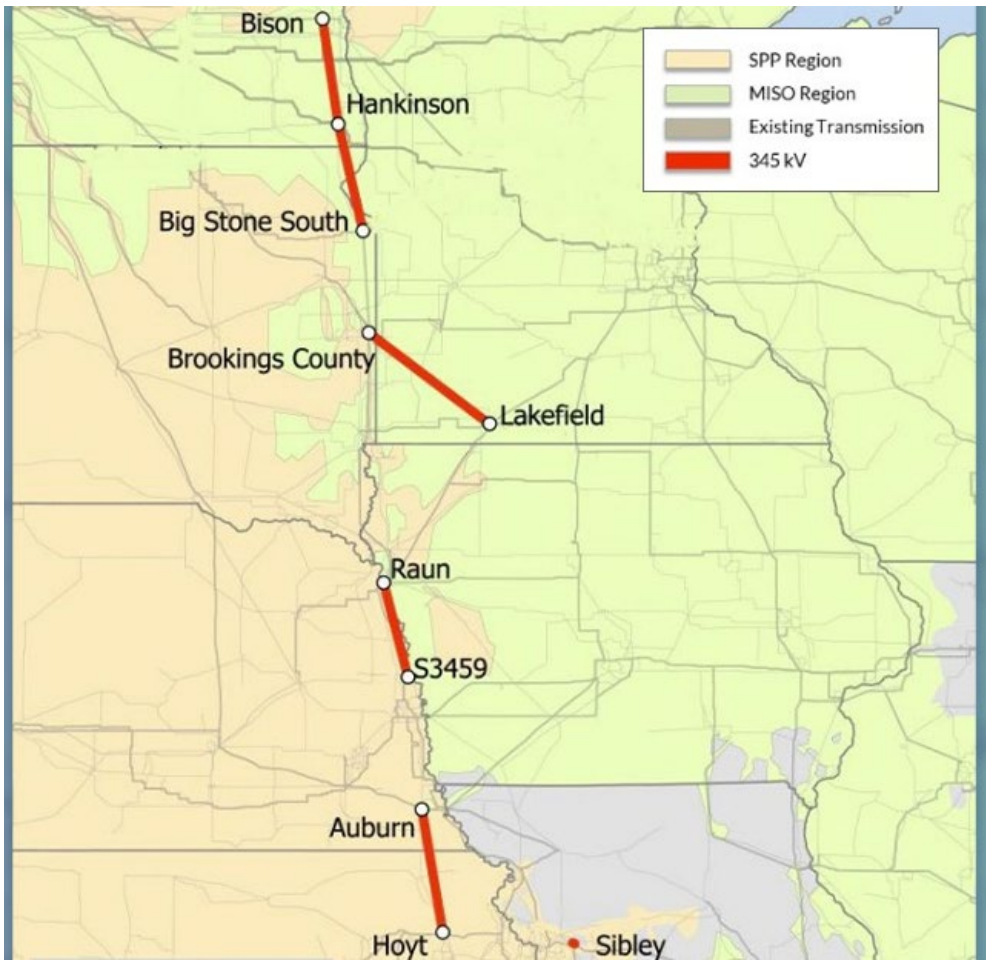
The increased amount was included in an application led by the Minnesota Department of Commerce and The Great Plains Institute for Department of Energy funds from the agency's *Grid Resilience and Innovation Partnerships* program. If successful, the JTIQ portfolio could receive up to 50% funding match from the federal government. (See *DOE Clears JTIQ Projects to Proceed with Funding App*.)

MISO said the first cost estimate was theoretical and two years old.

"The 2023 JTIQ application to DOE reflects a higher end, broader scope, cost estimate for matching federal funds, and it is not directly comparable to the 2021 planning-level cost estimates," MISO spokesperson Brandon Morris said in an emailed statement to *RTO Insider*. "Since 2021, we have also seen inflationary pressures and supply chain uncertainty."

"Developers are having heartburn about the cost increases and would like to have some understanding and parameters around the increases," Clean Grid Alliance's Beth Soholt said during an Advisory Committee meeting Wednesday.

She urged MISO and its transmission owners to institute "checks and balances," given the JTIQ's proposed cost allocation that has generation developers responsible for 90% of costs and load picking up the remaining 10%.



MISO and SPP's JTIQ portfolio | *MISO and SPP*

MISO said it will further update stakeholders on the JTIQ's application for DOE funding at a June 27 combined Planning Advisory Committee and Regional Expansion Criteria Benefits Working Group meeting.

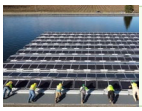
During an SPP Seams Advisory Group meeting June 9, the RTO's Aaron Shipley said staff is reviewing the cost increases and developing a more detailed breakdown of the rising prices.

"Whereas originally we were working on a conceptual cost estimate basis, as we get closer to it, we find those cost estimates from the TOs themselves," he said. "Some of that [is] inflation impacts … but also more accurate routing of assessments, materials' costs, the construction timeline [and] supply chain concerns. Those type of items really drove some of that cost [increase]."

Shipley said had the applicants' DOE application used the $1 billion estimate, they would have been limited to up to half that amount should the agency award any funds. ■

— Tom Kleckner contributed to this report

Midwest news from our other channels



Michigan Township Plans Floating Solar Farm

NetZero Insider

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MISO News

MISO Awaiting Construction on 40 GW of Approved New Resources

Ex-FERC Commissioner Norris: MISO is Wasting Time on Restrictions

By Amanda Durish Cook

MADISON, Wis. — MISO membership and executives last week discussed how to hasten the construction of more than 40 GW of generation projects that have permission to connect to the grid but haven't been built.

At MISO Board Week June 13-15, MISO leadership repeatedly mentioned that the system is sitting on 42 GW of unbuilt resources that have cleared the interconnection queue and would shore up deteriorating reserves.

During a resource adequacy roundtable at the June 14 Advisory Committee meeting, MISO Director Todd Raba asked how MISO might spur construction on those projects with signed agreements.

Sustainable FERC Project's Natalie McIntire said supply chain issues are part of the equation, but she said many projects are waiting on future regional transmission projects.

"These generators don't have a highway to market, so they're not being built. So, we have a variety of issues that are coming to play here," she said.

Sierra Club attorney Greg Wannier agreed new transmission is key to easing resource adequacy concerns.

Travis Stewart, representing the Coalition of Midwest Power Producers, said many of those paused generation projects were proposed three to five years ago in a pre-COVID world and have since been subject to macroeconomic challenges. He said the projects are emerging from "COVID limbo," with developers now figuring out how they can be adjusted to be profitable.

Wisconsin Public Service Commissioner Tyler Huebner said the faster MISO can get generation projects through the queue and connected, the sooner the footprint's resource adequacy concerns can be downgraded.

During the June 15 board meeting, Senior Vice President of Markets Todd Ramey said MISO is surveying the developers behind the interconnection projects. In some cases, the projects have languished with generator interconnection agreements that are now two years old.

"Bringing new resources online is an important part of the reliability imperative," Ramey said. He added that MISO is ready to support the developers to lessen "bottlenecks" to building.

In a public comment session, John Norris, former chair of the Iowa Utilities Board and former FERC commissioner, chastised MISO for not getting a jump on major planning sooner to bring new resources online.

He said MISO is wasting its time proposing new restrictions on which generation projects can enter its interconnection queue when new transmission routes would allow generation projects to proceed.

Norris said when even his teenage son is aware that a "gazillion" gigawatts of renewable energy are stalled in interconnection queues because the grid is insufficient, it's a good indication that the public is increasingly aware that new transmission is foundational to the clean energy transition.

Norris said it's appalling that there's now going to be at least a "quarter century" of lag time

MISO's Board of Directors listens to staff on June 15 | *© RTO Insider LLC*

MISO News

between Entergy and other southern entities forming MISO South and MISO overseeing an expanded transfer built between MISO Midwest and South. Norris was relying on an average decadelong planning and construction phase for major transmission for the 25-year estimate. MISO's center-of-the-country position means it has a distinct duty to ensure that transmission is being built sooner, he argued.

In the long run, MISO is still banking on a flock of new renewable sources — and a host of new requirements to govern them.

Scott Wright, MISO | © RTO Insider LLC

Executive Director of Resource Planning Scott Wright said the 466 GW of nameplate capacity MISO envisions having in 20 years is going to be "a different animal" and introduce new market complexities. (See related story, *MISO Modeling Line Options for 2nd LRTP Portfolio*.)

"We're going to have 400 GW, four times the load, because of the attributes we desire," he told MISO's Advisory Committee.

MISO said in the future it will likely measure hourly energy adequacy, use AI to manage uncertainty and target certain amounts of reliability attributes from generation.

"We feel we're sitting in an untenable position not making these reforms, maybe sitting in an unsafe position not making these reforms," Wright said.

WEC Energy Group's Chris Plante said, "Maybe MISO should consider clearing an amount of resources with certain [reliability] attributes." MISO has said six generating attributes are necessary to its system operations: availability, delivering long-duration energy at a high output, rapid startup times, providing voltage stability, ramp-up capability and fuel assurance. (See *MISO to Evaluate System Attributes Through Year's End*.)

Plante said capacity auction prices bouncing from "next to nothing" to the cost of new entry is evidence that other states and load-serving entities might not be carefully planning how to furnish those attributes.

"We plan on bringing our fair share to the table. Others should do the same," he said.

MISO Director Mark Johnson asked if some entities have possibly "lost sight of their obligation to serve" because they have belonged to the larger MISO resource pool for so long. Members pushed back and insisted their individual load obligations are top of mind amid the fleet transition.

McIntire said MISO's Planning Resource Auction "isn't necessarily giving us a signal about the future" because it measures capacity for only one year. She asked that MISO put together a "new, more formalized" resource adequacy forecast that predicts accredited capacity on five-, 10- and 15-year horizons.

MISO CEO John Bear said MISO has much to do to address emerging reliability risks. He said the ongoing discussion on how to encourage generation that can provide certain system attributes is crucial.

"How do we find these controllable, long-duration resources that can cover our risk during a wind or sun drought? We've got to work on that. We've got to get to that," Bear said at MISO's board meeting. ■

MISO News

MISO: Sufficient 2023/24 Auction No Cause for Comfort

By Amanda Durish Cook

MADISON, Wisc. — MISO executives again emphasized that this year's capacity auction results aren't indicative of the resource adequacy risks the system is going to confront in coming years or even within a few weeks.

Executive Director of Market Operations J.T. Smith said members' reaction to last year's high prices and MISO's new seasonal design helped MISO achieve capacity sufficiency in the 2023/24 planning year that began June 1. (See *1st MISO Seasonal Auctions Yield Adequate Supply, Low Prices*.)

But he issued a warning that the results shouldn't leave MISO complacent.

Smith said from last year to this year, members cut back on their load forecasts, deferred baseload generation retirements, and some units left PJM for the MISO capacity construct.

"The $10/MWh summer number does not say all is well," Smith warned the MISO Board of Directors at a June 13 Markets Committee meeting. "We're not fixed. We still have a lot more to do in making sure this market sends the right price signals."

Senior Vice President of Markets Todd Ramey said the approximate 5-GW supply improvement over last year in the auction comes down to factors that are not "repeatable or sustainable."

Smith said MISO has more to do to value capacity in accordance with its reliability contribution and incent new generation. He said adding the seasonal component this year was an important step.

"As an operations person, I'm interested in how the seasonal construct lowered summer pricing. That's a surprising outcome. I feel much more confident in where we're moving versus where we've been," he said.

But Smith said over the summer, MISO "may have to lean on non-firm imports all the way to load management" on the chance that the nation experiences a prolonged, widespread heatwave that drives up load. He said if MISO's previous forecasts for heat concentrated in June and a cooler July and August pan out, "it should be an easy summer as it was an easy spring." (See *MISO: Little Firm Capacity to Spare This Summer*.)

MISO Independent Market Monitor David Patton said under more realistic summertime modeling using historic generator availability, he foresees the potential for negative reserve margins this summer; however, he said MISO's vast import capability means the RTO likely will be resource adequate in a heatwave.

"With the seasonal capacity market, I believe we're creating stronger incentives for resources not to schedule outages in the summer," Patton said.

However, he said MISO might be undercounting de-rates in high temperatures because some thermal resources must cut output to avoid discharging warm water into rivers at certain times. He also said MISO's long-lead resources aren't realistically available to respond in time when needed.

"These aren't the greatest scenarios to be under," he said.

Otherwise, MISO oversaw an operationally straightforward spring, with an average 69-GW load. Smith said real-time prices were down from an average $57/MWh in 2022 to $26/MWh mostly due to a stabilized gas market.

"You can see the energy prices dropped by half because gas prices dropped by two-thirds," Patton said.

Patton said the nation's gas storage is 20% higher than usual because the mild winter allowed production to continue while fuel demand dipped. He also said the lower gas prices in spring mean that MISO's coal resources were back to earning very little profit, "somewhere in the neighborhood of $5/MWh." Over 2022, coal generation was unusually profitable because natural gas prices shot upward. ■

From left: MISO counsel Andre Porter, IMM David Patton, MISO Executive Director of Operations J.T. Smith and MISO VP Renuka Chatterjee | *© RTO Insider LLC*

NYISO News

NYISO Management Committee Briefs:

Vote Set on Rate Schedule 1

BOLTON LANDING, N.Y. — NYISO stakeholders will vote July 26 on whether a new study should be conducted to evaluate the cost allocation between transmission withdrawals and injections.

ISO officials *previewed* the vote on the Rate Schedule 1 cost-of-service study last week at a joint Board of Directors and Management Committee meeting.

Rate Schedule 1 governs the charges made to market participants using NYISO's open access transmission system and helps ensure that all participants are charged fairly for their services.

RS1 allocations were last changed in 2011 and are currently set at 72% for withdrawals and 28% for injections. Roughly 67% of the MC at the time supported the allocations, which were scheduled to be effective for a minimum of five years, with a Management Committee vote required in the third quarter of this year.

Recent attempts to adjust RS1 allocations were voted down by stakeholders. (See "Cost of Service Study," *NYISO Management Committee Briefs: July 28, 2021*.)

But the ISO told stakeholders last week that "in recent years, discussions with market participants have indicated that a study is necessary in the future due to evolving market changes."

The most recent RS1 allocation study, performed by Black and Veatch in 2011, cost about $215,000 and took six months to complete. The study included analysis of ISO data, staff interviews, and comparison of practices of other grid operators.

The ISO has steadily increased the allocation for injections since 1999, when withdrawals were allocated 100% of costs.

Should the MC vote to conduct a new study, NYISO anticipates new RS1 allocations would be effective by 2025.

Solicitation for MMU Evaluations

NYISO has *opened* its annual solicitation of stakeholder feedback on its market monitoring unit, Potomac Economics.

NYISO is asking for comments on the MMU's performance, suggestions on how the MMU's duties should change or improve, and opinions whether the ISO should search for a new MMU.

The ISO has worked with Potomac for more than a decade, and some attendees had questions about this ongoing relationship.

One attendee expressed concerns about the ISO's reliance on Potomac's proprietary software, asking if there could be issues should either the ISO decide to work with another MMU or the data gets compromised.

Shaun Johnson, director of market mitigation and analysis at NYISO, responded that Potomac has made significant upgrades to their cybersecurity and information technology systems and has an off-site datacenter that backs up their data to give them redundancy capabilities. Should the ISO hire another MMU, any transition would include considerations about how Potomac's NYISO data would be shared and used, he said.

The same attendee asked whether NYISO's relationship with the MMU has changed over the years, saying there is a perception that the ISO does not listen to Potomac's recommendations as much as before.

"We have meetings and conversations with the MMU every day," Johnson said. "So what you see at stakeholder meetings are maybe just the end results or beginning of those conversations.

"Just like within NYISO and within the stakeholder community, sometimes we agree with each other, sometimes we disagree with each other, but it's really about collaborating to come up with the best results," Johnson said.

NYISO requested that comments be sent to either *sjohn@nyiso.com* or *deckels@nyiso.com* by July 31. Submitted feedback will be confidential.

FERC Update

FERC staff updated the MC about what the agency has been doing for the past year and what plans NYISO should be aware of.

FERC energy industry analyst Emily Chen said FERC is reviewing NYISO's third Order 2222 compliance filing to determine whether more revisions are needed (*ER21-2460*). (See "FERC Compliance Filings," *NYISO Business Issues Committee Briefs: May 24, 2023*.)

Leanne Khammal, deputy director of FERC's Division of Electric Power – East, said the agency continues to work on improving interconnection queue backlogs via Notices of Proposed Rulemaking (*RM22-14*), develop more effective winter emergency and reliability plans with Northeastern RTOs, and host technical conferences that seek to improve transmission planning processes, such as the upcoming *PJM Capacity Market Forum*.

Staff also told the MC that FERC is searching for a new NYISO liaison, since the position's previous holder recently retired. Staff said they are looking at ways to improve the role via stakeholder feedback. ■

— John Norris

NYISO gathers at the Sagamore Resort for the joint MC meeting. | © *RTO Insider LLC*

NYISO News

Clean Path NY Joins Calls for Inflation Adjustment

By Rich Heidorn Jr.

Clean Path New York on Wednesday asked state regulators to include it in any inflation adjustments approved for Tier 1 renewable energy certificates (RECs), saying generators would otherwise shun the 174-mile transmission project being planned to deliver power to New York City.

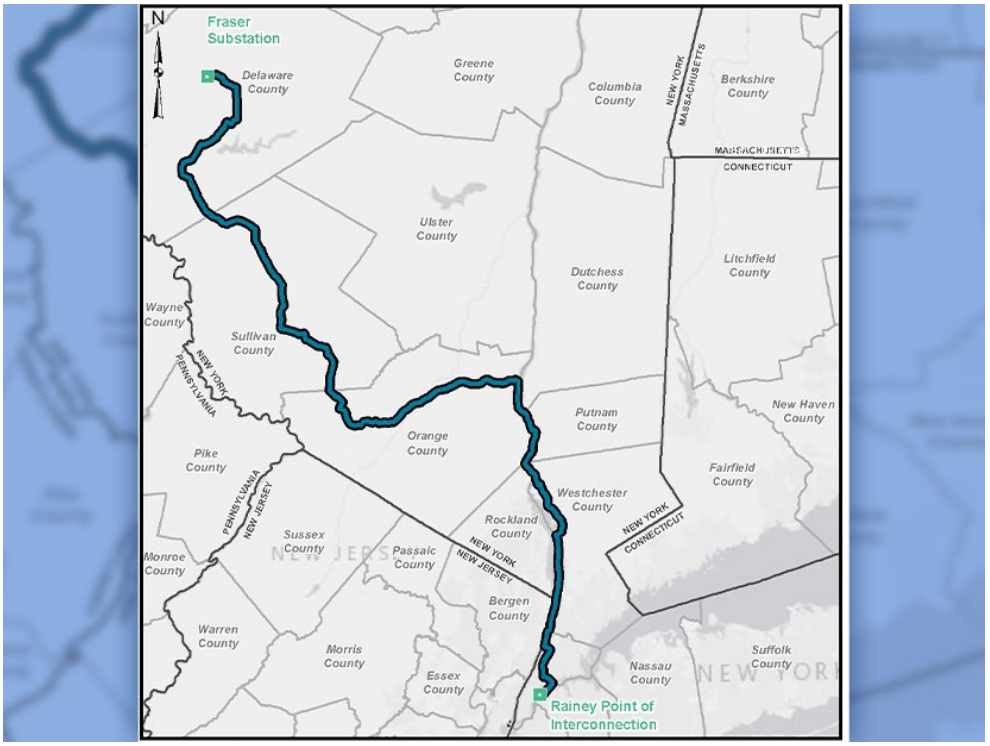
CPNY — a project of the New York Power Authority, Invenergy and EnergyRe — filed its *petition* with the Public Service Commission in response to a June 7 request by the Alliance for Clean Energy New York (*15-E-0302*).

ACE NY asked the PSC to authorize the New York State Energy Research and Development Authority to add an inflation-adjustment mechanism for projects awarded through NYSERDA's 2021 renewable energy certificate solicitation. ACE NY said its solar and onshore wind developer members were facing the same inflationary pressures that have caused offshore wind developers to seek to renegotiate their deals. (See *OSW Developers Seeking More Money from New York*.)

CPNY said it was seeking relief "due to the unforeseen and severe market disruptions that have occurred" since April 2022, when NYSERDA awarded it a contract to deliver 1,300 MW of renewable energy from upstate to Zone J in New York City. (See *NYPSC OKs 2 Huge Clean Energy Projects for New York City*.)

CPNY's contract is based on a single strike price that includes production and delivery of emissions-free power, with a portion of the REC payments going to 23 generation projects and the balance used to fund the transmission line.

Fourteen of the 23 projects in CPNY's generation portfolio hold Tier 1 contracts with NYSERDA, and the other nine are Tier 1-eligible wind and solar projects "that are experiencing exactly the same cost pressures," CPNY said.



Clean Path New York, planned to deliver 1,300 MW of renewable energy from upstate to New York City, is currently undergoing permitting and interconnection analysis, with an expected in-service date of 2027. | *Clean Path New York*

"To the extent that the commission provides an adjustment mechanism that shifts the price of Tier 1 RECs upward, CPNY will need to increase its payments to Tier 1 generators in order to induce their participation in CPNY," it said. "If CPNY does not provide the same level of net revenues to [its] resources … those resources would be commercially disadvantaged by participating in the CPNY project and therefore motivated to participate only in Tier 1."

CPNY, which emphasized it is not seeking to change the transmission component of its contract, asked the PSC to rule by Oct. 12. The transmission project, which has an expected in-service date of 2027, is currently undergoing permitting and interconnection analysis.

"If the commission fails to provide concurrent relief to CPNY, or if it fails to act on this request by its Oct. 12, 2023, session, CPNY will be unable to attract capital for the CPNY project or proceed with binding orders for the hundreds of millions of dollars in materials and equipment needed," it said. ■

Northeast news from our other channels

Driscoll to Remain Acting NYPA CEO After Failing to Win Senate Confirmation — NetZero Insider

Networked Geothermal Breaks Ground in Framingham — NetZero Insider

BLM Seeks to Slash Fees for Wind, Solar on Public Land — NetZero Insider

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NYISO News

Energy Bar Roundtable Examines NY Transmission Buildout

Climate Protection Informs All Efforts, PSC Chair Says

By John Cropley

NEW YORK — The Northeast Chapter of the Energy Bar Association held its annual meeting last week in New York, a state that's keeping attorneys practicing in the energy sector particularly busy.

The state's leaders boast of a nation-leading climate protection plan. Other states make similar claims, but New York would surely land at or near the top of any objective ranking.

It's a hugely complicated and expensive undertaking, with many people working to make it happen.

New York State Public Service Commission Chair Rory Christian | © *RTO Insider LLC*

New York State Public Service Commission Chair Rory Christian, keynote speaker at Wednesday's meeting, compared law to electricity: Society relies on both, expects both to function perfectly, but gives little thought to how they actually work.

The PSC has as its core mission maintaining affordable, safe, reliable, secure utility service, he said. But the passage of New York's landmark Climate Leadership and Community Protection Act in 2019 gave the PSC a central role in climate protection as well.

And it's taking steps every day to reduce greenhouse gas emissions from one of the largest sources: power generation.

"The results of this work will be seen in the form of changes to how our society uses and relates to the energy it needs to thrive," Christian said.

"Each of you in this room today, in some way, will be called upon to address these concerns. Though you may not be climate lawyers by name, every lawyer in this room, in one way or another, will be working on climate change. Your clients' needs will be increasingly driven by impacts of climate change, and it will be up to you to help support them through those efforts."

Christian set the stage for a roundtable discussion later in the meeting about transmission infrastructure in New York, noting that PSC's effort to reduce emissions from generation is only part of decarbonizing the power sector.

From left, William Hollaway of Gibson Dunn & Crutcher, Phil Toia of the New York Power Authority, Stuart Nachmias of Con Edison Transmission, Asha Gandhi of EnergyRe and Donald Jessome of Transmission Developers Inc. are shown at the Energy Bar Association's 2023 Northeast Chapter Annual meeting June 14 in New York City. | © *RTO Insider LLC*

"Transmission is incredibly important because it's integral to be successful in what we're doing. The system we built — one based on large, central power plants — requires a different kind of transmission infrastructure than the one we envision in the future, one that's largely decentralized, distributed, relying on smaller, more intermittent resources," he said.

"Building out this transmission infrastructure is going to be a critical component in our efforts to meet our goals. Accomplishing this is going to require a multipronged effort above and beyond the vehicles available to us."

Roundtable Discussion

Moderator William Hollaway, of Gibson Dunn & Crutcher, opened the roundtable on a positive note: Why have there been so many success stories with transmission infrastructure development in New York?

Asha Gandhi, a senior vice president at energyRe, offered four reasons: a policy that sets a very ambitious target for renewable energy generation and recognizes transmission's role in that; frameworks for public-private partnerships; a structure for revenue sourcing; and a streamlined permitting process.

EnergyRe is part of one of the largest clean energy projects in the nation, partnering with the New York Power Authority and Invenergy on Clean Path NY, which entails 3.8 GW of wind and solar power and a 175-mile HVDC line to bring that electricity to the New York City region at an estimated $11 billion cost.

Other questions and responses:

Q: What have you learned about stakeholder engagement?

A: It is critical before the project starts planning, while it is being built, and then during its 40-year lifespan, said Donald Jessome, CEO of Transmission Developers Inc.

"If you don't do stakeholder engagement, your project will never get built," he said. "Somebody else will tell your story, and they're not going to tell your story the way you want it to be told."

TDI is building the Champlain Hudson Power Express from Quebec to New York City. Jessome recalled there was opposition to the project from environmentalists for how they feared it would impact the Hudson River. So,

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he met with them, and brought along a piece of the cable he proposed to bury below the water. Their opposition dissolved when they saw how small it was.

A: Stuart Nachmias, CEO of Con Edison Transmission, said NIMBYism is alive and well. There's widespread support for clean energy, he said, except when its infrastructure is in somebody's backyard.

Getting feet on the ground and getting acquainted with the people who live there can help a lot, he said, describing a field meeting with a developer who pointed out the resident who raised llamas, the neighbor who baked cookies for the crew, the farmer who asked that the construction schedule be rearranged, and the person who was mollified by a tower being relocated 10 feet.

"Things like that make a difference," Nachmias said. "It doesn't mean that you won't get resistance — you still can. But it can help reduce resistance and help gain support."

Q: How do you address and protect disadvantaged communities in the development process?

A: EnergyRe is committed to spending over $300 million on community benefits, Gandhi said. It will bury the Clean Path NY line for its entire length, and rerouted it where necessary.

A: NYPA Development President Phil Toia said the state-owned utility has an active environmental justice group embedded in the community and in the development teams, working to be sure concerns are heard and solutions are sought.

A: Nachmias said it may be impossible to route a power line away from a given community, but that line will be carrying clean power and will be accompanied with community benefits such as vocational training.

A: Jessome said a point of pride for TDI is converting the site of a fossil-fired power station in a New York City pollution zone into the terminus for the CHPE line.

Q: What impediments exist to building all the transmission and generation that needs to be built?

A: Nachmias said there need to be transmission corridors rather than lines, especially for something like offshore wind.

"We didn't build the highways one lane at a time. The real way you're going to not get community support is to put one line in, and then come back and do the second line, and come back and build the third line. That's a recipe for failure."

Developers are not only not incentivized to build extra transmission, but they are also disincentivized, he said. Generation should be built separately from transmission, he added, so that first users of the transmission asset need not bear the entire cost of something that probably will outlive their generation asset.

"We're going to get one chance to get it right," Nachmias said.

A: Gandhi said energyRe would tend to agree that the process to bring offshore electricity onshore is not efficient, and the European model has been to build out the grid first, then allow interconnection.

Q: What if a latent bottleneck is created in the first wave of projects that will manifest itself as a barrier to later waves?

A: "That's the entire point of running all the NYISO studies," Gandhi said. "Hopefully, what we know, we're managing. Being the first is not always the easiest."

A: Toia said the state's 2040 goals are very clear. "So that's the North Star here, directing us where we'll go. Will we get everything right? Probably not. But we have a clear direction of where we are headed," Toia said.

Current NYPA transmission projects are addressing decades-old congestion, he added. "So, it's not that we were perfect before, either. That's just the nature of the system."

Q: Where do you look for signals and guidance?

A: Economic factors, market dynamics and the policy decisions that drive them, Gandhi said.

A: Reliability is a fundamental guiding principle, Nachmias said.

A: Demand-side signals are very important, but we still need supply, Jessome said.

Part of the Solution

Hollaway closed the session with the thought that the processes discussed Wednesday need to extend beyond policymakers, energy developers and attorneys to the millions of people who ultimately will reap the benefits of the decisions being made — as well as foot the bill.

The need, in other words, is for people to realize they are part of the solution.

"That might mean land use, but it also means contributing into the pot to help defray the cost of these things," he said.

The increasing visibility of electric cars and other tangible signs of change may help this happen, he said.

"As people see that, maybe they'll start to say, 'You know, I AM part of this transition, and I do have a responsibility to pay, I am a beneficiary,'" Hollaway said.

"Maybe the whole beneficiary-pays thing will become less abstract once people are actually seeing how this stuff hits home with them." ■

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Energy Bar Meeting Focuses on Financing Clean Power Transition

Funding Streams are Huge, but Securing them is Complex

By John Cropley

NEW YORK — With individual project budgets reaching into nine and 10 digits, financing often is front and center in discussions of the clean energy transition.

And it was the leadoff topic Wednesday, as the Northeast Chapter of the Energy Bar Association convened its annual meeting in Manhattan.

The confluence of headwinds and tailwinds in the early 2020s — war, contagion, inflation, policy support, the end of cheap capital, massive tax credits, massively complicated rules for those tax credits, delay upon delay — makes for interesting times.

Kurt Strunk, managing director of National Economic Research Associates, said the fundamentals are the same as always: "What's really needed is strong economic governance and reliable institutional foundations … The good news is, the institutional structure is there."

The traditional formula to finance a power plant — "an airtight offtake contract with a creditworthy counterparty" — is still a winning combination, in his opinion.

"It's true that the amount of investment needed to affect the energy transition is daunting," Strunk acknowledged.

The extensive tax credits of the Inflation Reduction Act were intended to accelerate the U.S. clean energy transition and help create a domestic manufacturing base to supply it. A secondary beneficiary has been the army of legal and financial experts putting together deals to leverage those credits.

Financing the Transition

"Tax equity bridge financing has been the flavor of the year so far," said David Avila of Paul Hastings LLP. "Everyone, with the IRA coming into place, is trying to take advantage of the ITCs and PTCs. That has really increased demand for the tax equity, which is now completely outstripping the supply."

He said he has spoken recently with banks that have traditionally worked only in debt but are now looking to move into tax equity. "I think that's going to be something we see evolving over the next couple of years."

Also, Avila said, banks are getting more comfortable closing on just a letter of intent with a credit-rated entity, rather than the signed tax equity contribution agreements traditionally required. That puts much more scrutiny on the sponsors themselves, he added.

From left, Alex Stein of the New York State Energy Research and Development Authority, David Avila of Paul Hastings, Martin Toulouse of the U.S. Department of Energy Loan Program Office, Vikram Bakshi of Skyline Renewables and Kurt Strunk of National Economic Research Associates are show at the Energy Bar Association's 2023 Northeast Chapter Annual Meeting on June 14 in New York City. | © *RTO Insider LLC*

"We're spending a lot more time structuring these deals than we ever have before. It's a lot more problem-solving and constructing the financing."

One aspect of the IRA — the domestic content adder — is problematic at this stage, Avila said. With U.S. manufacturing still ramping up or even still on the drawing board in mid-2023, it's entirely possible a project planned now will have less domestic content than originally expected once it's completed, years in the future. If the domestic content adder was factored into the financing but the project is disqualified from receiving it, there's suddenly a big hole in the financials.

Another problem Avila is seeing more than in the past is project attrition.

If interconnection upgrade costs are spread between several projects in the queue, and some of those other projects drop out of the queue, the entire cost falls on the surviving projects, blowing out their contingency budgets.

"We're getting a lot of questions from lenders … asking us to go into the dockets to see which interconnection providers have had these issues," Avila said.

Vikram Bakshi, managing director at Skyline Renewables, said he's been working in renewable energy since 2006 and sees enormous opportunity in 2023.

"In terms of market trends, couldn't be more optimistic," he said. "We see trillions of dollars of opportunity — not just cleaning up the grid, but if you look at decarbonization of the rest of industry, the numbers are enormous."

Renewables are the cheapest form of generation, there's regulatory support for them, the IRA creates tailwinds and corporations want to boost their ESG profile with green energy, he said.

"I'm not sure what obstacles and headwinds you're talking about, Kurt," Bakshi added, drawing a laugh from the audience.

Supply chain, financing, interest rates and indexed pricing, Strunk replied.

Bakshi acknowledged short-term supply chain constraints, cost increases and delays and uncertainty about IRA guidance.

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"But that's going to be sorted out. We're in no rush," he said.

Bakshi added an important detail: Skyline is not in early stage renewable development. It typically steps in at the notice-to-proceed or the commercial-operations-date stage.

Alex Stein, senior counsel at the New York State Energy Research and Development Authority, added the perspective of a governmental entity leading a clean energy transition and awarding billions of dollars' worth of contracts to carry it out.

NYSERDA has built some flexibility and adaptation into its clean energy solicitations. Earlier rounds allowed developers to bid a fixed price for renewable energy credits or a strike price indexed to the zonal energy and capacity price.

It is not a perfect hedge, Stein said, but it insulates against a lot of volatility.

The most recent solicitations have the option of an inflation adjuster, he said.

The period from proposal to start of construction is particularly long in New York. Developers of most of the pipeline of clean energy projects the state's leaders boast about had locked in their compensation — but not their input costs — before the tumultuous events of the past three years.

Developers of much of the onshore portfolio and almost all the offshore portfolio this month petitioned for the same inflation index as NYSERDA is offering newer projects, saying they can't obtain financing without it.

Stein did not touch on the petitions, which await review by the state Public Service Commission.

But he said NYSERDA took steps to recoup some of the windfall offshore wind developers might receive through IRA tax credits: "We see it as a way of sharing the potential upside of this and also reflecting the uncertainty that remains."

Another provision in the latest offshore solicitation allowed developers to recoup higher-than-expected interconnection costs and required them to turn over most of the savings if those costs were lower than expected.

It is an evolving process, Stein said: "I think we can brainstorm on how to iterate this in the future."

Role of Natural Gas

It was observed Wednesday that practitioners of energy law have tended to focus either on electrons or molecules — electricity or gas — but that those lines are blurring because natural gas has become an important fuel for generating electricity and electricity will be used to generate another gas: hydrogen.

Chris Smith, regulatory counsel to the Interstate Natural Gas Association of America, said natural gas has a critical role to play in the power grid for many years to come.

"There's this perception that for the time being we can just gut it out because eventually we're going to be transitioning to more renewable resources … we can kind of just squeak by the next couple years and then this thing will work itself out," he said.

"Admittedly biased view, but I think for a lot of these problems you are going to need additional natural gas pipeline infrastructure — we don't have enough now and we're going to need more in the future," Smith said.

Brian Fitzpatrick, principal fuel supply strategist at PJM, agreed.

He said gas fuels almost half of the RTO's installed generation, but not all the generators have a locked-in supply. "About half of that has some firm level of transportation associated with it," he said. "In an ideal world we'd love that to be 100%, but it's not available — most of the large pipelines in this system are fully subscribed."

Fitzpatrick said PJM is looking at 40 GW of potential fossil fuel retirements by 2030, mostly coal, without a similar amount of replacement capacity coming online in the same period. There needs to be multiple gigawatts of new renewable energy for each gigawatt of coal retired, but that is not happening, he said. Only about 8 GW of natural gas is in the queue.

"That mismatch can't continue — otherwise we're facing a significant reliability concern going forward," he said.

PJM is gathering stakeholder input and intends to address this with a FERC filing by the end of October. ■

PJM News

Panelists Debate PJM Capacity Market at FERC Forum

By Devin Leith-Yessian and Rich Heidorn Jr.

PJM officials and stakeholders told FERC on Thursday they oppose abandoning the RTO's capacity market but disagree over the degree to which it needs to be changed.

The four FERC commissioners heard from 20 RTO officials, state regulators and other stakeholders during a nearly five-hour "*Capacity Market Forum*," which the commission scheduled in response to concerns over the RTO's ability to maintain resource adequacy as dispatchable coal and gas-fired resources retire and are replaced by renewables (AD23-7).

"NERC and PJM and others have warned us, early and often, that current forecasts could lead to a supply gap in certain regions over the next few years caused by early plant retirements and far slower development timelines to bring new resources online," FERC Chair Willie Phillips said in opening the session.

Commissioner Mark Christie, a former Virginia regulator, questioned whether PJM should consider an alternative to the capacity market.

"The statement that the PJM capacity market is fundamentally sound — it just needs some tweaks — this is now the 19th consecutive year I've heard that," he said. "… As we look out to the future … is the PJM capacity market something we can just keep sticking some bubble gum and some rubber bands [to] keep the thing going?"

Marji Philips, senior vice president of wholesale market policy for LS Power, said the market is "broken" because the introduction of intermittent generation means it is no longer comprises of "fungible" products.

FERC Chair Willie Phillips | *FERC*

Consultant James Wilson, who represents state consumer advocates, acknowledged PJM is facing a transition but said the market has "enormous excess capacity" and noted that other regions such as California have integrated far higher proportions of wind and solar power. "The house is not burning," he said.

Independent Market Monitor Joe Bowring also defended the market but said it needs more than "tweaks," calling Capacity Performance a "failed experiment."

During Winter Storm Elliott in December, he said, new combined cycle generators performed worse than old combined cycle plants. "There's no excuse for that," he said.

Kent Chandler, chair of the Kentucky Public Service Commission, said the capacity market is only part of PJM's challenges.

"Even if you fix the capacity market, even if you fixed [resource] accreditation, you're still going to have gas-electric coordination issues," he said.

He cited Philips' criticism that the Intercontinental Exchange is requiring generators to purchase gas four days in advance before the Independence Day holiday because July 4 falls on a Tuesday.

"You know, I'm happy that the gas market is apparently good to have a very enjoyable long weekend on Fourth of July," he said. "But if we have system issues, that's going to be a problem. … People are going to have to go find their old Rolodex and try to get ahold of people."

Energy Landscape 'Changing Dramatically'

Speaking during the first of three panels, PJM CEO Manu Asthana said the capacity market has historically achieved its goal of sending the price signals needed to incentivize generation where it's needed, yielding a grid that's remained reliable even as NERC reports that large portions of the country are at elevated risk this summer.

"Having said that, the energy landscape is changing, and it's changing dramatically. Policy choices are resulting in accelerated retirement of the generation we use to manage our grid today, and frankly policy choices are chilling investment in new dispatchable generation," Asthana said.

Asthana said the capacity market can continue to function alongside renewable incentives, so long as accreditation and risk modeling are done properly to ensure that existing resources are valued correctly.

PJM CEO Manu Asthana speaks before FERC during a forum on the RTO's capacity market on June 15. | *FERC*

Asthana was joined on the panel by NERC CEO Jim Robb, former FERC Commissioner Phil Moeller, now executive vice president of the Edison Electric Institute, and Greg Poulos, executive director of the Consumer Advocates of the PJM States (CAPS).

Robb said NERC has found that reliability risk has been increasing across the country over the past five years, referencing a May report warning of an elevated potential for insufficient reserves in many regions. (See *NERC Warns of Summer Reliability Risks Across North America*.) Although PJM was not identified as being at risk, he said its identification of 40 to 50 GW of capacity that could be retiring by 2030 means it could soon be on the map.

The traditional one-outage-in-10-years reliability metric is becoming outdated and needs to be replaced with a focus on providing energy in every hour, he said. Grid operators also need to improve planning around how extreme weather is modeled, he said.

"We need to make sure investments that are needed to maintain reliability purposes are compensated for and reflected in the design of the markets. Markets have demonstrated an incredible ability to drive out inefficiency, but they really haven't demonstrated their ability to reward the reliability investments that are going to become increasingly valuable as an insurance policy against extreme weather

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events and common condition challenges such as wind droughts and solar droughts," he said.

In NERC's post event analysis of the December 2022 winter storm, 2014 polar vortex and other major storms, Robb said natural gas availability has been an issue. He said the gas distribution system performs well at its historical role of keeping pilot lights lit, but it was designed in a time when it was a niche fuel for energy production.

"Right now natural gas is the single largest fuel for power generation, and power generation is the single largest customer of the natural gas industry. Every winter event we've analyzed has had the supply of natural gas to power generation and the ability of that system to perform to meet the needs of customers as a common theme. ... At some point we've got to take this problem on, but it's a bigger problem than any of us can solve individually," he said.

Moeller said jurisdictional questions make addressing coordination between the electric and gas industries complex. But if the cause of winter deliverability issues is on the transportation side, rather than gas production, there may be solutions such as how *force majeure* is declared and transparency when outages occur, he said. He expressed hope that work the North American Energy Standards Board is engaged in will yield solutions the commission can act on.

Poulos cautioned against a focus on retaining existing generation, arguing that PJM should incentivize the entry of reliable resources, rather than picking and choosing resource types.

Commissioner Christie said the capacity market's "constant state of churn" is undermining investment in new resources.

"The big problem PJM faces is because you're a big multi state RTO and your problem is not economic ... it's political. PJM has 13 states and D.C., and the policies of those states have diverged tremendously since the first time [the Reliability Pricing Model] was approved," he said. "Wouldn't an SPP model be better for reconciling the different state policies and let them figure out what to build and what to buy, as opposed to trying to hold this thing together with all these states diverging?"

Asthana said PJM is set up to accommodate fixed resource requirements and bilateral contracts, while retaining the capacity market for load that's open to retail choice and maintaining reliability across a large geographic area.

Bowring and Poulos agreed, saying that the capacity market has reduced prices for consumers while preserving reliability while other regions experience elevated risk.

FERC Commissioner Mark Christie (left) listens to Kent Chandler, chair of the Kentucky Public Service Commission | *FERC*

Critical Issues Fast Path Process

On a second panel, representatives of power providers, environmental groups and state consumer advocates debated the solutions the RTO is considering through the critical issues fast path (CIFP) stakeholder process.

Adam Keech, PJM's vice president of market design and economics, said the core of the RTO's CIFP proposal includes improving risk modeling by moving away from the assumption that the peak load and reliability risk are aligned. PJM also seeks to improve accreditation to better reflect what capacity resources will be available when needed and to rework performance incentives to align them with the market seller offer cap. At the CIFP meeting on Wednesday, PJM also proposed a shift to a seasonal capacity market to account for the identification of higher risk in the winter.

Glen Thomas, president of the PJM Power Providers (P3) Group, said accreditation is important but needs to be accompanied by changes to allow generators to recover costs, reflect risks in their bids and limit the potential of demand side market power.

Todd Snitchler, CEO of the Electric Power Supply Association, said accreditation of all resources, thermal and intermittent, must be improved.

"If load is going to grow, you're going to need more, not less [generation]. You're going to need both and, not either-or. But certainly it suggests that you're going to need certain performance characteristics that will enable your system to operate reliably," he said.

Michelle Bloodworth, CEO of coal power industry group America's Power, agreed, saying that generators likely to retire under pending state and federal policies will take valuable contributions to reliability with them.

"Whether that's coal or another thermal resource, those attributes are being lost that PJM still needs," she said.

The Sierra Club's Casey Roberts said accreditation should account for fuel availability, saying that if gas-fired resources cannot procure fuel on short notice, they may not be as flexible as believed.

Susan Bruce, of the PJM Industrial Customer Coalition, said while many consumers support a seasonal market, there has to be a focus on the drivers of winter risk.

"I think there is interest in a seasonal auction from a customer perspective. However, getting that cost allocation piece right is complex and important, and just replicating what we have for summer to winter I don't think is the solution, because the reason why we have winter risk is because we have performance issues," she said.

Commissioner Allison Clements questioned what role the interconnection queue is playing in the pace of new resource development.

Abigail Ross Hopper, CEO of the Solar Energy Industries Association, said queue challenges remain significant. There will likely be a significant period of time when few new resources will be constructed because of the amount of time it takes to get approved for interconnection, she said.

LS Power's Philips said PJM's market rules do not reflect the realities of demand response and peaker plants, which tend to be rarely called upon and be price capped when they are dispatched.

"This market is not addressing the reality of who needs the money, and it's not sending the price signals," she said.

Chair Phillips questioned whether PJM is considering changes that can address some of the issues behind Winter Storm Elliott, including the sharp drop in temperatures.

Keech said PJM is using a longer weather history lookback to capture cyclical patterns and tying reliability risk and generator performance to weather. It also is looking at options outside the capacity market, including notification to gas units, scheduling and modeling uncertainty in the energy and reserve markets and the costs that are recoverable for reserve commitments, such as fuel procurement.

A third panel featured state regulators and public advocates, including Kentucky's Chandler; Ohio Commissioner Dan Conway; New Jersey Commissioner Zenon Christodoulou; D.C. Public Service Commission Chair Emile Thompson; William Fields, deputy people's counsel for Maryland; and Ruth Ann Price, deputy public advocate for Delaware. ■

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PJM Adds Seasonal Capacity to Stage 3 of CIFP Proposal

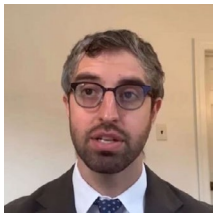
By Devin Leith-Yessian

PJM *presented* a comprehensive look at its proposal to overhaul its capacity market during the opening meeting of the third phase of the Critical Issue Fast Path (CIFP) process Wednesday.

The package contains many of the changes PJM has discussed over several previous meetings, including reworking its risk modeling; considering resources' reliability contribution to mitigating seasonal risks when setting accreditation; and shifting the reliability metric to expected unserved energy (EUE) to capture the depth and breadth of a potential loss of load. (See *PJM Presents More Detail on CIFP Proposal*.)

PJM has scheduled an additional CIFP meeting for this Wednesday to continue presenting its proposal, after only getting through about half of the presentation in last week's meeting. Stage 2 focused on putting forth design components, priorities and issues that stakeholders felt are in need of consideration. (See *PJM Stakeholders Complete 2nd Phase of CIFP*.)

The bulk of last week's conversation centered on PJM's addition of a seasonal capacity market to the proposal, continuing a slate of changes proposed in response to analysis that found that the worst reliability risks are shifting from summer load peaks to extreme winter weather.



Walter Graf, PJM | *FERC*

Senior Director of Economics Walter Graf said separate winter and summer capacity products would create a more robust market in the face of uncertain risk patterns and could resolve much of the uncertainty with creating annual accreditation, procurement targets and other auction parameters.

"We think that this is the most straightforward way of reflecting in our market design the relative needs of capacity in different parts of the year ... in a way that really maximizes the value of a competitive marketplace and reduces the need for administrative decision-making," he said.

PJM is still working through the details of what a seasonal market could look like, but Graf said there's a lot of "low-hanging fruit" in the existing market design that could be ported over and run twice a year with minimal modification needed.

Adam Keech, PJM | *© RTO Insider LLC*

Graf said PJM views this as another potential stage in the markets' evolution, but not the final step. Long-term changes under consideration outside the CIFP process include continuing to refine accreditation; identifying how resource performance changes with ambient temperatures; and expanding the seasonal model by increasing the number of seasons or introducing monthly or hourly granularity.

"I think once you go from one season to two, it really blows open the doors to what's possible," Graf said.

Steve Lieberman of American Municipal Power said stakeholders have been suggesting a seasonal market for more than a year at the Resource Adequacy Senior Task Force (RASTF), which considered many of the same topics as those in the CIFP. He argued that stakeholders had favored a seasonal design with more than two seasons and that by making major changes to the market now while eyeing future changes, it may undermine investor confidence.

PJM Vice President of Market Design and Economics Adam Keech said the RTO is focused on making changes that can address its concerns within the time frame of the CIFP process. The stage 4 meeting, when stakeholders will vote on proposals, is set for August, with a goal of a FERC filing in October.

"We're looking at what's doable, what's sort of the shortest path to getting the capacity market to recognize the bulk of risks in the time that we've got," he said.

Graf said the largest limitation is the number of market components that could need to be changed as more far-reaching changes to the market are explored.

"The biggest constraint here is there are many inputs to a PJM auction, whether that be one season, two seasons or more, and many planning structures that go into it. ... There are many dependencies and interrelationships between the capacity markets and other things related to it. ... I would say this is the biggest step we can make given those dependencies and interrelationships," he said.

James Wilson, a consultant for state consumer advocates, said he also believes an additional season would allow for pricing capacity in the offseason when the requirement is lower and there is much excess.

PJM's Pat Bruno said resources will have to meet eligibility requirements to offer capacity for each season. While generators would typically meet the qualifications for both, he said it's possible some might only be able to participate for one season.

Economist Roy Shanker said that if there are winterization requirements to offer capacity for that season, and it's optional to make the investments to meet those, that essentially undermines the must-offer requirement.

Shanker said reaching an accurate accreditation for solar resources may require creating eastern and western regions in the RTO's footprint to account for how solar panels will be performing at different times across the grid and how that interacts with the grid's riskiest periods.

Expanding on PJM's rationale for using a longer 50-year historical weather lookback, Graf said staff have found that they cannot estimate an accurate 10th-percentile winter with only 10 years of data.

Ryann Reagan, wholesale markets policy specialist for the New Jersey Board of Public Utilities, questioned if the new data and risk modeling built off it would capture the type of sudden temperature drop that has been credited with contributing to lost generation during the December 2022 winter storm.

Graf said that while the dataset wouldn't explicitly capture the relationship between forced outages and ambient temperatures, as long as the historical generator performance and weather data characterize the variables implicitly, then the modeling would show those impacts. ■

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Moore Picks Energy Attorney Suchman to Round out Maryland PSC

By K Kaufmann

Maryland Gov. Wes Moore (D) submitted his third nomination for the state's Public Service Commission on Wednesday, naming energy attorney Bonnie Suchman to take the seat currently held by Commissioner Odogwu Obi Linton.

Suchman will join incoming Chair Fred Hoover, an attorney in the Office of People's Counsel, and Commissioner Kumar Barve, a long-time state delegate from Montgomery County. Hoover will begin his term July 1, following the expiration of current Chair Jason Stanek's term.

Barve replaced Commissioner Patrice Bubar, attending his first commission meeting on June 7, according to Tori Leonard, PSC communications director. Exactly when Suchman will attend her first commission meeting is uncertain, Leonard said. She will need to be sworn in at a state district court at a time of her choosing.

Suchman's resume includes stints as special counsel for electric utility restructuring at the U.S. Department of Energy during the Clinton administration and as a senior attorney focusing on transmission issues for the Edison Electric Institute. She also led the energy practice at Troutman Pepper, where she worked on both state and federal energy policy issues. She has continued working on energy issues with her own practice, Suchman LLC.

Barve was first elected to the Maryland House of Delegates in 1991. Before Moore tapped him for the PSC, he had been chair of the House Environment and Transportation Committee since 2015. He was also majority leader in the House from 2003 to 2014.

He is also the CFO for EMSI, a small environmental services company located in Rockville.

Bubar, Linton and Stanek were appointed to the PSC by former Gov. Larry Hogan (R), but Bubar and Linton were not confirmed by the Senate. Moore rescinded their nominations after taking office.

Hoover, Barve and Suchman will also have to be confirmed by the General Assembly when it is back in session in January 2024. They join Commissioners Michael T. Richard and Anthony O'Donnell, both reappointed by Hogan for second terms in 2020 and 2021, respectively.

Kim Coble, executive director of the Maryland League of Conservation Voters, applauded Suchman's appointment and "the Moore administration for putting forward somebody that has extensive experience in utilities and electricity."

"The thing that I think is important here is to understand in Maryland … the PSC plays a really significant role, and a unique role in advancing the … electricity agenda," Coble said. "The Moore administration has made their commitment to climate change very clear ... and so to have somebody with [Suchman's] background helping to advance [this] agenda, I think it'd be a strong asset to the state."

Moore ran afoul of Coble and other energy advocates earlier this year when he nominated Juan Alvarado, senior director of energy analysis for the American Gas Association, to the commission. As opposition mounted, Alvarado withdrew his nomination. (See *Alvarado Withdraws from Md. PSC Nomination*.) ■

Maryland Gov. Wes Moore | *© RTO Insider LLC*

PJM News

PJM MRC/MC Preview

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

RTO Insider will be covering the discussions and votes. See next week's newsletter for a full report.

Markets and Reliability Committee

Consent Agenda (9:05-9:10)

B. The committee will be asked to endorse proposed *revisions* to the PJM Tariff, Operating Agreement and Reliability Assurance Agreement, as endorsed by the Governing Documents Enhancements and Clarifications Subcommittee.

Endorsements (9:10-9:50)

1. Base Residual Auction Smooth Supply Curves (9:10-9:30)

PJM's Skyler Marzewski will *present* proposed Tariff revisions seeking to clarify that PJM will only publish smooth supply curves after Base Residual Auctions, not Incremental Auctions. The committee will be asked to endorse the proposed solution and corresponding Tariff revisions. (See "First Read on Smooth Supply Curve Quick Fix," *PJM MIC Briefs: April. 12, 2023*.)

Issue Tracking: *Base Residual Auction (BRA) Smoothed Supply Curve*

2. IROL-CIP Cost Recovery (9:30-9:50)

PJM's Darrell Frogg will *present* a proposal to create a cost-recovery mechanism for expenses related to making investments to comply with NERC Critical Infrastructure Protection standards regarding interconnection reliability operating limits. The committee will be asked to endorse the proposal and corresponding tariff revisions. (See "PJM, Monitor Review IROL-CIP Proposals," *PJM MRC/MC Briefs: May 31, 2023*.)

Issue Tracking: *IROL Critical CIP Cost Recovery*

Members Committee

Consent Agenda (11:20-11:25)

B. The committee will be asked to endorse proposed *revisions* to Manual 15: Cost Development Guidelines to address heat input guidelines and the Independent Market Monitor's opportunity cost calculator.

Issue Tracking: *Opportunity Cost Calculator 2023* and *Combined Cycles and Specialized Boilers Heat Input Guidelines*

— Devin Leith-Yessian

Mid-Atlantic news from our other channels

NJ OSW Projects Face Public Funding Scrutiny

NetZero Insider

RTO Insider subscribers have access to two stories each monthly from *NetZero* and *ERO Insider*.

Company Briefs

Analysis: Utilities Pushed $215M into US Politics via Dark Money Groups

U.S. power companies have made political donations of at least $215 million to dark money groups in recent years, according to an analysis from *The Guardian* and Floodlight.

Nonprofit news organization Floodlight and *The Guardian* used public records and self-disclosure data from the Center for Political Accountability to piece together how much 25 of the 44 for-profit power companies might be spending. Twenty-three of them self-disclosed giving nearly $100 million to so-called dark money 501(c)(4) and 501(c)(6) groups between 2014 and 2020. Still, the total amount of dark money uncovered by regulators and the Department of Justice was greater than the total amount the companies disclosed.

More: *The Guardian*

Duke Energy to Sell Commercial Solar, Wind Farms for $2.8B

Duke Energy last week announced it has reached a deal with global renewable energy company Brookfield Renewable to sell its unregulated commercial wind and solar business for $2.8 billion.

The deal is expected to net Duke $1.1 billion, which it will use to help transition its regulated consumer businesses toward clean energy. Duke also said it is making progress toward the sale of a second unregulated unit, which provides rooftop solar for businesses. Both sales are expected to close by the end of the year.

Brookfield will get 3,400 MW of utility-scale solar, wind and battery storage across the U.S, as well as new projects in development.

More: *WFAE*

GM Announces $632M Investment in EV Assembly Plant in Indiana

General Motors last week said it will invest $632 million in its Fort Wayne Assembly Plant in Indiana, primarily for the full production of electric vehicles.

The announcement came less than a week after the plant celebrated producing and selling its 10-millionth truck in 37 years. Officials said that pace makes the plant the fastest-working GM plant in the country.

The plant will continue to produce internal combustion engine trucks for at least the next 10 years before EV production takes over.

More: *Indiana Public Radio*

Federal Briefs

Dems Call Biden Methane Proposal 'Insufficient'

A group of Democratic senators last week called the Biden administration's proposed rule to address methane emissions from oil and gas production "insufficient," saying it does not adequately address flaring.

The letter, signed by 14 Democrats and one independent senator who caucuses with them, was addressed to EPA Administrator Michael Regan and said the rule "would also allow continued massive volumes of methane and carbon dioxide emissions from wasteful flaring of saleable gas resources."

The EPA said its proposed regulations would address 87% of methane emissions from the sector, but the senators still expressed concern about whether it will be effective.

More: *The Hill*

Lawmakers Investigate Insurance Firms' Funding of Fossil Fuel Industry

The Senate Budget Committee last week sent letters to seven insurance companies or owners of insurance companies demanding answers and internal information about how each company underwrites, invests in and profits from the fossil fuel industry.

The inquiries — which were sent to State Farm, Liberty Mutual, Berkshire Hathaway, AIG, Travelers Insurance, Chubb and Starr — also seek their plans, if any, to follow the Paris Agreement's commitment to lessen global warming, along with their methodologies and projections for rates and coverage related to climate harms.

The companies have until June 23 to respond and produce all the information demanded.

More: *The Washington Post*

Feds Sentence Man to Prison for Solar Tax Fraud

The U.S. Attorney's Office last week sentenced Charles St. George Kirkland to nine years in prison and ordered him to pay $51 million in restitution for a tax fraud scheme related to solar power.

Federal investigators say the 57-year-old man from Paradise Valley, Ariz., stole more than $50 million from the U.S. Treasury through false tax claims.

Kirkland pleaded guilty in January to three counts of aiding or assisting the filing of fraudulent tax documents.

More: *King 5*

State Briefs

CALIFORNIA

CAISO Sets Solar Peak Generation Record Again

Earlier this month, CAISO set a new solar peak generation record for the third month in a row.

The new record of 15.178 GW was reached at 12:11 p.m. PT on June 2, surpassing the previous record from May 23 by 72 MW.

Solar generation output has averaged 141.964 GW in June, the highest monthly average on record, according to CAISO data.

More: *S&P Global*

Santa Cruz Suspends Natural Gas Ordinance

The Santa Cruz City Council last week voted unanimously to suspend its 2020 natural gas prohibition ordinance after a ruling by the 9th Circuit Court of Appeals in April struck down a similar ordinance in Berkeley, which was approved in 2019.

The ordinance, which prohibited natural gas infrastructure in new buildings, was modeled after Berkeley's. The city's attorney analyzed the ruling and determined that, even with some notable differences between the two prohibitions, there was no way to avoid applicability in Santa Cruz.

The California Restaurant Association successfully challenged the ordinance, with the appeals court ruling that it violated federal law that gives the U.S. government authority to set energy-efficiency standards for appliances.

More: *Santa Cruz Sentinel*

FLORIDA

JinkoSolar: Solar Expansion Happening Despite Loss on Tax Rebates

JinkoSolar last week said it intends to expand its Jacksonville solar panel plant despite the city council pulling legislation for taxpayer incentives after federal agents executed a search warrant at the factory a month ago.

The council voted unanimously to withdraw the legislation that would have provided up to $2.3 million in property tax rebates over 10 years to the China-based company. The legislation had been heading toward council approval before Homeland Security Investigations carried out a search warrant on May 8. Federal agents also did a search of a Jinko sales office in California. State lawmakers were concerned with the company's so-called ties to China.

More: *Florida Times-Union*

ILLINOIS

New Law Guarantees Utilities Can't Shut Off Services in Hot Weather

Gov. **J.B. Pritzker** last week signed a bill that bans utilities from shutting off power if it is 90 degrees or hotter.

Under the new law, providers can't shut off services for nonpayment if it's above 90 degrees or when the National Weather Service issues an excessive heat watch, advisory or warning. The law also says utilities can't shut off services on any day before a holiday or holiday weekend when it will be above 90 degrees for 24 hours.

The bill goes into effect Jan. 1.

More: *WICS*

KANSAS

Corporation Commission last Approves Grain Belt Express Tx Line

The Corporation Commission last week approved Invenergy Transmission's request to move forward with the Grain Belt Express Clean Line Project, clearing the way for construction of a 780-mile transmission line to be built in two phases.

With the approval, construction on the 370 miles of the line that runs through the state could start in late 2024.

More: *KWCH*

MICHIGAN

Consumers Energy Shuts Down 2 Coal Plants in Bay Area

Consumers Energy last week closed two Karn coal plants as part of an ongoing effort to invest in the state's clean energy.

The company said it is assessing the plant site alongside local officials to decide on what to do with the land. Two other plants on the site will continue running on oil and natural gas through 2031.

Consumers plans to close all coal plants in the state by 2025.

More: *WXMI*

NEBRASKA

Gage County Ends Commercial Solar Moratorium

The Gage County Board recently voted 6-0 to end its moratorium on permits for commercial solar installations.

The board also discussed a possible amendment to zoning regulations regarding industrial projects that intend to establish their own solar installations to power their facilities, but no amendment was considered.

More: *News Channel Nebraska*

NORTH CAROLINA

Lawmakers OK Bill Blocking Local Government Energy Fuel Prohibitions

The General Assembly last week approved legislation that would prohibit local governments from adopting ordinances preventing the expansion of certain energy services based on fuel type.

The bill also bars local ordinances that would prohibit the purchase, sale or installation of an appliance such as a stove, oven or heater. The Senate approved the measure two weeks ago after adding language that lays out a process to decommission future utility-scale solar energy projects once they permanently cease production.

The bill now heads to Gov. Roy Cooper, who vetoed a similar bill in 2021.

More: *WRAL*

Legislators Approve Harsh Penalties After Substation Attacks

The House of Representatives last week unanimously passed a bill that significantly increases the penalty for damaging energy facilities or equipment.

Under the Protect Critical Infrastructure Act, anyone damaging energy infrastructure could face up to 15 years in prison

and a $250,000 fine. The legislation was introduced in response to three shooting incidents at substations in the state this past December and January.

Gov. Roy Cooper is expected to sign the legislation into law.

More: *Winston-Salem Journal*

OREGON

Jury Finds PacifiCorp Responsible for 2020 Labor Day Fires

The Multnomah County Circuit Court last week found PacifiCorp responsible for causing fires during Labor Day weekend in 2020.

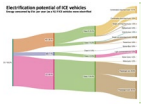
The court ordered the company to pay $73 million to 17 homeowners. The jury also applied its liability finding to a larger class, including the owners of nearly 2,500 properties, which could push the price tag for damages well into the billions. PacifiCorp said it will appeal the decision.

There has been no official cause determined for the Labor Day fires, which killed nine people and burned more than 1,875 square miles.

More: *The Associated Press*

National/Federal news from our other channels

Energy-efficient Homes Could Provide Solutions to US Housing Problems — NetZero Insider



How Much Energy It Will Take to Electrify Trucking — NetZero Insider

Zero-emission Truck Sales Accelerating, Report Shows — NetZero Insider

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