

COP26 Ends: 1.5 C Still Alive, but 'Pulse is Weak'

Countries Adopt a Compromise Final Agreement that Leaves Many Dissatisfied

By Jennifer Delony and K Kaufmann

The U.N.'s 26th Climate Change Conference of the Parties (COP26) ended with close to 200 nations adopting an agreement that recognized the urgent need to make "rapid, deep and sustained" cuts in greenhouse gas emissions to ensure that the average global temperature does not rise above 1.5 degrees Celsius from pre-Industrial Revolution levels.

But in a last-minute change, COP26 leadership buckled to pressure from China and India to water down a key provision on the phaseout of coal.

During the closing plenary in Glasgow, Scotland, the wording of the provision on coal was changed from "phaseout" to "phase-down." Additional language proposed by India also called for support for "the poorest and the most vulnerable in line with national circumstances and recognizing the need for support towards

a just transition."

In long sessions throughout the day on Saturday, delegates had already registered their disappointment with the shortcomings of the *Glasgow Climate Pact*, particularly on climate financing for developing nations. But they all agreed to support it as a balanced compromise providing a foundation for further action at next year's COP27 in Egypt.

Speaking at the plenary, COP26 President Alok Sharma, of the U.K., said, "We can say with credibility that we have kept 1.5 degrees within reach. But its pulse is weak."

U.S. Special Presidential Envoy on Climate

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Here's What Key Glasgow Sectoral Initiatives Mean for 1.5 C (p.15)

FERC Tech Conference Focuses on Long-term Planning

By Amanda Durish Cook, Michael Yoder and Jason York

FERC on Monday continued to build the record for its Advance Notice of Proposed Rulemaking on potential changes to its rules on transmission planning processes, holding a technical conference that focused on long-term forecasts for transmission needs, based in part on the future generation mix (RM21-17).

FERC Chair Richard Glick said there is "a lot to be done" to build out the transmission grid to handle the clean energy transition. He noted that the vast majority of the comments on the ANOPR say that significant process changes and improvements are necessary to make transmission planning more proactive, based on future needs, and less reactive to projects in interconnection queues.



FERC Chairman
Richard Glick | FERC

"We have this general sense of what kind of electric generation we're going to have in the future," Glick said. "It's not entirely clear that our transmission planning process always adequately addresses that."

Commissioner Allison Clements added that she does not see a way forward on cost-effectively facilitating a reliable grid without more intelligent planning that expressly considers a longer time horizon. She also said there is a critical need to factor in flexibility for regional differences.

The conference featured three panels, each with a mix of representatives from grid operators, utilities, consumer advocates, as well as experts from the Department of Energy and its

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Biden Signs \$1.2 Trillion Infrastructure Bill (p.20)

2021 NARUC ANNUAL MEETING AND EDUCATION CONFERENCE



A NARUC panel underway | © RTO Insider LLC

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Editorial

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

Deputy Editor / Daily	Deputy Editor / Enterprise
<u>Michael Brooks</u> 301-922-7687	<u>Robert Mullin</u> 503-715-6901

Art Director
Mitchell Parizer 718-613-9388

New York/New England Bureau Chief
Jennifer Delony 603-320-7043

MidAtlantic Bureau Chief
K Kaufmann 202-494-4386

Midwest Bureau Chief
John Funk 216-316-5413

Associate Editor
Shawn McFarland 570-856-6738

Copy Editor/Production Editor
Rebecca Santana 770-862-6004

CAISO/West Correspondent
Hudson Sangree 916-747-3595

ISO-NE Correspondent
Jason York 860-977-7830

MISO Correspondent
Amanda Durish Cook 810-288-1847

NYISO Correspondent
Michael Kuser 802-681-5581

PJM Correspondent
Michael Yoder 717-344-4989

SPP/ERCOT Correspondent
Tom Kleckner 501-590-4077

NERC/ERO Correspondent
Holden Mann 205-370-7844

Sales & Marketing

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

Account Manager
Kathy Henderson 301-928-1639

Account Manager
Phaedra Welker 773-456-4353

Marketing Manager
Eau Rikhotso 317-418-5632

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

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2021 NARUC Annual Meeting and Education Conference

SPP, SEEM Woo Entergy Regulators at NARUC

By Amanda Durish Cook

LOUISVILLE, Ky. — Amid clashes with MISO on regional transmission planning and cost allocation, last week's Entergy Regional State Committee meeting featured introductions to SPP's and the Southeastern Energy Exchange Market's (SEEM) workings.

SPP leadership and a SEEM delegate were on-hand to share the members' experiences during the committee's Nov. 9 meeting, held during the National Association of Regulatory Utility Commissioners' annual meeting.

Louisiana regulator Eric Skrmetta, who in a fiery speech last month suggested forcing Entergy Louisiana to exit MISO for either SPP or SEEM, stood at the back of the room during the meeting. He didn't comment. (See [La. Regulators Threaten MISO Departure over Tx Costs.](#))

Former Kentucky Public Service Commissioner Talina Mathews, freshly hired as SPP's director of state regulatory policy, described the RTOs planning process and cost allocation. She said the footprint's regulators have control over cost allocation decisions, a "unique" setup among RTOs.

"Decisions are not made quickly or lightly," Mathews said.

"I know that SPP takes their relationships with regulators very seriously," Mississippi Public Service Commissioner Brandon Presley said.

Presley said SPP ensures their regulators have a "central" role, given they take the heat for system outages and missed forecasts. He likened MISO's relationships with state commissioners to a spouse that's only remembered at tax time. He also mentioned regulators being put through MISO's "hellacious" stakeholder process.

"It just seems a big cultural difference," Presley said.

Noel Black with Southern Co., one of SEEM's founding members, told regulators that the market's aim is to "get out of the way of the bilateral market." He lauded his exchange's simple market structure and minimal "disruption" to regulators.

FERC on Nov. 8 approved requests for the zero-cost transmission service that will be used to deliver SEEM's energy transactions. (See related story, [FERC Accepts Key Tariff Revisions to SEEM.](#)) The market became effective "by operation of law" in October.

Both the Mississippi and Louisiana commissions have hinted they would pull their utilities

out of MISO if the RTO shares the bill from major Midwest transmission expansion with their South region. (See [Mississippi PSC Audit Questions MISO Membership.](#))

Aubrey Johnson, MISO's executive director of system planning, said regional transmission planning is "needed to accommodate the current and future resource fleet shift."

MISO is currently studying about 10 Midwestern projects for possible approval in March. Johnson said after the first tranche of those projects is approved, the grid operator will turn its attention to studying the South's regional needs. He said the first projects would likely be ready for approval in 2023.

Johnson said a proposed footprint-wide postage stamp rate isn't realistic based on MISO's current hourglass configuration, where the Midwest and South are constricted by the subregional transfer limit. He also said MISO South's resistance to cost sharing played a role in the RTO's current decision against a footprint-wide allocation. (See [MISO Hopes Bifurcated MVP Cost Allocation Will be Temporary.](#))

Texas Public Utility Commission economist Werner Roth said the state supports a bifurcated cost allocation between the Midwest and South. ■



Southern Co.'s Noel Black addresses the Entergy Regional State Committee | © RTO Insider LLC

2021 NARUC Annual Meeting and Education Conference

Overheard at the NARUC Annual Meeting

By Amanda Durish Cook

LOUISVILLE, Ky. – Discussion topics during the National Association of Regulatory Utility Commissioners annual meeting Nov. 7-10 ran the gamut from affordable electrification to resilience investment, supply chain snarls and pipeline infrastructure in a decarbonized industry.

Is Electrification Affordable?

Andreas Thanos, a gas policy specialist at the Massachusetts Department of Public Utilities, said there's not yet an answer as to how much residential ratepayers will shell out to electrify their homes and water heating.

"I'm still waiting on a good answer for that topic," Thanos said during a panel discussion. "It's a hot topic in many more ways than we admit."

"Generally speaking, consumers are unin-

formed. They've heard about climate change; they know about electrification ... but they know about it in this writ-large way," said Charles White, with the Plumbing-Heating-Cooling Contractors Association. "They don't have a good, clear understanding of what this means, today, tomorrow, a month from now."

White said consumers don't give much thought to replacing their natural-gas furnaces or purchasing a heat pump water heater and their steep costs. He said in many houses, heat pumps may need extra space. Consumers don't understand electrification's larger, upfront costs or its increased operating costs.

"They really can't wrap their head around that reality," he said. "We see a lot of burden coming down the road for these consumers ... and us as contractors are in the crosshairs."

National Energy and Utility Affordability Coa-



National Energy and Utility Affordability Coalition
Executive Director Katrina Metzler | © RTO Insider LLC



A NARUC panel underway | © RTO Insider LLC

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lition Executive Director Katrina Metzler said that since the pandemic, she increasingly has become concerned about the affordability of electrification for limited-income residents.

She related the story of 60 families staying in a *Florida motel* and struggling to pay electric bills when its owners abandoned the property during the COVID-19 pandemic. She said the motel's destitute inhabitants regularly faced shutoffs and thousands of dollars in past-due bills.

"I know that from your positions in your states, you've seen similar issues," Metzler told regulators.

She said more than a quarter of the people who lost jobs in the pandemic reported skipping or delaying payment on utility bills. In some states, Metzger said, one in three households struggled to pay utility bills. Of those, two in five households were disconnected after the pandemic began.

At this juncture, the nation has \$27 billion in late utility bills, she said.

Metzler said she foresees "a perfect storm" of increasing energy costs paired with a greater reliance on electrification. She also said she's dismayed by the Biden administration's apparent lack of concern for an affordable clean-energy transition.

"There has to be conversations about affordability," Metzler said.

Determining Levels of Resilience Investment

Regulators asked themselves whether they're placing an appropriate value on reliability risk management as capacity becomes more intermittent and weather grows more unstable.

New Jersey Public Utilities Board member Dianne Solomon said it's difficult for states to gauge improvements from resilience investments. She said going forward, utilities should draft filings around the risks they are hoping to avoid.

Mishal Thadani, vice president of strategy and policy at artificial intelligence firm Urbint, said utilities and regulators should come together to discuss the most likely dangers from extreme weather events and identify which critical loads should be preserved at all costs.

Thadani said the Oregon Public Utility Commission is to be commended for opening a rulemaking docket to oversee utilities' risk-based wildfire protection plans ([AR 638](#)).

He also said AI can assist utilities in deciding



Project Canary's Chris Romer | © RTO Insider LLC

how to best invest in resilience. He said machine learning can identify at-risk utility poles with more accuracy than utility employees.

"Should you spend \$5 million on vegetation management, or should you spend \$10 million undergrounding lines?" Thadani asked rhetorically.

He also said AI collects data "agnostically," keeping human biases out of investment processes that have long overlooked underserved communities.

Pipelines' Place in the Transition

Summit Utilities CEO Kurt Adams predicted Americans will "be thinking about hydrogen today how we thought about solar 10 years ago" during a discussion of the future facing local gas distribution companies as energy is decarbonized.

He said hydrogen is ripe for a spike in popularity, with costs poised to drop. "We will need every single tool in the toolbox," Adams said of decarbonization. "It is a mammoth undertaking."

He said hydrogen-replacing-gas is a key component of keeping decarbonization affordable. Keeping existing gas facilities might avoid the need for some expensive transmission projects.

Adams said the nation needs 13 times its current solar and wind penetration to meet decarbonization goals. "That is an enormous challenge," he said, noting that renewable curtailment rates currently hover around 5% of output and are rising.

Siva Gunda, vice chair of the California Energy Commission, said gas-usage patterns are expected to change unpredictably. He said the industry still doesn't have a good idea on how affordable green hydrogen and other renewable gases will be and thus, how much current gas pipelines will be used into the future.

Dan Scripps, chair of the Michigan Public Service Commission, said 75% of Michigan currently relies on natural gas for heating needs. He asked whether commissions need to take a long-term examination of gas-system investments and make sure new facilities are hydrogen compatible.

Adams said regulators should focus on keeping bills reasonable while cutting emissions as quickly as possible. He said regulators now have an opportunity to avoid expensive past mistakes, referencing previous authorizations for nuclear and gas plants and Public Utility Regulatory Policies Act facilities.

Supply Chain Obstacles

Illinois Commerce Commission Chair Carrie Zalewski said ongoing supply chain and labor issues may threaten the clean-energy transition by delaying much-needed materials.

"We've all seen the ships sitting in port," Zalewski said. She predicted that supply chain issues and difficulties securing labor will continue into the foreseeable future.

Center for Strategic and International Studies' Nikos Tsafos agreed it won't be an easy transition to net-zero emissions. He said climate change will likely further complicate the delivery of certain minerals. He pointed out that half of the world's copper mines are in areas predicted to face water shortages in the coming years.

Project Canary's Chris Romer said a solar panel manufactured in America has a carbon footprint different from the "maybe not as clean panel produced in China" and linked to coal-generated energy.

He said consumers can demand clean manufacturing for clean-energy sources. Businesses didn't one day just stop offering blood diamonds or logs reaped from deforestation, Romer said.

"It's the buy-side that stopped deciding to buy poorly harvested timber," he said.

Romer also said utilities making pledges for 2040 or 2050 should be measuring carbon cuts now. Project Canary specializes in monitoring emissions.

"I'm going to lose weight by 2050. The problem is I should probably get on a scale to judge how much I need to lose," he said. "You can't lose what you don't measure."

Romer urged regulators to be more open-minded with what they're willing to let utilities try in pilot programs because the energy sector needs to decarbonize quickly. ■

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NARUC Panel Examines Pathways to Net Zero

By Michael Kuser

A trio of experts last week presented various perspectives on reaching net-zero emissions: a macro view of the whole country; a micro view of one city; and the third on policies at both the state and federal levels.

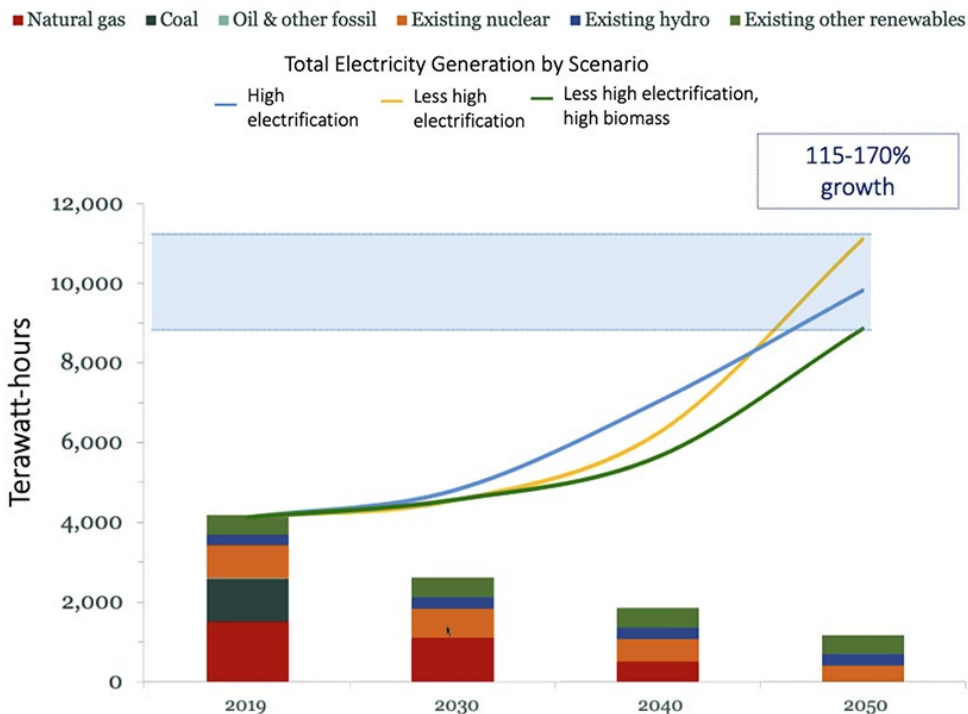
Expanding the supply of clean electricity is a linchpin in all net-zero paths, Jesse Jenkins, assistant professor of mechanical and aerospace engineering at Princeton University, said at the National Association of Regulatory Utility Commissioners' annual meeting in Louisville, Ky.

"The share of electricity from carbon-free sources roughly doubles from about 37% today to 70 to 85% by 2030 and reaches 98 to 100% by 2050," Jenkins said.

Princeton's Andlinger Center for Energy and the Environment in October released the final version of a comprehensive [study](#) on reaching net-zero greenhouse gas emissions, which was first published in draft form at the end of last year. (See [Net Zero Price Tag: \\$2.5 Trillion.](#))

The study looked at five different ways to reach net zero, "not because any of these are favorite pathways or we want to privilege these in particular, but because they help us try to explore some of the different choices and trade-offs that we might have to face," Jenkins said. The scenarios are high electrification; less-high electrification; high biomass; constrained renewable energy; and 100% renewable energy.

The transformation of the energy sector will require "about a tripling of our high-voltage



Expanding the supply of clean electricity is a linchpin in all net-zero paths. The share of electricity from carbon-free sources roughly doubles from about 37% today to 70-85% by 2030 and reaches 98-100% by 2050. | Princeton University

transmission grid ... so we need to finance and mobilize about \$2.5 trillion of additional capital in the 2020s alone," Jenkins said.

The study's research focused on carbon storage locations outside of the West, and Wyoming Public Service Commissioner Mary Throne "wondered how you identified those locations. Was it pipeline-related?"

The study looked at the largest basins, and there are many locations for geologic storage scattered throughout the country in different locations, Jenkins said.

"One of the key challenges is how much you can inject per well, which then determines the cost of injection, because if you can only inject half as much per well, you have to build twice as many wells at twice the cost," Jenkins said. "So we focused on creating a supply chain of sites based on geologic estimates of the injectivity rates that could be achieved in different basins."

LA100

Jaquelin Cochran, director of grid planning and analysis at the National Renewable Energy Laboratory, has been helping Los Angeles and

its Department of Water and Power (LADWP) create a first-of-its-kind study, [LA100](#), to analyze potential pathways the city can take to achieve 100% renewable energy.

While LADWP is electrically connected to the rest of the West, it is not a member of CAISO, so it must ensure it is always self-sufficient and supplying local demand for electricity no matter what else is happening in the West,



Jesse D. Jenkins, Princeton University | NARUC



Jaquelin Cochran, NREL | NARUC

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Cochran said. “This makes achieving the 100% renewable energy target especially difficult.”

The study’s layers of detail allowed city planners to see how much new electric demand from electrifying transportation and buildings might be flexible, Cochran said. For example, demand from residential and commercial buildings could remain fairly flat through 2045, with growth offset by improvements to energy efficiency, she said.

“Instead we see that the main cause for growth in peak demand is due to the electric vehicles,” Cochran said. “Today in L.A. peak demand for electricity occurs in the afternoon. In the future the timing could vary based on when the electric vehicle charging takes place, so when we assume more access to workplace charging, the peak demand occurs early afternoon.”

The study also highlighted the public health benefits associated with decreasing the amount of fine particulate matter in the air.

“All scenarios in our study achieve 6 to 8% reduction of fine particulate matter concentrations in the air, mostly because of the adoption of electric vehicles,” Cochran said.

The study forecasts \$1.5 billion in public health savings in 2045 alone and “that all communities will share in the benefits of the clean energy transition, most notably because of these health benefits, but also from improving equity and participation,” Cochran said.

Accelerating Decarbonization

Susan Tierney, senior adviser at Analysis Group, provided a policy-oriented view of these pathways and how to bring them to fruition based on her work on the recently released National Academies of Sciences, Engineering and Medicine *report*, “Accelerating Decarbonization in the United States.”

“In order for this to be a sustainable change, decarbonization has to rely on a much more equitable transition, not just for communities that are moving from a fossil economy, but also for communities that have been really left out of and have borne the brunt of both energy access issues and frontline pollution concerns,” Tierney said.

“One of the things that we identified as being critical to accomplishing decarbonization in an affordable fashion in the long run is to transfer equipment at the end of its useful life



Susan Tierney, Analysis Group | NARUC

to electric stock, and we know for local gas distribution companies, this is going to be very challenging,” Tierney said. “I know that many of you state regulators are looking at this with your different local gas companies to figure out how you can support electrification without leaving some of your poorest gas consumers on the system and bearing more and more cost.” ■

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NARUC Panel Examines the ‘Gaps’ PUCs Face in Regulating Hydrogen

By John Funk

The anticipated energy revolution posed by the generation and transportation of massive amounts of hydrogen has caught the attention of state regulators who have discovered that they have few hydrogen-specific regulations.

The problem comes as some utilities plan to use renewable power to produce hydrogen even as the nation begins to electrify transportation and vastly increase power demand. And it comes amid questions about the integrity of aging cast iron and bare steel gas pipelines.

The subject was the focus of a webinar at the National Association of Regulatory Utility Commissioners’ annual meeting last week, and the discussion produced more questions than answers. It revealed that most state utility commissions don’t have the regulatory language to talk about hydrogen.

Oregon Public Utility Commissioner Mark Thompson, one of the panel’s moderators, tried to bring the problem into sharper focus with this summation: Hydrogen “maybe represents a tremendous solution, but it looks unlike conventional solutions we have today in many respects. For example, the production

of green hydrogen involves huge amounts of electricity to create it. Maybe it represents an interesting flexible load, like what utilities are used to dealing with.

“But then once it’s created, it could be brought back to bear and benefit that electrical system, or it might take that electricity as a feed stock; basically create hydrogen and then pour it into different industries. It might go into agriculture [for fertilizer production], might go into transportation, or to industry.

“And those are things that we as regulators don’t do, right? We don’t really look across those silos, even if it stays within the energy chain, and goes from the electric side to the natural gas side,” Thompson concluded.

Kristin Munsch, National Grid’s director of regulatory and customer strategy, also noted that the laws state regulators rely on don’t say anything about hydrogen or how it might be produced or used because “most of what we deal with was written a long time ago.”

“That’s actually not in anyone’s siting board authority right now. It’s just sort of ... they don’t talk about it,” she said.

“So how do we close those gaps? And I think

it’s not necessarily the stumbling block, but it’s bringing that conversation together so that you can work with the developer; work with us as the [local distribution company]; work with the regulators. And you start to find out all these little holes ... are gaps that need to be filled, because the definitions just aren’t there. It wasn’t ever thought of.”

But utilities are already moving into hydrogen. New Jersey Natural Gas, a subsidiary of New Jersey Resources, last month began operating a 175-kW solar-powered electrolyzer, producing hydrogen and then inserting about 65 kg/day into its natural gas pipelines — a first for any company on the East Coast.

Mark Kahrer, vice president for regulatory affairs at NJNG, said the project “represents a giant leap to the clean energy future.”

But flourishing in that future will involve more than building electrolyzers. It will entail a new gas delivery system.

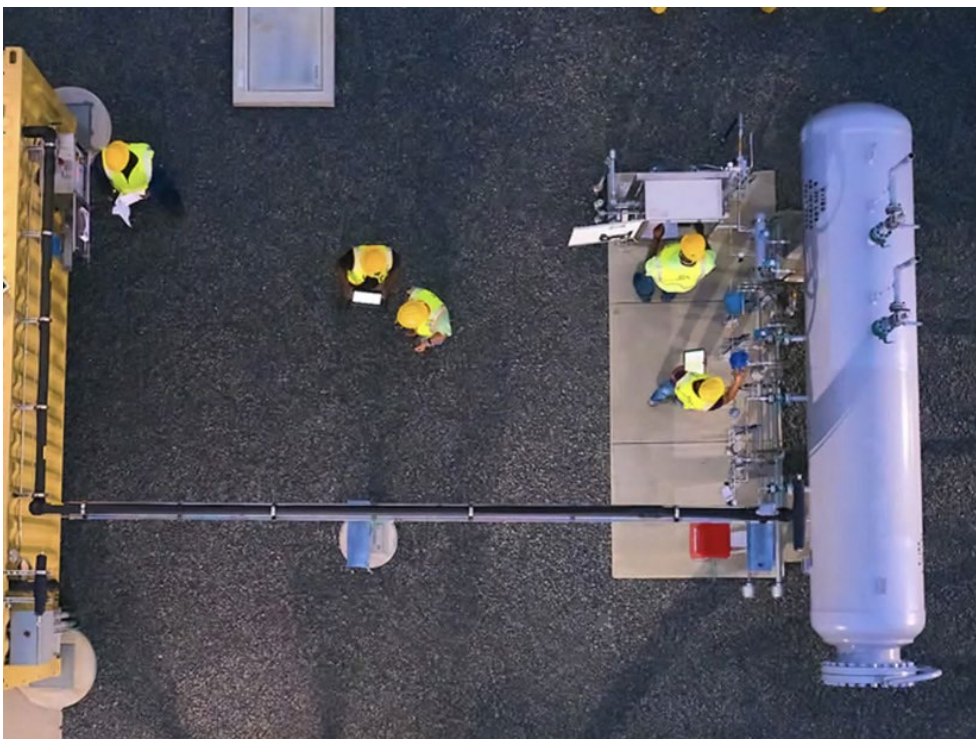
“New Jersey Natural Gas is the first in the state [to have] eliminated cast iron mains back in 2015 and will complete the replacement of our unprotected steel mains and services by the end of this year,” Kahrer said. “By doing this, we’ve not only significantly reduced operational emissions, but more importantly, we positioned our system to be able to deliver decarbonized fuel to our customers.”

With the state planning for 7,500 MW of offshore wind and more than 14,000 MW of additional solar capacity by 2035, Kahrer said his company figures there will be times when supply and demand are out of balance.

“And that’s where New Jersey Natural Gas believes that this is a great opportunity for hydrogen to play a strategic role in balancing the supply-demand energy picture,” he said. “By strategically locating hydrogen production facilities, we’ll be able to take excess power from renewables and create green hydrogen to eject into our system, delivered for home use and heating and appliances, or for electric generation to help shave peak demands.”

For that to occur across the nation, regulators will need more than just new regulatory language. They will need to develop new regulations and the authority to balance the operations between electric and gas utilities.

Montana Public Service Commissioner Anthony O’Donnell, one of more than 50 people in the audience watching the discussion, brought up what is essentially a conundrum for regu-



New Jersey Natural Gas began operating its Howell Green Hydrogen project Oct. 12, using a 175-kW electrolyzer powered by a solar array to produce green hydrogen from water. | *New Jersey Natural Gas*

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lators trying to figure out how to deal with a system like the one NJNG is planning.

“In the rush towards decarbonization, I think that many people overlook that there [will be] an extraordinary need for carbon baseline fuels production for a long time,” he said. “Relying upon [creating] a reliable system of hydrogen production from unreliable [renewable] sources of generation, I don’t see how you can cross that divide successfully. I know that production plants [and] manufacturing facilities need a constant supply of electricity. So relying upon ‘in-constant’ supply source I think presents some real problems. ...

“You have the move towards electrification, and they want to electrify everything. We seem to be running counter to that [with], ‘We’ll electrify, but we’ll take some of that electricity, and we’ll turn it into a system that is transmitted by pipelines and used for other purposes.’ Is there a conflict between the people who want to electrify everything and the people who want to do hydrogen?”

Michelle Detwiler, executive director of the Renewable Hydrogen Alliance, said there does not need to be a conflict.

“Where we hear the conflict is from the ‘electrify everything’ advocacy groups, who are pushing that because their main goal is to eliminate the natural gas systems. We don’t jump into that fray. For us, it’s about decarbonizing; it’s about reducing carbon emissions. I

come from the utility world as well. So, I get that there needs to be baseload [generation] for reliable power.”

National Grid’s Munsch said the demand for electrification is not always agenda-driven that way.

“There is a demand for electrification, and I think it’s driven by concerns that are valid about fossil fuel use, the way we’ve used it traditionally. I think that’s fine.

“The most cost-effective and most emissions-reducing pathway is a blend. ... So, no doubt, there are parts that we need to electrify, including home heating. But you retain the gas network and decarbonize that fuel that’s going through it. You look at those industrial processes and see where you can electrify but then also where they need to have firm reliable power,” she said.

Lea Márquez Peterson, chair of the Arizona Corporation Commission, noted that the cost of hydrogen at this point is still too high. The Biden administration has set a target of \$1/kg by the end of the decade.

Cost recovery for utilities rebuilding their gas pipelines or building hydrogen generation facilities is another potentially thorny problem facing regulators.

Peterson noted that her state has already faced some regulatory issues with the founding of electric truck maker Nikola in the state.

The company plans to produce heavy-duty, over-the-road semis, some powered by batteries, others by fuel cells using hydrogen.

“Our commission approved a special rate agreement between Arizona Public Service Co. and [Nikola]. It included a special contract and an innovative rate structure that will help Nikola accelerate the development of hydrogen in Arizona, while helping APS balance the grid and spur economic development in our state,” she said.

Adding to that, the U.S. Department of Energy awarded \$20 million to a startup company, PNW Hydrogen, working in tandem with Idaho National Laboratory and APS to use power from the three-reactor Palo Verde nuclear plant to make hydrogen in an electrolyzer. That hydrogen will fuel a nearby gas-fired power plant also owned by APS.

“There’s talks of future hydrogen storage between Phoenix and Tucson in modified salt caverns,” Peterson added. Hydrogen storage is seen by some as a way to store energy to fuel gas turbines during times of peak demand.

Peterson recommended state regulators educate themselves on hydrogen and issues associated with it, including the cost of the gas itself. And she suggested regulators will face a steep learning curve.

“From an Arizona perspective, I’d call us in the ‘exploratory phase,’” she said. ■

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2021 NARUC Annual Meeting and Education Conference

NARUC Panelists Optimistic on Tx Planning ANOPR

By Amanda Durish Cook

LOUISVILLE, Ky. — Electric industry officials at the National Association of Regulatory Utility Commissioners' annual meeting expressed hope that FERC's recent advanced notice of proposed rulemaking (ANOPR) will live up to its goal of improving regional transmission planning.

During a Wednesday panel discussion, Krista Tanner, ITC Holdings senior vice president, said she was "really relieved" that FERC agreed that "something needs to change."

The ANOPR seeks to get more transmission built, clear generation interconnect queues, and reach better consensus on cost allocation. (See *FERC Goes Back to the Drawing Board on Tx Planning, Cost Allocation.*)

"We're practically glacial," Indiana Utility Regulatory Commissioner Sarah Freeman said of the pace of major transmission planning.

Tanner said MISO's Multi-Value Project portfolio created renewable zones in the footprint and helped clear a "200-year" interconnection queue.

"Let's do that again, and let's do it more often," she said.

Tanner also said it's time to scrap FERC Order 1000.

"Enough time has gone by that we know it's not working and it's having a chilling effect" on transmission construction, she said.

Asim Haque, PJM vice president of state policy and member services, asked that FERC publish a definition of resilience for grid planning. He said resilience should be a shared goal across grid operators' footprints and placed in the "rubric" of cost allocation.

Public Service Enterprise Group General Counsel Jodi Moskowitz said she hopes the ANOPR directs RTOs to conduct long-term scenario planning that includes the benefits of addressing climate change.

"Most importantly, how can we get some certainty in cost allocation so new transmission can be built?" she said.

Moskowitz said she hoped the commission designs rules that consider lack of transmission investment costs in comparing construction costs.

Freeman asked whether the rulemaking will



Indiana Utility Regulatory Commissioner Sarah Freeman (left) and ITC Holdings' Krista Tanner | © RTO Insider LLC

preserve planning processes that already work well.

"I think it's fair to say right now that PJM's planning process is very transparent," Moskowitz said. But she added that regulators could get more involved in the RTO's planning meetings.

"We'd like to get the states' upfront buy-in about transmission needs," she said.

Moskowitz also said she doesn't agree that local transmission projects are supplanting the need for regional projects. The two serve different purposes, she argued, with local projects necessary to address upgrades for age and storm hardening and regional projects needed to meet decarbonization goals.

Danly Expresses Tx Cost Misgivings



FERC Commissioner James Danly | © RTO Insider LLC

the zeitgeist — that we need to string up wire everywhere we possibly can to bring online intermittent resources," Danly said during a

Nov. 8 session.

He said the idea of "cheap power being shunted across the country" is an illusion if ratepayers are forced to pay for "exorbitant" transmission buildout.

Danly said he gets the feeling that grid planners are ready to propose projects without much forethought. He singled out MISO's three, 20-year planning futures for praise. He said the RTO has done an admirable job of estimating transmission needs across multiple scenarios.

"That candor is much appreciated," Danly said.

He also said wholesale rates aren't encouraging the right mix of generation or new resources. He said so far, intermittent resources have benefitted from operating alongside a "still very healthy chunk of dispatchable resources."

"But my worry is, over time, the system will become unstable ... It's impossible to say what the right mix should be," he said.

Michelle Manary, acting deputy assistant secretary in the Department of Energy's Energy Resilience Division, agreed it's a "tough assignment" for engineers to plan a resilient and reliable system when the ultimate resource mix and number of distributed resources is uncertain.

"We are asking them to change drastically," she said, referencing the Biden administration's goal for net zero emissions by 2050. ■

FERC/Federal News



Democrats at COP26 Talk Climate Action and Political Realities

Kerry: No Coal-fired Power in US by 2030

By K Kaufmann

A delegation of Democratic lawmakers at the U.N. Conference on Climate Change (COP26) faced tough questions on Wednesday about the U.S.' global and moral leadership on climate action, beginning with the country's failure to join more than 40 other nations in a *pledge* to end unabated coal-fired generation in the 2030s.



Rep. Jared Huffman (D-Calif.) | UN Climate Change Conference UK 2021

"You're right; we are not there yet," said Rep. Jared Huffman (D-Calif.), speaking at a press conference called by House Speaker Nancy Pelosi (D-Calif.). "We have disconnects. ... There were political restraints and realities we're still trying to navigate. And you can point

to contradictions and inconsistencies and inadequacies and all of that. But I hope what you hear is a resolve to step up and do everything that we possibly can, and we will get there."

Setting the stage for the battles ahead as Democrats return to the Capitol this week with the goal of passing the \$1.75 trillion budget reconciliation package, Huffman, Pelosi and other Democrats at the event emphasized both their determination to act and the need to navigate political realities in a closely divided Congress.



Rep. Kathy Castor (D-Fla.) | UN Climate Change Conference UK 2021

"Congress is here to demonstrate that we are doing our part to ensure that President Biden is successful when he sets a new goal of reducing pollution in the United States and our emissions by 50 to 52% by 2030, and then getting to net zero no later than 2050," said

Rep. Kathy Castor (D-Fla.), chair of the House Select Committee on the Climate Crisis.

"We are investing unprecedented sums of money to be able to follow through on American commitments," said Rep. Earl Blumenauer (D-Ore.). "We'll duke out certain things in the long run. The coal industry is dying in the United States, not because necessarily of the regulations which [former President] Donald



Rep. Nancy Pelosi (D-Calif.) | UN Climate Change Conference UK 2021



Rep. Earl Blumenauer (D-Ore.) | UN Climate Change Conference UK 2021

Trump unwound, but because of economics."

Pointing to incentives such as the 10-year investment tax credits for a range of renewables in the budget package, Blumenauer called the switch to clean energy "the rational decision that business and communities are making.

So, we're going to pursue long-term policy changes, but in the short-term, we are putting money behind investments of our government and what we've seen from the private sector. Those are incontrovertible, and that's where we are headed."

Another question challenged Pelosi on the Democrats' failure to keep provisions in the budget bill that would have ended a range of tax subsidies for fossil fuel producers — despite a long-standing G-7 pledge to end such incentives by 2025.

"I've been trying to get rid of those subsidies for as long as I have been in a position to do so," Pelosi said. "Some of the leading fossil fuel

companies ... make a trillion dollars a year; they need no incentive to drill."

But given strong support for such subsidies even by some Democrats, such as Sen. Joe Manchin (W.Va.), Pelosi said the way forward is to stay focused on Biden's goal of a 50-52% reduction in carbon emissions by 2030. "We have a goal; we have a timetable; we have milestones," she said. "That is what we will do, and that's what our legislation enables us to do to reach the president's goals, our goals."

Castor argued that funding in the budget bill — officially, the Build Back Better Act — will provide "different pathways" to cut carbon emissions, such as a \$29 billion fund to help nonprofit and state finance institutions to fund rapid deployment of low- and zero-carbon technologies. At least 40% of those investments will go to low-income and disadvantaged communities, she said.

"We wish we could be part of the end of coal and that pledge," Huffman said. "But instead of just throwing up our hands because of these political roadblocks and not taking action, we are finding ways to navigate those problems and still take action."

FERC/Federal News



'Unabated Coal'

Efforts to phase out coal by the 2030s are clearly a flashpoint in Congress, but while the U.S. did not sign the international pledge, both Hawaii and Oregon did, along with two utilities, National Grid and Public Service Enterprise Group. Based in New Jersey, PSEG recently upped its target for reaching net-zero emissions to 2030, and in August announced the sale of all its fossil fuel generation plants.

The pledge calls for “a transition away from unabated coal power generation in the 2030s (or as soon as possible thereafter) for major economies and in the 2040s (or as soon as possible thereafter) globally.”

In an interview with Bloomberg News on Nov. 9, Special Presidential Envoy on Climate John Kerry appeared to signal support for the pledge by predicting the U.S. would be able to phase out coal by 2030. As reported by Bloomberg and other national media, Kerry said, “By 2030 in the United States, we won't have coal. We will not have coal plants.

“We're saying we are going to be carbon-free in the power sector by 2035,” Kerry said. “I think that's leadership. I think that's indicative of what we can do.”

Rep. David McKinley (R-W.Va.), a member of the House Energy and Commerce Committee, quickly took to Twitter to criticize the “elitist John Kerry” and the Biden administration for not caring about coal workers or their families.

“West Virginia wants to know, Mr. Kerry, how do you expect to tell these folks they don't have a job anymore?” McKinley wrote.

But the pledge's reference to “unabated coal” provides some negotiating space for fossil fuel producers and coal-dependent industries, both of which have been lobbying hard for funding to support the development and deployment of carbon capture and sequestration technology. The bipartisan infrastructure bill includes more than \$300 million through 2026 for grants to carbon-utilization projects, and another \$100 million in the same time frame to support the design and development of carbon transport systems.

The budget reconciliation bill also includes a generous tax credit for industrial carbon-capture.

Climate Finance

Another tough question hit on whether the U.S. and other major economies will deliver on providing \$100 billion a year in financing to help emerging economies and climate-vulnerable island nations to transition to clean energy. The \$100-billion commitment was part of the 2015 Paris climate agreement but has yet to be reached.

Speaking at the World Leaders Summit on Nov. 1, Biden pledged to work with Congress to raise the U.S. contribution to \$3 billion per year. (See *World Leaders at COP26: Climate Action Now.*)

While not committing to any figure, Cas-tor said, “What we'd like to do [is] have U.S. agencies working with development partners, prioritizing climate in public investments, enhance technical assistance and long-term capacity, align support with country needs and priorities, and boost investments in adaptation



Rep. Adriano Espaillat (D-NY) | UN Climate Change Conference UK 2021

and resilience.”

She cited the U.S. Agency for International Development's (USAID) *new climate strategy*, which commits to mobilizing \$150 billion in public and private finance by 2030.

Rep. Adriano Espaillat (D-N.Y.) underlined the importance of “connecting the dots” between the nations and communities around the world being devastated by climate change and “how the discussion here impacts back home.”

“How does it impact that child who suffers from asthma? How does it impact that home that's flooded every time it rains? How does it impact the quality of life in the districts we represent?” Espaillat said. “So, we've tried to find the collective will to not only enact public policy, but also to find financing to address these issues globally.” ■

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COP26 Ends: 1.5 C Still Alive, but 'Pulse is Weak'

Countries Adopt a Compromise Final Agreement that Leaves Many Dissatisfied

Continued from page 1

John Kerry put a positive spin on the last-minute change on coal during a press conference following the closing plenary, saying that getting the coal phase-down in the agreement, in and of itself, means it is "on the books."

"You have to phase down coal before you can 'end coal,'" Kerry said, adding that Glasgow was never going to be a finish line. "Paris built the arena; Glasgow starts the race; and tonight a starting gun was fired."

The Paris Agreement, signed in 2015, committed nations to keep global warming "well below" 2 C above preindustrial levels, while also pursuing efforts to limit warming to 1.5 C. But the nationally determined contributions (NDCs) submitted by countries to date will not meet either target, and the Glasgow pact has been framed throughout the conference as essential to "keep 1.5 alive."

The final agreement also:

- expresses "alarm and utmost concern" that global greenhouse gas emissions from human activity have already resulted in a 1.1-C increase in temperatures and stresses

the need for urgency during "this critical decade" ahead to limit warming to the Paris Agreement target of 1.5 C.

- recognizes that limiting global warming to 1.5 C will require rapid, deep and sustained reductions in GHG emissions and, specifically, cutting carbon dioxide emissions 45% over 2010 levels by 2030.
- calls on developed countries around the world to step up and deliver on their commitments to ensure adequate and predictable finance to developing countries, many of which are among the most vulnerable to the impacts of climate change. In particular, the agreement calls for developed nations to deliver on the \$100 billion a year promised in the Paris Agreement in 2015 to help developing nations transition to clean energy.
- calls on developed nations to double their funding to developing nations to help them adapt to the impacts of climate change.
- urges nations that have not done so to raise their commitments to GHG reduction and develop long-term climate plans in line with the 45% reduction target needed for 2030.

Other provisions call on the U.N. to track nations' commitments to GHG reductions on a yearly basis to close the gap between what they have committed and what is actually needed to reduce GHG emissions worldwide 45% from 2010 levels by 2030. A U.N. report released prior to COP26 found that current commitments would result in GHG emissions 13.7% above 2010 levels by 2030.

Earlier this year, President Biden committed the U.S. to reducing its GHG emissions by 50 to 52% by 2030. During COP26, the U.S. and the EU also launched a new *international initiative* to cut methane emissions by 30% from 2020 levels by 2030, with more than 100 countries signing on. The U.S. did not, however, join 40 other countries in a pledge committing developed countries to phase out coal by the 2030s.

The closing plenary voted to approve final adoption of the rulebook for the implementation of the 2015 Paris Agreement, setting standards for transparent reporting of nations' GHG emission reductions and allowing for trading of carbon credits between countries.

US Takes Stock

Completion of the Paris rulebook was one of several major objectives of COP26 that Kerry highlighted during his press conference, along with adaptation and securing climate finance.

Completing the rulebook was "really hard," he said, but it will now provide transparency on how and how often countries report on NDC progress. The text gives a "clear blueprint" for actions needed through 2030, and then from 2030 to 2050, he said.

While there was a collective interest in having stronger language on ambition, Kerry said a commitment by countries that have been dependent on coal to phase down is a significant first. Their commitment, he added, doesn't mean it's done. It means that accountability and reporting must follow that pledge.

Addressing adaptation during the conference was a top priority for the U.S., according to Kerry, who praised the progress on adaptation finance pledges.

"We have a clear path on the \$100 billion [commitment to support developing countries], and we are on track to fulfill that obligation," he said. "It will go out into the future year after year, and there will be more than \$100 billion in those years."



U.S. Special Presidential Envoy for Climate John Kerry said on Saturday that the final adopted text at COP26 gives a "clear blueprint" for ambition through 2050. | UN Climate Change Conference UK 2021

FERC/Federal News



He also said that the private sector was at the conference “in force” to help rally climate finance.

“We embrace the reality that ... we have a gap of some \$2.6 [trillion] to \$4.6 trillion a year for the next 30 years,” he said. “Since we know that’s not going to come from the government, we have to bring it to the table from the places where it is, and that’s principally the private sector.”

COP27 ‘Starts Now’

U.N. Secretary-General António Guterres admitted in a statement on Saturday that the adopted COP26 text was a “compromise” and reflected “the interests, the conditions, the contradictions and the state of political will.”

“They take important steps, but unfortunately the collective political will was not enough to overcome some deep contradictions,” he said.

The conference did not reach the goals of targeting the phaseout of coal, pricing carbon and fulfilling the financial commitments to nations vulnerable to climate change, according to Guterres.

In the final outcome, he found some “building blocks,” including commitments to end deforestation, reduce methane emissions and mobilize private finance to reach net-

zero emissions.

The final text, he said, reaffirms the resolve to meet the 1.5-C goal, boost finance for adaptation and finalize the Paris rulebook with an agreement on carbon markets.

Guterres committed to creating a high-level expert group to establish clear standards to analyze and measure net-zero commitments from “non-state actors.”

“The path of progress is not always a straight line,” he said. “Sometimes there are detours; sometimes there are ditches.”

COP27, he added, “starts now.”

Enviros Disappointed

The climate advocacy community quickly commented on the final text after its adoption, largely expressing disappointment but also seeing progress.

“It’s meek; it’s weak; and the 1.5-C goal is only just alive, but a signal has been sent that the era of coal is ending, and that matters,” Greenpeace International Executive Director Jennifer Morgan said in a statement.

She credited the efforts of young people, Indigenous leaders, activists and countries on the climate frontline for forcing concessions from

parties. “Without them, these climate talks would have flopped completely.”

The commitment on coal is both “significant” and “weaker than ideal,” Kelley Kizzier, vice president for global climate at the Environmental Defense Fund, said in a statement.

Kizzier was more optimistic about the progress on carbon markets. The final text, she said, provides rules for a “transparent and accountable carbon market.”

“The decision eliminates double counting for compliance markets and establishes a strong framework to ensure appropriate accounting for voluntary carbon markets that also supports emission reductions in countries hosting carbon market activities,” she said.

On commitments to hold global warming to 1.5 C, the World Resources Institute said in a statement that the 151 new NDCs fall short.

“A number of major emitters have weak 2030 plans and will need to put forward more aggressive targets to drive down emissions this decade,” WRI President and CEO Ani Dasgupta said in a statement. “Encouragingly, countries agreed to come back next year to submit stronger 2030 targets and to put forward long term strategies that aim towards a just transition to net zero by around midcentury.” ■

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FERC/Federal News



Here's What Key Glasgow Sectoral Initiatives Mean for 1.5 C

US Joins Methane and Deforestation Plans, but Overlooks Coal and Cars

By Jennifer Delony

At the close of the U.N. Climate Change Conference (COP26) in Glasgow, Scotland, on Saturday, U.S. Special Presidential Envoy for Climate John Kerry optimistically announced that the world is closer than ever before to “avoiding climate chaos.”

“Paris was a signal to the marketplace, not a guarantee that we would be able to hold the Earth’s temperature rise to well below 2 degrees [Celsius], let alone 1.5 C,” he said in a press conference. “But in Glasgow, we have 65% of global GDP committed to real plans that have been certified by the IPCC [Intergovernmental Panel on Climate Change] and others.” (See related story, [COP26 Ends: 1.5 C Still Alive, but ‘Pulse is Weak’](#).)

The U.S. and 150 other countries submitted updated nationally determined contributions (NDC) for COP26, and the Glasgow Climate Pact adopted by parties on Saturday urges parties to strengthen their 2030 targets by the end of next year. In addition to updating its NDC, the U.S. joined key sectoral initiatives on methane and deforestation, but it chose not to join pledges related to coal and zero-emission vehicle transitions.

Taking all NDCs, legally binding long-term climate targets and sectoral initiatives into consideration at the end of COP26, the result is that parties must do more to keep global temperature rise below 1.5 C.

If governments can achieve 2030 NDC and binding long-term and net-zero targets, temperature rise would be limited to 2.1 C, according to a Nov. 9 report from [Climate Action Tracker](#) (CAT). That estimate represents a 1.5-C reduction from CAT’s 2015 estimate when parties adopted the Paris Agreement.

With an IPCC benchmark of cutting emissions 45% below 2010 levels by 2030 for a 1.5-C warming target, the NDCs still leave an emission-reduction gap of 37 to 38%, according to the report. Sectoral pledges on methane, coal, transportation and deforestation — considering signatories as of Nov. 10 — close the emissions gap by an additional 9%, or 2.2 billion metric tons of carbon dioxide equivalent (GtCO₂e).

Taken together, the NDCs, binding targets and sectoral initiatives leave an emission-reduction gap of 33 to 34%, the report said.



As of Nov. 11, 140 countries have endorsed the Glasgow Leaders’ Declaration on Forests and Land Use, which Climate Action Tracker said could reduce global emissions by 1.1 GtCO₂e. | UN Climate Change Conference UK 2021

US Targets Methane, Deforestation

CAT estimated that the U.S.- and EU-led [Global Methane Pledge](#) launched Nov. 2 could reduce emissions by 0.8 GtCO₂e in 2030. The agreement calls for a reduction in global anthropogenic methane emissions 30% below 2020 levels by 2030, but top emitting countries, including China, India and Russia, did not sign on to the initiative.

If all parties to the Paris Agreement were to sign on, CAT estimated they could achieve an additional 2.4-GtCO₂e reduction. There currently are 110 participating countries. (See [US, Canada, EU Pledge to Slash Methane Emissions](#).)

On Nov. 2, countries came together to support the Glasgow Leaders’ [Declaration on Forests and Land Use](#), calling for an end to forest loss and land degradation by 2030. While the report cautioned that emissions from deforestation and land use are “highly uncertain,” it said the declaration could reduce emissions by 1.1 GtCO₂e.

If all countries signed the agreement, it could reduce emissions by as much as 3 GtCO₂e, the report said. As of Nov. 11, 140 countries, including the U.S., China and Russia, endorsed the declaration, covering 91% of the world’s forests.

US Dodges on Coal, Cars

The signatories to the U.K.-led [Global Coal to Clean Power Transition statement](#) could reduce

emissions 2 GtCO₂e by 2030, according to the report. Released on Nov. 4, the statement had the support of 46 countries, but China, the U.S., India and Russia were not among them.

Importantly, however, the statement includes specific clauses that some countries chose not to endorse.

One clause says signatories will transition away from unabated coal generation by 2040, or by 2030 for major economies. Another says signatories will no longer issue new permits and stop new construction for coal plants.

If all major economies phase out exist coal fleets by 2035, CAT estimated emissions would reduce by 0.8 GtCO₂e. And canceling all coal plants in the global pipeline by 2030 would reduce emissions by 1.2 GtCO₂e.

On the clean cars front, the U.S. chose not to support the Nov. 10 COP26 [declaration](#) on accelerating the transition to 100% zero-emission cars and vans. The declaration calls for new light-duty vehicles to be zero-emission by 2035 in leading markets and 2040 elsewhere. (See [Calif. Supports New Clean Vehicle Pledges at COP26](#).)

With the initial 38 country signatories, the declaration could reduce emissions by 0.1 GtCO₂e by 2030. If, however, major auto manufacturing countries, such as the U.S. and Germany, signed the declaration, additional emission reductions could reach 0.75 GtCO₂e, the report said. ■

FERC/Federal News



FERC-State Tx Task Force Begins Work

SPP RSC Held up as Potential Model

By Amanda Durish Cook, Michael Yoder, Tom Kleckner and Hudson Sangree

LOUISVILLE, Ky. — The Joint Federal-State Task Force on Electric Transmission convened its first meeting Wednesday, with FERC asking whether SPP's Regional State Committee could serve as a model for increasing state involvement in cost allocation and transmission planning.

FERC Chairman Richard Glick announced the task force — which includes FERC members and 10 state regulators — in June to seek ways to accelerate transmission expansion needed to improve resilience and deliver growing volumes of renewable power (AD21-15). (See [FERC Sets Federal-State Taskforce to Spur New Tx.](#))

The inaugural meeting came on the sidelines of the 2021 National Association of Regulatory Utility Commissioners' Annual Meeting and Education Conference.

FERC Commissioner Mark Christie asked whether the commission, given its regulation of non-RTO utilities, requires state involvement. Referring to SPP, he observed it is “clearly one that has more state involvement than any other RTO, that's for sure.”

The RSC, formed in 2004, comprises regulators from 11 of the SPP RTO's 14 states. The committee provides state regulatory agency input on primarily cost-allocation matters.

“The SPP model is a good model,” said Arkansas Public Service Commission Chair Ted Thomas, who has served on both the RSC and MISO's Organization of MISO States.

“The RSC has worked really, really well to give the states a lot of power and input over ... cost allocation and resource adequacy,” agreed Andrew French, chair of the Kansas Corporation Commission.

But he also said the RSC benefits from “being pretty similarly situated states, geographically and policy-wise.” The group has been having difficulty reaching unanimity as of late, which he attributed to SPP's push to set up a West-ern RTO.

“I welcome the diversity of opinion. I do wonder what the intersection of that is, where the Regional State Committee that wields that much power, and the potential for gridlock when you have really diverse states,” French said. “I love our model. ... I don't know how it

deploys to other regions.”

Limits of Federal Jurisdiction

The nearly five-hour session was marked by a sense of optimism — and urgency.



Maryland PSC Chair Jason Stanek | © RTO Insider LLC

State officials welcomed FERC's outreach, with task force lead Jason Stanek, chair of the Maryland Public Service Commission, calling it historic. But he warned that the 10 state members on the panel have differing ideas on how to accomplish the transmission buildout.

“We're not a monolith on this dais,” he told a NARUC general session that preceded the task force meeting. “We're not trying to paper over our differences.”

Whether states play a formal role in transmission planning or not, the “states will be most comfortable as long as they know their policies are going to be considered in one of these transmission planning processes,” he said.

California Public Utilities Commissioner Clifford Rechtschaffen said there's a growing recognition in the West that transmission is needed for reliability, especially as the country begins to grapple with the effects of climate change. He said California expects to import power to meet load.

“I share the views of many others that our current planning process doesn't take into account the future resource mix,” Rechtschaffen said. He said he was “delighted that FERC was leaning into these issues in this unprecedented way.”

French said there was “a big value in getting us all in the same room.” He said Kansas is surprisingly a leading state in clean energy and stands ready to share its lessons learned, being further along in the energy transition than some states.

Michigan Public Service Commission Chair Dan Scripps said his state, which is limited by its

peninsular geography, has been working with MISO for the past two years on how to better integrate into the system and increase its import and export capability. “Transmission can't be the answer to every problem, but it can be the answer to some,” he said.

“We're ready for this conversation,” Thomas said.

But FERC Commissioner James Danly sought to temper expectations.

When it comes to transmission planning, if FERC has “lofty ambitions” and “wants to implement aggressive policies” to incentivize different initiatives, it will require state cooperation, as states wield veto power for transmission projects, he said.

Scripps urged FERC to “use a scalpel and not an axe” in considering rule changes. “Things like grid-enhancing technologies, hybrid programs and particularly storage are [areas] where FERC has a unique role,” he said.

Urgency in New England

Matthew Nelson, chair of the Massachusetts Department of Public Utilities, said that although New England has built enough transmission to address its current congestion, its needs will increase because of the states' “extremely aggressive clean energy targets.”

“We're trying to move our transportation sector and our building sector onto the electric grid, so that we can do that with renewable energy. The status quo of where we are now won't be acceptable with the load growth that we anticipate,” he said. “The resource that we're really running out of in New England is time to achieve our goals.”

Vermont Public Utility Commissioner Riley Allen said his state has “tall ambitions that are frankly getting taller as we speak.” It was historically a net exporter of nuclear energy but now faces scarce supply paired with unsuitable conditions for solar generation. He said John Oliver's Nov. 7 [segment](#) on “Last Week Tonight,” which focused on the nation's need for transmission construction, was spot on. “We have a generation pocket that needs transmission,” he said.

“I feel like I'm in two parallel universes,” Allen said, pointing to the variety of state-level and regional planning processes his state, an ISO-NE member, is party to. “On the state level,



Michigan PSC Chair Dan Scripps | © RTO Insider LLC

FERC/Federal News



we have a robust planning framework ... that actually does help us understand the cost of the renewable paths we might take and the implications for our transmission systems. It's great, because it informs developers and others where to locate and what the costs are."

Kansas: 'A Microcosm'

French said his state is "on the leading edge" of renewable energy adoption and the "complicated transmission issues" that accompany the transition.

The state's movement toward renewable resources resulted not from state environmental policies but the fact that it "sits on really optimal" low-cost renewable resources, he said. He views Kansas as a "microcosm of the entire nation" with where its resources are in relation to load centers. "We have extremely resource-rich areas in the west for wind and solar, but the load in Kansas tends to be on the far eastern side of the state and in a different pricing zone."

Cost Allocation, Transparency

Gladys Brown Dutrieuille, chair of the Pennsylvania Public Utility Commission, said her state recognizes that its neighbors have different policies regarding renewable generation and the need for constructive discussions to find solutions.

"We understand as the Keystone State, we're right in the middle of transmission and making sure the grid is secure and upgraded and providing the needed energy to everyone,"

she said. "But it's also making sure that it's appropriate in terms of cost allocation and making sure the cost is not burdensome to our consumers, especially those that may not be direct beneficiaries."

FERC Commissioner Allison Clements took up the issue of transparency in the planning process, asking whether the task force's members shared concerns she had heard from others during the NARUC conference.

French said Kansas utilities have been responsive when the KCC inquired about their local planning efforts.

"My concern ... is not so much a concern about transparency. It's a concern of optimization," he said. "When you create a regional plan, you may not look at the local systems. I think we should be asking ourselves, 'Should the regions be looking at some of it a little further down on the local systems ... that didn't get brought into the RTOs?'"

"Could the RTOs be identifying what meets the local needs and provides regional benefits at the same time?"

Reliability vs. State Policy

Later in the session, there was a debate between those who favor state policy goals — especially renewable targets — playing a larger role in transmission planning and those who believe it should be based on reliability and load forecasts.

"If FERC attempts to reform planning by

requiring consideration of states' perspectives and energy-related goals, I fear that it will impair the ability to get transmission built because the energy goals are the polarizing part of the conversation," said Idaho Public Utilities Commissioner Kristine Raper. "So I'm back to reliability as the premier consideration here."

States already have a significant say in FERC decision-making, she said.

"Adding a level of bureaucracy by ... FERC mandating the states have a role in some piece of the transmission planning process would likely increase friction," Raper said.

FERC's Christie insisted "transmission planning should be about one thing overall and that is providing a reliable supply of power to the retail customer."

"What if you build a public-policy project and that public policy changes the next election?" he asked. "Then you've got a billion-dollar project that you've got to pay for ... [but it's not] supported by the public policy. Whereas transmission that is meant to follow the customer, transmission that is meant to provide reliable power to load, that transmission is going to be justified always."

FERC's Glick said he understood that "we don't want to plan for transmission and have it get built and then not be used and stick consumers with an enormous bill. On the other hand, I don't think we can treat this process as an exact science because it's not."

There are ways to reduce risk in transmission planning through "probabilistic determinations, scenario planning and the rest," he said.

States differ on policies, even those within an RTO such as PJM. But Glick said the discussion had focused too much on public policy. State and federal policies drive transmission planning, but so does consumer demand, he said.

"People recognize that climate change is a big issue," Glick said. "They want to address climate change. You're causing as much damage by not being anticipatory enough in terms of your transmission planning if you [looked forward] every 18 months or whatever the traditional planning process is. If you really didn't look beyond that, you'd actually be in a situation where you'd be much worse off, and we need to weigh that against the risk of maybe not being 100% accurate in terms of where the states might be in five or 10 years."

Adjourning the meeting later, Glick said, "This was fun. Let's do it again."

No date was announced for the next meeting. ■



State commissioners previewed the first Joint Federal-State Task Force on Electric Transmission during a general session at the 2021 NARUC Annual Meeting and Education Conference in Louisville, Ky. | © RTO Insider LLC

FERC/Federal News

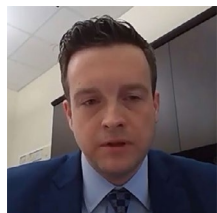


FERC Tech Conference Focuses on Long-term Planning

Continued from page 1

National Laboratories.

Factors to Consider in Long-term Planning



Zachary Smith, NYISO
| FERC

On the opening panel, NYISO Vice President for System and Resource Planning Zachary Smith said that whether it is climate change or policies that affect the generation mix, RTOs and ISOs are all considering similar factors in their trans-

mission planning processes.

But NYISO's processes do not necessarily take into consideration some future conditions, he said.

"I think it's going to be critically important, especially for reliability, when we shift toward more scenario planning and shift away from this idea that we can somehow come up with a perfect base case ... none of us are that good," Smith said. "We need to look at scenarios to think about what the future could look like in various ways and be planning for that."

Robert Ethier, vice president of system planning at ISO-NE, said that over the past two decades, about \$12 billion has been invested in reliability-based transmission projects across the six New England states.

But he said he recognizes the need "to move beyond this reliability-based transmission expansion."

"That sort of approach is not going to meet the needs of the future and the dramatic goals that the states have set for themselves," Ethier said.

The ISO-NE interconnection queue has more than 30,000 MW in projects, 20,000 MW of which are proposed wind resources that are primarily offshore.

"We have done some studies that look at the future grid and specifically about the interconnection of wind," Ethier said. "They show that we can connect the first 6,000 to 8,000 MW of wind in a relatively low-cost way,"

Interconnecting the rest of it will not be "zero cost," he said. He noted that ISO-NE has already begun its 2050 Transmission Study, as requested by the states, which will take a high-level look at scenarios to reliably incorporate clean energy and distributed energy resources beyond the RTO's current 10-year planning horizon.



David Patton, Potomac Economics
| FERC

David Patton, president of market monitor Potomac Economics, said the payoff of investments to upgrade the transmission system 30 years out will be far less than decisions based on congestion trends in closer time frames.

"I think it's very difficult to do this well when you look in the very long term," Patton said. "I would say taking a very measured approach in terms of how far out we look — how much uncertainty we're willing to accept when spending [\$5 billion to \$20 billion] on new transmission assets — is very important."

Grid Strategies President Rob Gramlich added that "everything in the power sector relies on well done transmission planning" from the start.

Future Scenarios

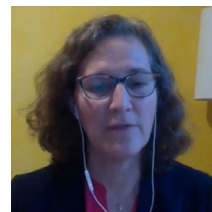
The second panel dealt with the development and study of long-term scenarios. FERC asked panelists on the assumptions in such futures, including how far into the future to look and both the advantages and disadvantages of different horizons.

Bryce Nielsen, director of transmission planning, strategy and development for the Salt River Project, said a goal for planning would be to look out as far as the siting and permitting process takes, estimating that seven to eight years for a typical transmission project would be acceptable. If a planning horizon is double or tripled from a seven-year window, the extended windows should be more "informational" rather than "actionable," he said.

Nielsen noted that if a 20-year planning horizon was used when new generation was

being built in the Southwest in 2001, when "we couldn't build combined cycles fast enough," the transmission would have been built adjacent to natural gas pipelines. That "probably would have been the wrong answer."

"Twenty years seems like a long time, and there's a lot of uncertainty in a 20-year horizon," he said.



Natalie McIntire,
American Clean Power Association
| FERC

Natalie McIntire, technical and policy consultant for the American Clean Power Association and Clean Grid Alliance, said she would look at a 20- to 25-year horizon because the entire process from planning, permitting and construction takes "an extended period" of

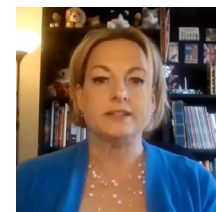
time. Longer, regional lines provide more complications, so the need for additional advanced planning is even more important, she said.

There could be some instances where anticipated transmissions solutions end up not being needed, but those can be adjusted as scenario planning is re-evaluated if included in the process. "The challenge we have in looking only at the short term is that we may have a little bit more accuracy, but we don't end up with the solutions when we need them," she said.

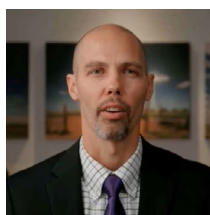
Karen Onaran, vice president of the Electricity Consumers Resource Council, said consumers are "relatively risk averse" to transmission planning, but they recognize it must account for more transmission. A 20- to 25-year informational window that considers the length of permitting for projects but won't produce a "piecemeal, Band-Aid approach" would be appropriate.

Having an actionable horizon into the future could bring less certainty and more risk, which can cause consumers to "get a little bit more nervous," she said.

"We would need to continuously relook at those projections and adjust as needed," Onaran said. "We do understand we need to do that long-term planning or else we're not going to get to the big transmission we need for the future."

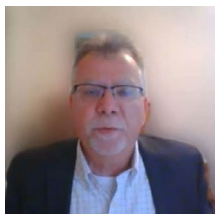


Karen Onaran,
Electricity Consumers Resource Council
| FERC



Bryce Nielsen, Salt River Project
| FERC

FERC/Federal News



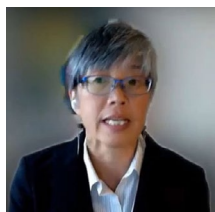
Jay Caspary, Grid Strategies | FERC

Jay Caspary, vice president of Grid Strategies, also said there should be at least a 20-year outlook. Because of the length of the process, planners can't just look out with actionable plans for five to 10 years. There's also an opportunity to take advantage of the aging transmission assets and incorporate new technology into the planning process, he said.

"We can do things with advanced transmission technologies to greatly enhance the power density and capability in existing corridors to support these futures," Caspary said.

Zonal Accord

Speakers on the final panel agreed that FERC should instruct planners to identify geographic zones with a strong potential for renewable resources, similar to Texas' Competitive Renewable Energy Zone (CREZ) process.



Debra Lew, Energy Systems Integration Group | FERC

"We should forecast demand [and] generation. We should define geographic energy zones and proactively plan and build transmissions to these zones to save money," Energy Systems Integration Group (ESIG) Associate Director Debra Lew said.

Transmission building is more effective on larger scales because it takes so much longer than generation.

"People worry that transmission costs are going to increase, but cost alone shouldn't be the focus. Rather, look at systemwide electricity costs or customers' bills as the metric," she said. "The reason is you can pay a little more

for transmission, and that can unlock much bigger savings through generation capacity and operations."

Al Tamimi, Sunflower Electric Power's vice president of transmission planning, said his utility's location in western Kansas means he's in such a zone.

"We have about 350% wind penetration, so I have seen it live," Tamimi said. He said it's important to name geographic zones early enough and build optimal transmission so generation developers won't miss out on opportunities and customers save money.

Tamimi said engagement with the National Labs is also need. There should be a "ranking methodology" of renewable energy zones to identify which ones have more demand and are thus more cost-effective and attractive to developers.

Bonneville Power Administration's Jeffrey Cook said the labs should be included in the development of zones, alongside utilities, RTOs and transmission operators and developers.



David Hurlbut, NREL | FERC

David Hurlbut, senior analyst with the National Renewable Energy Laboratory, said Texas' CREZ development is largely misunderstood.

"Many think it is drawing zones on the map and waiting for the magic to happen. To be clear, the idea was never 'if you build it, they will come,'" Hurlbut said.

It's crucial that any renewable zone identification first consider commercial interest and areas of high demand, he said. "Otherwise,



Sunflower Electric Power Corp's Al Tamimi | FERC

they will have about as much weight as a letter to Santa Claus."

Hurlbut also said naming zones should be "the easy part" because NREL and other National Labs already have resources for transmission providers and load-serving entities.

"The key is linking those zones to a source of demand that has some commercial weight to it," he said.

Zones should also be large enough so that "no single developer or group of developers can clog up" the queue and restrict competition, Hurlbut added. "The development that we see in Texas today ... is evidence that the competitive market can drive renewable energy expansion if the transmission system is built to support it."

It's important that zone identification "knock down those silos between regions in transmission planning." He also said customer savings are amplified with larger transmission projects.

CAISO Vice President of Infrastructure and Operations Planning Neil Millar said renewable zone identification for transmission planning is already "a pretty common practice" within his ISO.

He said it's CAISO's 233-GW generation queue that is "overheated" to "distraction." The ISO now finds itself in a "middle ground" where it needs "actionable transmission plans" based on which potential projects are the most promising.

Other panelists agreed that RTOs' interconnection queues shouldn't be the sole basis for the renewable zones. But Hurlbut said queues can provide "very valuable" information on pent-up demand.

"If you want to get the most productive resource investment, the transmission might need to go to areas it did not exist before," he said. ■

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FERC/Federal News



Biden Signs \$1.2 Trillion Infrastructure Bill

By Michael Kuser

President Joe Biden on Monday signed the \$1.2 trillion, bipartisan Infrastructure Investment and Jobs Act (*H.R. 3684*) in a White House lawn ceremony.

“The bill will enable Americans to get off the sidelines and into the game of manufacturing — solar panels, wind turbines and batteries to store energy and power electric vehicles,” Biden said.

A Department of Energy *factsheet* listed the energy funding in the bill, which includes more than \$7 billion in the supply chain for batteries; \$1.5 billion to boost “clean” hydrogen manufacturing and a \$750 million grant program supporting advanced energy technology manufacturing projects in coal communities.

It also expands the authority of the DOE’s Loan Program Office, allowing it to invest in projects that increase the domestic supply of critical minerals and expand programs that invest in manufacturing zero-carbon technologies for medium- and heavy-duty vehicles, trains, aircraft and marine transportation.

“Today’s infrastructure bill will also begin the

necessary efforts to prevent the worst of climate change, putting thousands of Americans to work by investing in resilience in our buildings and crucially beginning our task to make America’s transportation system clean,” said Senate Majority Leader Chuck Schumer, (D-NY).

The bill drew praise from across the energy sector.

“Enactment today of the bipartisan Infrastructure Investment and Jobs Act puts in motion critical upgrades to our nation’s antiquated electric transmission infrastructure, an essential component of achieving a modern and decarbonized grid,” said Gregory Wetstone, CEO of the American Council on Renewable Energy.

Wetstone also urged Congress to pass the Democrats’ \$1.75 trillion Build Back Better budget package to spur further investments in renewable energy, energy storage and advanced grid technologies. The infrastructure bill was approved Nov. 5, with some progressives supporting it in return for a procedural vote setting up the budget vote for action after an analysis by the Congressional Budget Office. (See *Energy Groups Quick to Praise Infrastruc-*

ture Bill Passage.)

“This historic law will help expedite some of the foundational infrastructure upgrades to our ports and electrical grid needed to spur the creation of a U.S. offshore wind industry,” David Hardy, CEO of Ørsted Offshore North America, said in a *statement* after attending the ceremony. Ørsted has six U.S. wind farms in development, totaling approximately 4 GW.

The infrastructure bill also invests in programs that will help the country continue to electrify its transportation systems, including charging infrastructure, electric school buses and transit fleets, Leah Rubin Shen, federal policy director at the national business association Advanced Energy Economy, said in a *statement*.

“This infrastructure bill [helps] ensure greater reliability and resilience, and drive essential R&D for hydrogen, nuclear, and other clean energy sources,” Electric Power Research Institute CEO Arshad Mansoor said in a *statement*.

Electrification of transportation, buildings and industry will play a crucial role in achieving the U.S. government’s climate goals, Mansoor said. ■



President Biden signs the bipartisan Infrastructure Investment and Jobs Act, surrounded by congressional leaders and supporters of the bill. | C-SPAN

Southeast

FERC Accepts Key Tariff Revisions to SEEM

Modifications Allow Free Transmission Service for Market's Participants

By Tom Kleckner

FERC on Nov. 8 accepted revisions to four Southeast Energy Exchange Market (SEEM) utilities' tariffs that implement the special transmission service used to deliver the market's energy transactions.

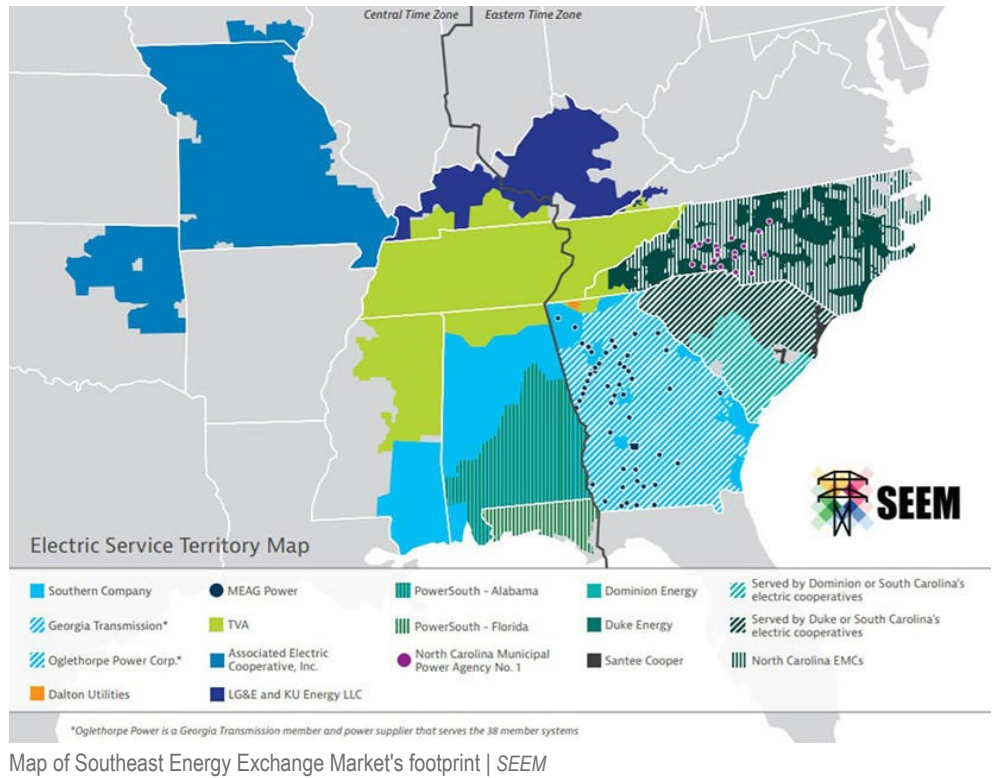
The commission found the revisions to be just and reasonable and not unduly discriminatory or preferential. It ordered Duke Energy, Southern Co., Dominion Energy and PPL subsidiary LG&E and KU Energy to make a compliance filing within 30 days of the order and to make an informational filing at least 30 days before SEEM's projected start-up next year (ER21-1115).

The market was established "by operation of law" when FERC failed to take action within 60 days after prospective SEEM members responded to the commission's latest deficiency letter. The commissioners deadlocked 2-2 "as to the lawfulness of the change," allowing the measure to take effect in accordance with Section 205 of the Federal Power Act. (See *SEEM to Move Ahead, Minus FERC Approval*.)

FERC Chair Richard Glick, who had opposed the market's creation, sided with Commissioners James Danly and Mark Christie to create a 3-1 decision. He said the parties' filings, unlike the SEEM agreement, do not apply *Mobile-Sierra* provisions that would limit FERC's authority to require changes.



Mc Allison C
FERC Commissioner Allison Clements | © RTO Insider LLC



Map of Southeast Energy Exchange Market's footprint | SEEM

Commissioner Allison Clements dissented from the decision with a 13-page statement, saying the parties' transmission tariffs fail to allow open access to the market and provide for rates that have not been shown to be just and reasonable. She said the order sets up a market exchange platform that fails to satisfy FERC Order 888's open-access requirements by incorporating the non-firm energy exchange transmission service (NFEETS) integral to SEEM.

"The same infirmities that render the broader [SEEM] proposal unduly discriminatory and not just and reasonable also mean that it cannot lawfully be incorporated into the relevant utilities' [tariffs] in this proceeding," she wrote. "Incorporating NFEETS into [tariffs] integrates the [SEEM] proposal's flaws into the relevant utilities' transmission service offerings."

SEEM participants say the market is open to all entities that "own or otherwise control a source within the territory and/or is contractually obligated to serve a sink within the territory." Participants must sign an agreement and arrange to take NFEETS, a zero-cost transmission service through unused transmission capacity for 15-minute energy exchanges, from each participating transmission provider.

However, prospective participants must also have executed enabling agreements with three counterparties that participate in the market.

Clements said the requirements "impose unlawful barriers" to potential participants "because current participants may collude to exclude prospective participants by refusing to enter into enabling agreements."

Protesters argued that under FERC's open-access requirements, SEEM is a "loose power pool" and should be subject to a pool-wide tariff rather than establishing NFEETS for each transmission provider's system.

The commission's majority disagreed, saying precedent shows that free, non-firm transmission to facilitate intra-hour transactions does not constitute a loose power pool. It said the SEEM agreement allows for such service for unused transmission capacity and thus entails no opportunity costs.

"NFEETS is the lowest-priority transmission service, cannot be used to satisfy reliability obligations of [SEEM] participants and does not replace existing transmission service," the majority said. ■

Southeast

SEEM Opponents File Rehearing Requests

Filings by PIOs, Clean Energy Coalition Cite Commissioners' Objections

By Holden Mann

Opponents of the Southeast Energy Exchange Market (SEEM) filed rehearing requests with FERC on Friday in the hopes of persuading it to revisit its indecision over expanded bilateral trading in 11 Southeastern states, instituted last month automatically because commissioners were split ([ER21-1111](#), *et al.*).

In two separate filings, the market's opponents — an *ad hoc* group of environmental and clean energy organizations calling themselves the Public Interest Organizations (PIOs), along with a separate group billed as the Clean Energy Coalition — called the SEEM construct “unjust, unreasonable and unduly discriminatory.” The PIOs also called, once again, for a “broader technical conference on wholesale market development in the Southeast.”

FERC Chairman Richard Glick and Commissioner Allison Clements, both Democrats, were against the proposed SEEM agreement in October, while Republican Commissioners James Danly and Mark Christie approved of it. According to [Section 205](#) of the Federal Power Act, the commissioners' failure to take action by Oct. 11, 60 days after SEEM's supporters responded to its latest deficiency letter, meant that the agreement took effect Oct. 12 “by operation of law.” (See [SEEM to Move Ahead, Minus FERC Approval](#).)

FERC has since approved revisions to four of the participating utilities' tariffs implementing the special transmission service used to deliver the market's energy transactions. (See related story, [FERC Accepts Key Tariff Revisions to SEEM](#).) That decision was made by majority vote, with Glick joining Danly and Christie in approval and Clements opposed. The PIOs — whose members include the Sierra Club, the Southern Alliance for Clean Energy, the Natural Resources Defense Council and others — indicated they will request rehearing on this decision as well.

SEEM Participants' Power Seen as Unfair

Both the PIOs and the Clean Energy Coalition — which comprises Advanced Energy Economy, the Advanced Energy Buyers Group, Renewable Energy Buyers Alliance and Solar Energy Industries Association — prominently cited the arguments of Glick and Clements from their October statements explaining

their opinions. (See [FERC's Christie Accuses Glick, Clements of Prejudice for RTOs](#).)

Glick indicated in October that he was prepared to approve SEEM despite his belief that an RTO would have served Southeastern consumers better; however, the proposed market's use of the *Mobile-Sierra* doctrine, which presumes that any freely negotiated wholesale energy contract is just and reasonable, proved to be the sticking point. The chairman warned that FERC's monitoring capabilities and enforcement authority would be “hamstrung” by the doctrine's use.

The PIOs picked up this thread, arguing that the use of *Mobile-Sierra* “violates well established commission and federal court precedent” because the SEEM agreement deprives any potential signatories of the opportunity to negotiate — a fundamental assumption of the doctrine. Even market participants' offer in their previous deficiency response to restrict the doctrine's application to a more limited set of provisions would unacceptably limit market participants' negotiating power, they said. (See [SEEM Members Offer Rule Changes](#).)

In its filing, the Clean Energy Coalition concurred, saying that the application of *Mobile-Sierra* “in a manner contrary to commission precedent” made the approval of SEEM “arbitrary and capricious.” Quoting Glick, the coalition said SEEM members “have not shown ‘extraordinary’ or ‘compelling’ circumstances that ... would merit application of *Mobile-Sierra* here as a matter of agency discretion.”

The groups also sided with Clements, who in her statement on the decision agreed with Glick's concerns on *Mobile-Sierra* but went further, saying that the SEEM proposal “fails to abide by the bedrock principles of open access and non-discrimination that were crystallized in ... Order No. 888.”

Expanding on Clements' argument, the Clean Energy Coalition warned that accessing the non-firm energy exchange transmission service that is central to SEEM would require participants to get approval of an agent overseen by the market's operating committee, which is controlled by current members, and to execute enabling agreements with at least three other participants. The coalition noted that FERC rejected a similar “two-class membership system” in the Mid-Continent Area Power Pool case and argued that approving it in this situation is unfair and inconsistent.

Danly, Christie Accused of Ignoring Precedent

The groups also criticized Danly and Christie, arguing that they dismissed commission precedent and the concerns of objectors.

“Neither Commissioner Danly nor Commissioner Christie acknowledged what SEEM is: a loose power pool,” the Clean Energy Coalition said. “The commission has been clear that a loose power pool is ‘any multilateral arrangement, other than a tight power pool or a holding company arrangement, that explicitly or implicitly contains discounted and/or special transmission arrangements.’ ... The SEEM proposal is a multilateral arrangement and explicitly contains discounted and/or special transmission arrangements. ... It was arbitrary and capricious for the commission to accept [it].”

The PIOs added that while Danly acknowledged the “cavalcade of existing commission precedent [that] supports protesters' position” on *Mobile-Sierra*, he maintained that “both commission and judicial precedent are ‘in error.’” Although Danly justified his vote by stating that *Mobile-Sierra* is intended to “ensure that ... contracts can be relied upon,” the PIOs called this a “fundamental misapprehension” of the doctrine.

“The Supreme Court, and numerous others, have explained that the justification for applying the heightened public interest standard is premised on the fact that the contract was negotiated at arm's length between ‘sophisticated businesses enjoying presumptively equal bargaining power.’ ... Those circumstances are why a contract with these exact characteristics — and only these exact characteristics — can be uniquely relied upon,” the PIOs said, concluding that it is Danly's position that introduces “contractual uncertainty.”

30 Days to Act

FERC has 30 days to act on the merits of the rehearing request; if it fails to do so because it is still divided 2-2, the petitioners may appeal to the D.C. Circuit Court of Appeals. However, it may be possible to break the deadlock earlier if the Senate approves President Biden's nomination of D.C. Public Service Commission Chair Willie Phillips to join FERC, which would give Democrats a 3-2 majority. The Senate Energy and Natural Resources Committee voted earlier this month to advance Phillips' nomination to the full Senate. (See [Senate Energy Committee Advances Phillips](#).) ■

CAISO/West News

Calif. Needs Its Last Nuclear Plant, Study Finds

Researchers at Stanford, MIT Tout Reliability Benefits

By Hudson Sangree

A study published last week by researchers at Stanford University and the Massachusetts Institute of Technology found that California would reap significant financial and environmental benefits by keeping its last nuclear power plant operating for at least another decade.

The authors of the *paper*, published on Stanford's website, cited grid reliability during the state's statutorily mandated switch to 100% clean power by 2045 as a prime argument for operating Pacific Gas and Electric's Diablo Canyon Power Plant beyond its scheduled retirement date in 2025. The state has struggled with capacity shortfalls in the past two summers, including rolling blackouts in August 2020, and anticipates up to a 3,000-MW shortfall next summer.

"It's important to remember that this power plant produces 15% of California's carbon-free electricity today and is responsible for 8% of the state's total electrical production," co-author and MIT professor John Lienhard said in a question-and-answer session with *MIT News*. "In other words, Diablo Canyon is a very large factor in California's decarbonization. When or if this plant goes offline, the near-term outcome is likely to be increased reliance on natural gas to produce electricity, meaning a rise in California's carbon emissions."

Postponing the plant's retirement to 2035 would reduce the state's reliance on natural gas, cut carbon-emissions from electricity generation by 10% compared with 2017 levels, and save ratepayers \$2.6 billion in electric costs, the researchers found. Operating the plant until 2045 could save up to \$21 billion and "spare 90,000 acres of land use from energy production," by eliminating the need for 18 GW of solar arrays, they wrote.

Using energy from the nuclear plant on the Central California coast to desalinate ocean water or produce hydrogen would be added benefits, the study found.

PG&E said it would continue working toward the plant's retirement unless ordered to do otherwise.

"We are aware of the independent study performed by Stanford and MIT. PG&E is committed to California's clean energy future, and as a regulated utility, we are required to

follow the energy policies of the state," it said in a statement to *RTO Insider*. "The state has made clear its position on nuclear energy, and the plan to retire Diablo Canyon Power Plant has been approved by the California Public Utilities Commission and the state legislature. Our focus therefore remains on safely and reliably operating the plant until the end of its NRC licenses, which expire in 2024 and 2025."

The California Public Utilities Commission, which approved the plant's retirement, said continuing to operate it would require costly upgrades and federal approval.

"The CPUC has not been briefed on the report, and no proposal has been made directly to the CPUC to revisit the 2018 decision to allow the plant to close down after its federal licenses expire in 2024 and 2025," CPUC Spokesperson Terrie Prosper said in an email.

"To continue operating Diablo Canyon beyond 2025 would have required a license renewal from the federal Nuclear Regulatory Commission," Prosper said. "As part of the renewal PG&E would need to make seismic upgrades. Those upgrades combined with required changes to the cooling systems to comply with state and federal water quality laws would likely cost more than \$1 billion."

The authors of the study said their research had concluded the plant, which sits near fault lines, could withstand severe earthquakes, tsunamis and other natural disasters without upgrades.

"We reviewed the latest NRC documentation on Diablo Canyon's seismic risk," the paper said. "This is summarized in a very recent NRC letter, which concludes that PG&E has demonstrated the plant's capacity to withstand the types of seismic hazards re-evaluated after Fukushima. No further actions have been required by the NRC."

The authors also cited 2014 estimates by Bechtel Power Corp. that the cooling system fixes could be done for as little as \$456 million.

The study appeared to bolster the case of a group called Californians for Green Nuclear Power (CGNP), which has argued in recent years that extending Diablo Canyon's operation is the most cost-effective option for supplying the state's power needs and that nuclear power is more dependable than wind and solar, making it an essential provider of baseload capacity.



The planned closure of California's last nuclear plant at Diablo Canyon is prompting reliability concerns. | PGE

FERC dismissed a CGNP complaint in March after NERC, PG&E and others argued against the group's challenge. CGNP's complaint claimed, in part, that the closure of Diablo Canyon violated NERC and WECC reliability standards and contended the Electric Reliability Organization had failed to exercise appropriate oversight in the matter. (See *FERC Dismisses Calif. Nuclear Complaint* and *NERC Blasts Calif. Nuclear Group's Complaint*.)

Diablo Canyon, which went online in 1985, consists of two nuclear reactors with a nameplate capacity of 2.3 GW. In 2019, it produced nearly 16.2 TWh of electricity accounting for about 10% of in-state generation, according to the *U.S. Energy Information Administration*.

Its closure has been in the works since 2016, when PG&E asked the CPUC to approve a *plan*, created in partnership with environmental, labor and anti-nuclear advocacy groups, to begin shutting down the plant in phases between 2024 and 2025. The utility intends to replace the aging nuclear plant with wind, solar and other carbon-free resources as a means of meeting renewable energy goals set by California's legislature in 2018 under Senate Bill 100.

Lienhard told the university news service that he hoped the new study would cause PG&E and others to revisit and reverse the decision to retire Diablo Canyon.

"We believe that this report gives the relevant stakeholders and policymakers a lot of information about options and value associated with keeping the plant running, and about how California could benefit from clean water and clean power generated at Diablo Canyon," he said. ■

CAISO/West News

CAISO Reconvenes EDAM Stakeholder Meetings

Resource Sufficiency, Transmission Commitment are Main Concerns

By Hudson Sangree

After a 14-month hiatus, CAISO on Friday restarted the stakeholder process to expand its real-time Western Energy Imbalance Market to include day-ahead trading.



CAISO CEO Elliot Mainzer spoke at an Oct. 13 EDAM forum. | CAISO

"There is real momentum towards further regional coordination in the West," CAISO CEO Elliot Mainzer said in a statement. "By building on the foundation of the EIM and harnessing the knowledge and experience of stakeholders from across the region, our goal is to

position EDAM [extended day-ahead market] as the next major step in West-wide market evolution."

The EDAM initiative was put on hold following CAISO's energy emergencies in August and September 2020, which raised concerns about resource adequacy in the West and California's dependence on imports. (See [Heat Waves, Blackouts Slow Western EIM Expansion.](#))

An EDAM straw proposal issued in July 2020 generated stakeholder pushback over transmission rights and concerns that the market would not be as voluntary as the WEIM. (See [EDAM Design Could Undermine Tx Rights, Critics Say.](#))

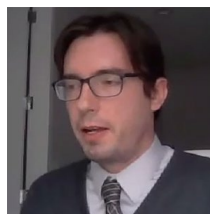
A select working group of stakeholders met over the summer to produce a set of "*common design principles*" as the basis for ongoing discussions. The closed-door process met with some criticism, but Mainzer said he was optimistic that the EDAM process would eventually yield consensus from the WEIM's diverse constituents.

"This is a group of people that have a track record of coming together around solutions," Mainzer said as he opened Friday's call-in session.

CAISO held a forum Oct. 13 to generate interest in EDAM as it faces a more crowded field of competitors trying to organize Western markets, especially SPP, which has been pitching a Western RTO and will operate the Northwest Power Pool's Western Resource Adequacy Program (WRAP). (See [CAISO Promotes EDAM Effort in Forum.](#))

CAISO formally recommenced the EDAM *stakeholder process* with a call Friday to review the initiative's design principles, scope and timeline, and to begin forming stakeholder working groups to address key components including resource sufficiency, transmission commitments and greenhouse gas accounting.

"We envision that the first task of these working groups will be to identify the detailed market design issues that will need to be addressed ... and a discussion of the common EDAM design principles that are relevant to [each] group," Milos Bosanac, the ISO's lead infrastructure and regulatory policy developer, said.



Milos Bosanac is leading CAISO's EDAM stakeholder process. | CAISO

"Those [common design] principles potentially may be affirmed, edited or built upon throughout the discussion, and we encourage those working groups to dedicate time to this effort," said Bosanac, who is heading the EDAM stakeholder process. "We recognize ... [that] providing additional transparency and discussion on the common design principles" is important to stakeholders, he said.

The working groups' recommendations will be incorporated into a comprehensive straw proposal due at the end of March, he said.

Resource Sufficiency

CAISO COO Mark Rothleder led a morning panel discussion.

The EDAM is meant to build on the WEIM's success by optimizing dispatch of resources through the day-ahead market and maximizing efficient use of transmission to serve load across a larger footprint, Rothleder said. It is not meant to be an RTO substitute or to replace resource adequacy (RA) planning by its member entities or WRAP, he added.

But EDAM, like the real-time WEIM, will require members to show they have sufficient resources to meet their own demand and prevent "leaning" on the market for RA, Rothleder said.

"We do need a common resource sufficiency examination going into the day-ahead to make

sure that everybody's coming in sufficiently resourced to cover load and uncertainty, but we're not using this as a mechanism to create a common resource adequacy regime across the entire footprint," he said.

The resource sufficiency evaluation and potential consequences of failing to meet it "is definitely going to be a hot topic in the working groups," he said.

Stakeholders have raised concerns about whether the EDAM would impose greater RA requirements than currently exist, panelists said.

"We can't use EDAM to ... be a super-restriction that, in effect, undermines activities that have already been satisfying agreed-to formalized [RA] processes," Jeffrey Nelson, director of FERC Rates and Market Integration at Southern California Edison said. "If we have systems out there that are already showing reliability, we need to respect them. The EDAM shouldn't eviscerate those or add on something that was not designed."

Josh Walter, strategic adviser with WEIM member Seattle City Light, said "this is ultimately going to be a very difficult issue to work through ... but I do think that this also highlights the need for constructive dialogue in the workgroups."

The WEIM's main draw has been its economic benefits, which have totaled \$1.7 billion since the market started in 2014. CAISO is basing its hopes for EDAM on achieving similar or greater benefits for members. The WEIM now has 15 participants with seven more scheduled to join in 2022 and 2023. Together, those entities would represent 84% of load in the Western Interconnection, CAISO said.

Other thorny topics in EDAM are expected to include transmission commitment, congestion rent allocation and accounting for greenhouse gas emissions.

The workgroups were scheduled to start Dec. 6, though some stakeholders said Friday it would be better to start after the holidays to avoid added stress on participants. Rothleder said CAISO would take it under consideration.

EDAM policy design is expected to last through 2022, with implementation to continue in 2023 and participation scheduled to start in 2024. ■

ERCOT News



Tesla Gets OK to Sell Power in Texas

Texas regulators have given a Tesla subsidiary permission to begin selling electricity to retail customers as company CEO Elon Musk continues to expand his presence in the state.

The Texas Public Utility Commission *filed* an order Wednesday granting Tesla Energy Ventures a retail electric provider certificate that allows it to provide retail services in the competitive ERCOT market. The order requires Energy Ventures to continuously maintain an office within Texas to comply with state regulations.

The company applied for the certificate in August and provided a balance sheet that demonstrated shareholder equity of at least \$1 million, the PUC said. The application also included the resume of at least one principal employee with five years of experience in energy commodity risk management of a substantial energy portfolio.

Texas Monthly *broke the news* of Tesla's plans in August. The company is also building two *utility-scale batteries* that will serve wholesale power customers.



Tesla has regulatory approval to begin selling electricity in Texas. | Tesla

Musk announced in October that he would be moving the company's headquarters from California to Austin, Texas. The company is building a Gigafactory in the city and already *owns more land in Austin* than anyone else.

Musk also helped found *SpaceX*, which has a launch site in Boca Chica on the southern Texas Gulf Coast. ■

— Tom Kleckner

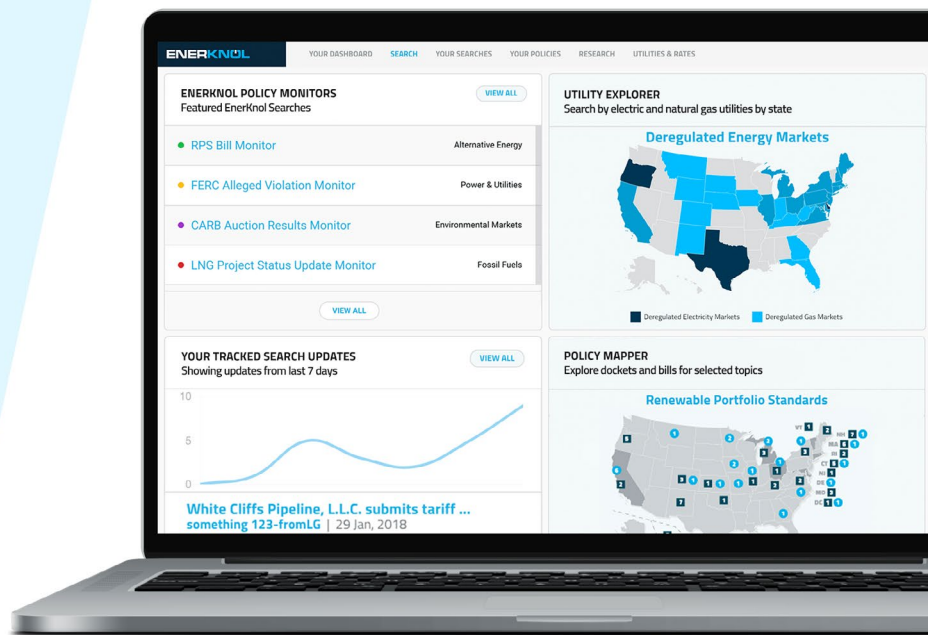
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MISO News

OMS, Monitor Revive MISO Demand Curve Debate

By Amanda Durish Cook

LOUISVILLE, Ky. — The Organization of MISO States and the MISO Independent Market Monitor on Nov. 8 resuscitated a longstanding debate over whether the RTO should adopt a sloped demand curve in its capacity auctions.

During a meeting in conjunction with the National Association of Regulatory Utility Commissioners' annual meeting, OMS President Julie Fedorchak said the topic was "worth bringing forward again." She noted the landscape has changed in the years since the Monitor first recommended MISO adopt a sloped demand curve.

Fedorchak said a demand curve could possibly help the footprint place more value on resource adequacy. MISO employs a vertical demand curve in its capacity auction that prioritizes reliability over economics.

Monitor David Patton said the RTO neglects the demand side of its capacity market with its

focus on the supply side. He said the demand for capacity must represent the value consumers are willing to pay for.

Patton said should MISO alter the curve; most regulated utilities won't be forced into rate increases because they carry excess capacity. He said the utilities and merchant generation that relies on the capacity market's price signals will likely benefit from increased compensation.

"This has the benefit of being far more equitable for the regulated utilities, which carry the reliability [responsibility] for the [MISO] North and the South [regions]," Patton said.

Competitive suppliers, on the other hand, will pay more for capacity, he said.

The grid operator has resisted a sloped demand curve ever since its unsuccessful attempt in 2016 to conduct separate, three-year forward capacity auctions using the curve only for the footprint's deregulated areas. The RTO is currently preoccupied with establishing

four seasonal capacity auctions paired with availability-based resource accreditations; the plan does not call for changes to the auction's demand curve design. (See [Last-minute Unease over MISO's Seasonal Accreditation](#).)

Patton said had MISO used a sloped demand curve in its 2021/22 Planning Resource Auction, it would have cleared capacity at \$172.86/MW-day in the Midwest and \$28.31/MW-day in the South. This year, MISO South (Arkansas, Louisiana, Mississippi and Texas) cleared at an all-time low of 1 cent/MW-day while Midwestern zones 1-7 (Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Montana and Wisconsin) cleared at \$5/MW-day. (See [MISO Capacity Auction Values South Capacity at a Penny](#).)

The Monitor has said analyses show that MISO's capacity market is not providing revenues to keep coal and nuclear resources afloat, which are needed for reliability while the footprint decarbonizes. ■



OMS meeting underway | © RTO Insider LLC

MISO News

MISO Members Retain Incumbent Directors

By Amanda Durish Cook

MISO’s membership last week re-elected three incumbents to the Board of Directors, eschewing an opportunity to introduce new faces.

Directors Nancy Lange, Mark Johnson and Phyllis Currie were up for re-election this year. They will begin their new three-year terms on Jan. 1.

Currie and Johnson joined the board in 2016 and were re-elected in 2019. Lange was elected to the board after some controversy in 2018 because of her immediate past position as chair of the Minnesota Public Utilities Commission. (See *MISO Elects Lange to Board; Keeps 2 Incumbents.*)

“These experienced industry leaders will continue to guide us toward implementing the changes needed to meet the reliability imperative,” MISO CEO John Bear said in a *press release*. “The expertise and institutional knowledge of our returning directors will be instrumental to helping us manage some of the issues facing our industry. Their diverse backgrounds and understanding of our organizational goals will help accelerate our plans for the future.”

MISO’s reliability imperative refers to its commitment to plan and make changes to maintain reliability as the resource mix shifts toward clean energy.

The board consists of nine independent directors and its CEO. Directors are limited to serving three, three-year terms.



MISO CEO John Bear | Gulf Coast Power Association

Despite MISO retaining search firm Russell Reynolds and interviewing a slate of 20 non-incumbent candidates, the Nominating Committee decided against introducing any new members to the board. The committee was comprised of MISO directors and stakeholders Stacy Herbert, representing transmission owners, and Indiana Utility Regulatory Commissioner Sarah Freeman.

MISO’s month-long board elections require a minimum 25% participation rate among its nearly 140 voting-eligible members to achieve quorum. Members can vote for, against or abstain from selecting any of the candidates. Candidates must earn a majority of quorum votes to be installed.

Board members also voted unanimously in September to elect Todd Raba as board chair. He will replace current chair Currie in January.

“This is the only professional engagement I have, so I look forward to dedicating all of my professional attention to this,” Raba said during MISO’s September Board Week. Raba was previously CEO of GridPoint and Berkshire Hathaway’s MidAmerican Energy and Johns Manville companies.

The board will meet next in Orlando, Fla., Dec. 7-9, marking MISO’s first in-person public meetings since the coronavirus pandemic spread in early 2020. ■

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MISO News

MISO Schedules Cost-allocation FERC Filing

By Amanda Durish Cook

MISO said last week it will file with FERC a proposal to create two separate but identical cost-allocation designs for its Midwest and South sub-regions that rely on a 100% postage stamp rate to load.

The proposal, to be filed in mid-December, will split the costs of its long-range transmission planning effort between the two regions.

Jeremiah Doner, MISO's director of economic and policy planning, said Thursday that discussion of possibly sunseting the bifurcated allocation approach after a few years or when the RTO approves a transmission project that strengthens the link between the two regions. MISO has said it hopes to use a footprint-wide cost allocation within a few years. (See [MISO Hopes Bifurcated MVP Cost Allocation Will be Temporary.](#))

"One of the drivers for the cost-allocation approach is the limited transfer capability between the regions," Doner told stakeholders during a Regional Expansion Criteria and Benefits Working Group (RECBWG) meeting.

Staff said they will commission a Brattle Group study on the footprint's distribution of project benefits in the filing to prove that long-range project benefits are confined to regions. The RTO committed to conducting a similar study in 2026 and every three years thereafter to analyze benefits distribution.

General Counsel Timothy Caister said MISO plans to study projects that increase flows between the Midwest and South as part of the long-range plan's later stages. He said the RTO may consider a different cost-allocation approach for those cross-regional projects.

MISO is studying the Midwest's transmission needs before it begins analyzing the South's needs. Caister also reminded stakeholders that

MISO must incorporate any final rules from FERC's advanced notice of proposed rulemaking, which is aimed at improving transmission planning and cost allocation.

Some stakeholders remain apprehensive about dividing regional transmission costs based on location.

Clean Grid Alliance's Natalie McIntire asked what MISO would do if it found its proposed Midwest long-range projects are found to have footprint-wide benefits. She asked whether that might change the cost-allocation approach.

"To the extent that the study does not meet the hypothesis, we'll be back here at the RECBWG," Caister said.

"I really think it's important that MISO design what's best for the grid instead of working around arbitrary boundaries," Sustainable FERC Project attorney Lauren Azar said. ■



| Xcel Energy

NYISO News

NYISO Shares Order 2222 Response with Stakeholders

Filing Due Nov. 19

By Michael Kuser

NYISO on Nov. 8 presented stakeholders a subset of *draft* responses to FERC's data request regarding its Order 2222 compliance.

The ISO's response must explain how its distributed energy resource participation model complies with Order 2222 and propose additional tariff revisions, as necessary. The ISO has not identified tariff revisions required in order to respond to the commission thus far, said Harris Eisenhardt, market design specialist.

The commission on Oct. 1 gave CAISO and NYISO 30 days to explain details of the treatment of distributed energy resources and aggregations described in their Order 2222 compliance filings. It later granted NYISO's request for an extension until Nov. 19 (*ER21-2460*). (See *FERC Asks Details from CAISO, NYISO on Order 2222 Compliance*.)

Market Rules

Most of the presentation focused on coordination between the ISO, aggregator and distribution utility, particularly the role of the utility.

One question concerned rules to prevent aggregators from receiving compensation twice for the same services (e.g., in an ISO market and a state program).

The commission asked, "What role, if any, will the distribution utility play in helping NYISO verify that an aggregator is not providing the same or substantially similar service in the NYISO-administered markets?"

As previously stated in its filing, Eisenhardt said, NYISO plans to rely on aggregators' self-attestations that their DERs are not double dipping.

One stakeholder said that some answers for the attestations may require a level of operational detail that might not necessarily be known or could still be in flux at the time of enrollment and asked whether it would be necessary to amend the attestation if circumstances changed.

Eisenhardt said there will be a document to provide guidance on which programs are compatible with specific NYISO services.

"It is the expectation of NYISO that the aggregator would be able to use that during enrollment to make an informed decision on



Con Edison senior engineers Steven Goldman (left) and Jorge Tua inside a company battery storage unit in Ozone Park, Queens. | Con Edison

what the planned operation of the aggregation and individual DER would be and that it would not conflict or that they do not believe it would conflict with the services as laid out in that guidance document," Eisenhardt said. "If there were modifications following the attestation, NYISO would expect there would be an amendment and would be informed of those changes as needed."

Another market participant said that while Order 2222 directs that the utility should have up to 60 days to complete evaluation of whether there would be any safety or reliability impacts to its distribution system, it did not specify what happens at the end of the 60-day window if there are issues that take longer to evaluate.

NYISO has dispute resolution procedures in its tariff already that could be reset for Order 2222 compliance, if necessary, NYISO senior attorney Greg Campbell said.

"We'll see if the commission would like us to enhance those. I think that they are sufficient as is, but more specifically, NYISO will be the one making the final decision on whether a DER can participate in its markets," Campbell said. "That decision will be informed by information provided by the utilities as well as by the aggregator and by others, so if the aggregator feels as though it needs to, it can invoke those dispute resolution procedures in section 11 of the NYISO services tariff."

Implementation Details

One stakeholder asked how transmission node mapping will be made available to market participants.

The ISO plans to put out a list of all the transmission nodes for the New York Control Area, said Michael Ferrari, market design specialist. Developers will have to work with the transmission owner to find out how nodes map up.

"From the NYISO's perspective, we were identifying the points on the transmission system, but the mapping from distribution to transmission will have to go through the transmission owner, so presumably the question of whether or not there will be some tool available will be one that needs to be put to the individual distribution utilities," Ferrari said.

If the commission authorizes the ISO and the distribution utilities to take 90 days to evaluate changes to a DER aggregation — which is the 30 days the commission has already authorized the ISO to take to evaluate changes and then a 60-day evaluation by the distribution utility — NYISO is going to have to change its timing for updating the transmission node list, Campbell said.

"We previously said we would provide at least 90 days' notice of transmission node changes prior to the beginning of the capability year. Clearly, if an aggregator needs to notify the ISO 90 days before they can take effect, we need to bump up the timing of publishing transmission node changes," Campbell said. "One hundred fifty days prior would provide sufficient lead time."

The ISO expects to release the number of nodes for deployment by the end of this year or the first quarter of next year, and DER deployment is still anticipated for the fourth quarter of next year, Ferrari said. ■

NYISO News

NYISO Reports Adequate Capacity for Winter

By Michael Kuser

NYISO last week *reported* sufficient capacity this winter to meet forecasted peak demand conditions, with a total of 42,415 MW of resources available.

“Recognizing the unique challenges that can accompany the upcoming winter season, NYISO operations staff has taken additional precautions and conducted extensive additional outreach to generators to maintain reliable bulk system operations for all New Yorkers,” NYISO CEO Rich Dewey said in a statement. “Despite the recent increase in commodity fuel prices, our markets will continue to help us meet this winter’s demand reliably at the least cost possible.

The ISO forecasts having 18,390 MW of capacity above its forecast peak demand of 24,025 MW. The forecast represents an increase of 1,483 MW over last winter’s peak of 22,542 MW on Dec. 16, 2020, but is 0.7% below the 10-year average winter peak of 24,203 MW.

“The state’s grid is well equipped to handle forecasted winter demand,” said Wes Yeomans,

NYISO vice president of operations. “The NYISO operates the grid to meet reliability rules that are among the strictest in the nation and are designed to ensure adequate supply.”

NYISO’s extreme winter weather scenario analyses show that peak demand could increase to as much as 26,230 MW. New York set its all-time winter peak in January 2014, when multiday polar vortex conditions pushed demand to 25,738 MW.

While that did not cause any bulk power system reliability issues, NYISO made changes to its market designs to provide stronger incentives for generators to secure fuel availability and enhance preparations for winter peak demand needs. The ISO also took steps to improve situational awareness of natural gas system conditions and enhance procedures for monitoring generator fuel inventories, including detailed surveys sent to generators across the state.

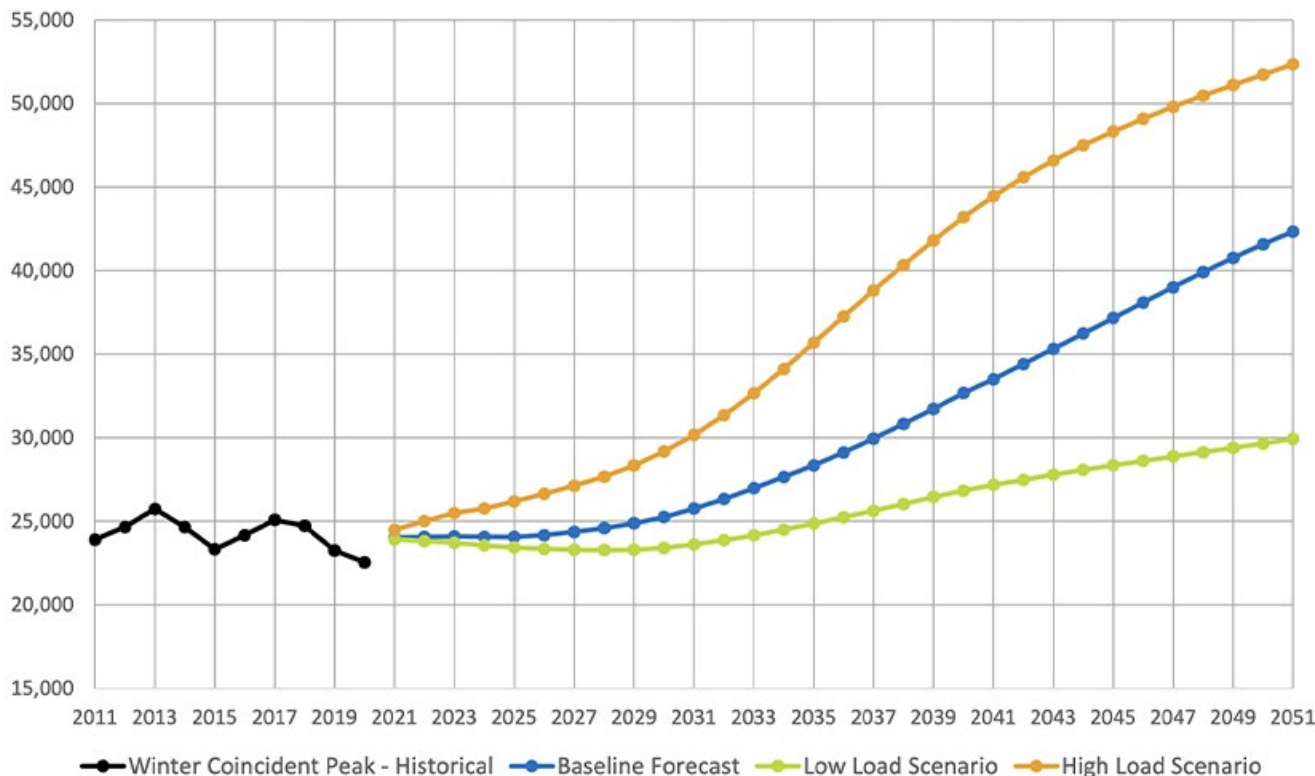
NYISO is monitoring regional fuel supplies, as indications are these could be limited in supply this winter, Yeomans said. U.S. Energy Information Administration data indicate oil inventories both regionally and throughout the country are lower than normal. Seasonal and

weekly fuel surveys indicate oil and dual-fuel capability generation have sufficient start-of-winter oil inventories, but they are nonetheless lower than past years’ inventories.

The ISO also participated in various communications and coordination efforts with NERC, state agencies, other ISOs/RTOs and gas industry personnel, including the Interstate Natural Gas Association of America, Natural Gas Supply Association, Northeast Gas Association, New York pipelines and local distribution companies.

Fully 97% of the generator survey respondents indicated that their winter preparation procedures include freeze protection measures that are in place for the coming winter.

Based on the February winter storm’s impact on ERCOT and SPP, NYISO performed a “gas-electric critical infrastructure survey effort,” reaching out and coordinating with local gas distribution companies and pipelines to identify critical electric circuits for the gas system. The ISO also reviewed load-shedding processes with New York utilities and surveyed demand response participants to identify “critical interdependent sub-sector loads.” ■



New York Control Area winter peak forecasts (MW) | NYISO

NYISO News

NYISO Business Issues Committee Briefs

Mitigation Review Moves Forward

The NYISO Business Issues Committee last week voted (76.13%) to recommend that the Management Committee approve *changes* to the ISO's installed capacity market buyer-side mitigation and capacity accreditation rules.

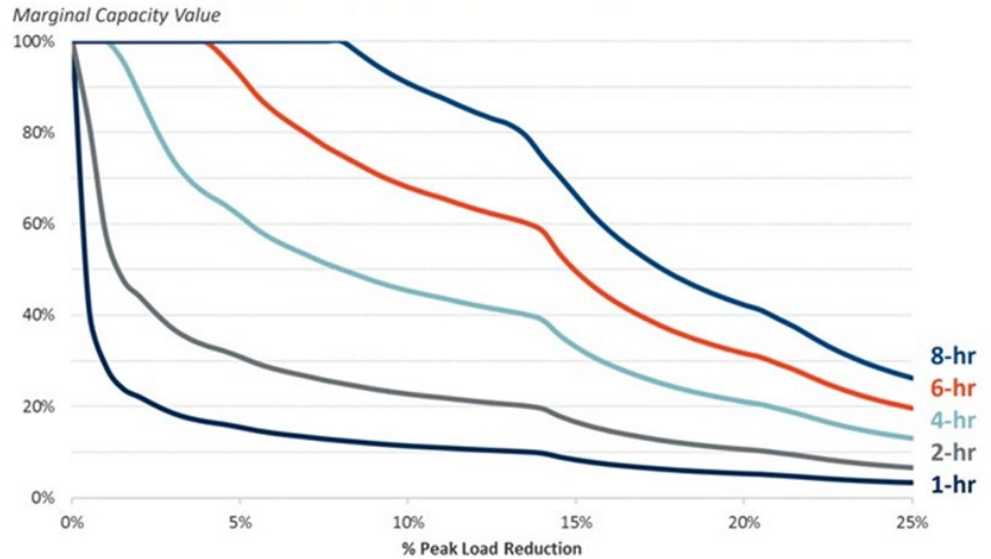
The buyer-side mitigation rules are increasingly viewed as an impediment to state policy goals and something that needs to be addressed, Michael DeSocio, NYISO director of market design, said. (See *NYISO BSM Mitigation Ruling Sparks Glick Rebuke*.)

The ISO wants to ensure that the BSM, capacity market and wholesale market rules in general are just and reasonable and that the markets are open to all resources capable of providing wholesale services, including those that can help New York achieve its clean energy objectives, DeSocio said.

"We've been working on comprehensive mitigation review now for three years ... and I don't think we would be here without a proposal that combines various [stakeholder concerns]," he said. "That's part of the collaborative process and part of the compromise that brings forth many good ideas. We're very comfortable with the proposal and think it's the right approach for the NYISO competitive wholesale markets."

CSR-related Manual Updates

The BIC also approved manual *updates* related to implementation of market rules for co-located energy storage resources (CSR), specifically for the ICAP, Ancillary Service,



In future years, capacity accreditation values for all resources will be based on the marginal accreditation value method, as applied here to energy storage. | Analysis Group

Day-Ahead Scheduling, and Transmission & Dispatch Operations manuals.

"We are actually looking to deploy software in the next couple of weeks," Amanda Myott, energy market design Specialist, said.

The ISO last year modified the market rules necessary to accommodate CSRs, which consist of a wind or solar intermittent power resource and an energy storage resource co-located behind a single point of injection that share a set of common injection/withdrawal limits.

The two generators that make up the CSR will participate in NYISO's markets as distinct generators, and the market software will consider

the common injection/withdrawal limits when determining energy and ancillary services schedules for these generators, Myott said.

Language will be added to the applicable manuals describing how the scheduling limits will interact with unit specific constraints, such as ramp, upper operating limit and lower operating limit.

FERC in March accepted the ISO's rules allowing an energy storage resource to participate in the wholesale markets with wind or solar as a CSR, and the ISO has since been working on the market software. (See *FERC Approves NYISO Co-located Storage Model*.) ■

— Michael Kuser

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PJM News



P3 Seeks 3rd Circuit Review of PJM MOPR

By Michael Yoder

The PJM Power Providers Group (P3) on Nov. 5 *petitioned* the 3rd U.S. Circuit Court of Appeals to review PJM’s narrowed minimum-of-fer price rule (MOPR) after FERC deadlocked on issuing a decision on the RTO’s proposal.

PJM’s narrowed MOPR automatically took effect Sept. 29 because the commission’s four members were evenly divided over it. The rule now only applies to resources connected to the exercise of buyer-side market power or those receiving state subsidies conditioned on clearing the RTO’s capacity auction. (See *FERC Deadlock Allows Revised PJM MOPR*.)

The America’s Water Infrastructure Act, signed into law by President Donald Trump in October 2018, added a provision to Section 205 of the Federal Power Act to allow for judicial review if FERC fails to act on the merits of a rehearing request within 30 days because the commissioners are divided 2-2. P3 and other stakeholders had filed rehearing requests last month (ER21-2582).

P3 said the 3rd Circuit, based in Philadelphia, is the “most appropriate venue for judicial review” because of its proximity to PJM, based in Valley Forge, Pa. P3 also said the court has the “most direct experience” regarding FERC’s prior orders on the MOPR and its “interaction with state subsidies designed to promote preferred resources.”

The water act also required each commissioner to issue a statement explaining how they would have voted and why if the commission fails to act.



Utility Scale Solar in Maryland | Constellation

FERC Chair Glick and Commissioner Allison Clements, both Democrats, *said* the commission’s past decision on PJM’s expanded MOPR “created a Byzantine system of administrative pricing — unprecedented in both scope and complexity — that would have imposed on consumers billions of dollars in unjustified costs.” (See *‘Good Riddance’ to Old PJM MOPR, Glick Says*.)

Republican Commissioners James Danly and Mark Christie opposed the proposal, with Danly *calling it* “irredeemably inconsistent” with

the FPA.

The commission would be unable to order a rehearing if the 2-2 deadlock continues. D.C. Public Service Commission Chairman Willie Phillips’ nomination for FERC’s vacant fifth seat is pending before the full Senate for a final vote. (See *Senate Energy Committee Advances Phillips*.) Phillips may decide to recuse himself from the MOPR proceeding, however, because the D.C. PSC filed comments supporting PJM’s proposal. ■

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AMP is the nonprofit wholesale power supplier and services provider for 134 members in the states of Ohio, Pennsylvania, Michigan, Virginia, Kentucky, West Virginia, Indiana, Maryland and Delaware. Combined, these public utilities serve more than 650,000 customers. AMP members receive their power supply from a diversified resource mix that includes wholesale power purchases through AMP and the open market and energy produced at AMP and member-owned generating facilities utilizing fossil fuel, hydroelectric, solar, wind and other renewable resources.

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PJM News



Monitor: PJM Energy Prices Rose in Q3, Still Competitive

By Michael Yoder

PJM's energy prices continued to rise into the third quarter of 2021, the Independent Market Monitor reported Thursday, but they also remained competitive.

In presenting Monitoring Analytics' third-quarter *State of the Market Report*, Monitor Joe Bowring said the load-weighted average real-time LMP was 68.1% higher in the first nine months of 2021 than the same period in 2020, coming in at \$35.68/MWh versus \$21.22/MWh. Of the increase, Bowring said, 91.5% was a result of higher fuel costs, especially higher natural gas prices.

Real-time, average hourly load for the same period increased by 4.2% from 2020, from 85,886 MWh to 89,515 MWh.

"Energy prices in PJM in the first nine months of 2021 were set, on average, by units operating at, or close to, their short-run marginal costs, although this was not always the case," the report said. "This is evidence of generally competitive behavior and competitive market outcomes, although high markups for some marginal units did affect prices."

The Numbers

The report found that theoretical net revenues, which are a "key measure of overall market performance" and a "measure of the incentive to invest in new generation," increased for all unit types in the first nine months of 2021 compared to 2020 in the energy market. Revenues increased by 42% for a new combustion turbine, 50% for a new combined cycle, 68% for a new nuclear plant and 974% for a new coal unit. The report said the new coal unit percentage was inflated because it remained near zero in 2020.

Other theoretical net revenues for units included 157% for a new diesel, 51% for a new onshore wind installation, 72% for a new offshore wind installation and 66% for a new solar installation.

Higher energy prices and gas costs changed the "relative economics" of coal and gas units, the report said, with coal generation increasing 30.9% and gas generation decreasing 6.4%. The Monitor found the changes in fuel prices this year have slowed but did not change the long-term decline in the share of coal generation versus the increase in gas.

PJM energy produced from coal was 24%,

while the share of energy produced from natural gas was 37%, the largest of any fuel source in the RTO.

"The role of gas-fired generation highlights the importance of ensuring that PJM has current, detailed and complete information on the gas supply arrangements of all generators and that PJM consider rules requiring capacity resources to have firm fuel supplies," the report said.

The cost of transmission continued to be greater than the cost of capacity, the report said, while the total cost of wholesale power increased by 37.6%, from \$43.67 in 2020 to \$60.10. Total energy uplift charges increased by 123.3%, from \$58.6 million to \$130.8 million.

The Monitor found that total congestion increased by 55.1%, going from \$396.1 million to \$614.6 million. Only 61.1% of total congestion paid by customers for the first four months of the 2021/22 planning period was returned to customers through the auction revenue rights and the self-scheduled financial transmission right revenues offset.

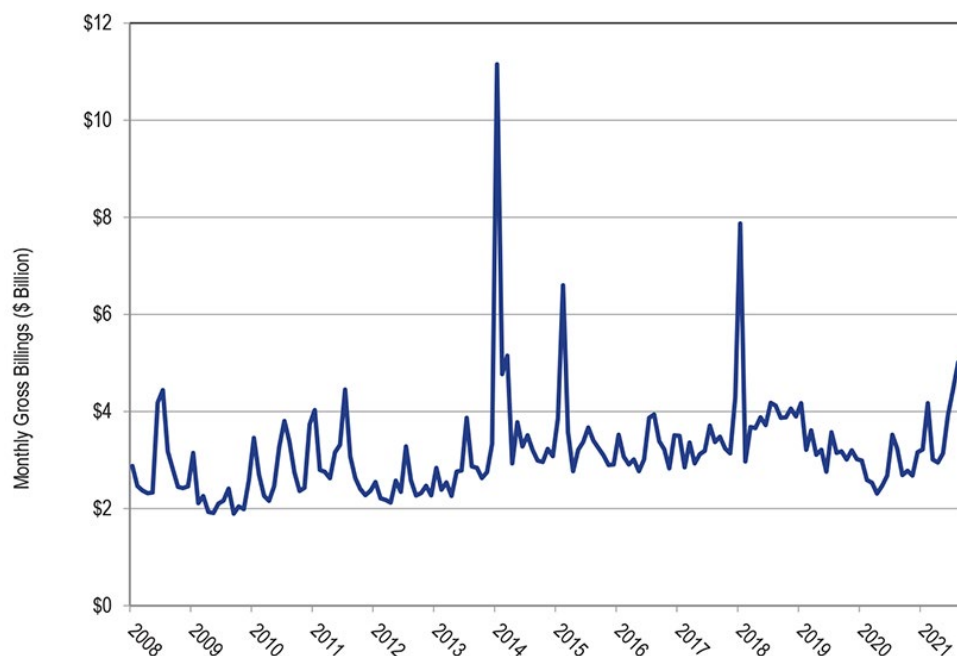
"The goal of the FTR market design should be to ensure that customers have the rights to 100% of the congestion that customers pay," the report said.

New Recommendations

The Monitor made two new recommendations for PJM and stakeholders to examine.

In the energy market, the IMM recommended that capacity resources be required to use flexible parameters in all offers at all times to ensure effective market power mitigation and to ensure that resources meet their obligations to be flexible. The Monitor rated the change as a high priority.

In the capacity market, the IMM recommended that the value of capacity transfer rights (CTRs) should be defined by the total megawatts cleared in the capacity market, the internal megawatts cleared and the imported megawatts cleared, and not redefined later prior to the delivery year. The recommendation was rated as a medium priority. ■



PJM's reported monthly billings in billions from 2008 through September 2021 | *Monitoring Analytics*

PJM News



PJM MRC/MC Preview

Below is a summary of the issues scheduled to be brought to a vote at the PJM Markets and Reliability Committee and Members Committee meetings on Wednesday. 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 Tuesday's newsletter for a full report.

Markets and Reliability Committee

Consent Agenda (9:05-9:10)

B. Stakeholders will be asked to *endorse* proposed revisions to Attachment F: Control Center and Data Exchange Requirements of *Manual 1* addressing exceptional circumstances outside of the COVID-19 pandemic. The attachment was originally developed and implemented at the start of the pandemic to provide guidance for remote operations in case of control center staff illnesses. (See "Manual 1 Changes Endorsed," *PJM Operating Committee Briefs: Oct. 7, 2021*.)

C. The committee will be asked to *endorse* proposed revisions to *Manual 3: Transmission Operations* resulting from a periodic review. Updates include minor changes such as removing a reference to NERC standard PRC-001 because of its retirement. (See "Manual Changes Endorsed," *PJM Operating Committee Briefs: Nov. 4, 2021*.)

D. Members will be asked to *endorse* proposed revisions to *Manual 13: Emergency Operations* resulting from a periodic review. The revisions were endorsed by the Operating Committee earlier this month. (See "Manual Changes Endorsed," *PJM Operating Committee Briefs: Nov. 4, 2021*.)

E. Stakeholders will be asked to *endorse* proposed revisions to *Manual 14F: Competitive Planning Process* addressing changes to the Regional Transmission Expansion Plan proposal fee structure to conform to the Operating Agreement. The updates were endorsed at the Planning Committee's meeting this month. (See "Manual Endorsements," *PJM PC/TEAC Briefs: Nov. 2, 2021*.)

F. The committee will be asked to *endorse* proposed revisions to *Manual 19: Load Forecasting and Analysis* resulting from the biennial review.

Changes included adding battery storage to the list of forecasted items in the load forecast model overview. (See "Manual Endorsements," *PJM PC/TEAC Briefs: Nov. 2, 2021*.)

G. Members will be asked to *endorse* the final proposed *change* to the 2022 day-ahead scheduling reserve (DASR) requirement to 4.43%, slightly lower than the 2021 requirement of 4.78%. (See "Day-ahead Schedule Reserve Endorsed," *PJM Operating Committee Briefs: Nov. 4, 2021*.)

Endorsements (9:10-9:30)

1. Sunset of the Carbon Pricing Senior Task Force (9:10-9:20)

Stakeholders will be asked to *endorse* the sunset of the Carbon Pricing Senior Task Force (CPSTF). A majority of stakeholders last month indicated they were not ready to move forward with developing rules on leakage mitigation in carbon pricing. (See "Carbon Pricing Senior Task Force Sunset," *PJM MRC/MC Briefs: Oct. 20, 2021*.)

2. Sunset of the High Voltage Direct Current Senior Task Force (9:20-9:30)

The committee will be asked to endorse the sunset of the High Voltage Direct Current Senior Task Force (HVDCSTF), which was created last year to examine integrating HVDC converters as a new type of capacity resource in PJM. (See "HVDCSTF Sunset," *PJM MRC/MC Briefs: Oct. 20, 2021*.)

Members Committee

Consent Agenda (1:25-1:30)

B. Members will be asked to *endorse* the 2021 reserve requirement study *results* for the installed reserve margin and forecast pool requirement. The results were endorsed at

last month's Planning Committee meeting. (See "Reserve Requirement Study Results Endorsed," *PJM PC/TEAC Briefs: Oct. 5, 2021*.)

C. The committee will be asked to *endorse* proposed revisions in *Manual 15: Cost Development Guidelines*, the *OA* and the tariff to address incremental and no-load energy offers. PJM said the Cost Development Subcommittee proposed revising the no-load cost and incremental energy offer definitions to clearly define what costs can be included, including operating costs, tax credits and emissions allowances. (See "Manual 15 Revisions Endorsed," *PJM MIC Briefs: Sept. 9, 2021*.)

D. Stakeholders will be asked to *endorse* proposed tariff *revisions* addressing behind-the-meter generation business rules on status changes. The updates were developed in special sessions of the Market Implementation Committee. (See "Manual 14G Updates Endorsed," *PJM PC/TEAC Briefs: Aug. 31, 2021*.)

E. The committee will be asked to *endorse* proposed tariff revisions to address changes related to auction revenue rights, financial transmission rights and transparency. The *proposal* was endorsed at last month's MIC meeting. (See "ARR/FTR Market Task Force Proposal," *PJM MIC Briefs: Oct. 6, 2021*.)

Endorsements (1:30-1:45)

1. Motion Regarding West Virginia PSC Attendance at Liaison Committee Meetings (1:30-1:45)

Members will be asked to approve a request from Public Service Commission of West Virginia that it be permitted to attend the Liaison Committee as an observer. The committee is being asked to endorse the motion upon first read. ■

— Michael Yoder

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SPP News

SPP-MISO M2M Settlements Top \$183M

By Tom Kleckner

SPP accrued \$21.65 million in market-to-market (M2M) settlements with MISO during August and September, pushing the total payments due SPP to an all-time high of \$183.39 million.

Permanent and temporary flowgates were binding for more than 1,500 hours in August, resulting in \$4.72 million in settlements favoring SPP. Settlements jumped to \$16.92 million in September when congestion led to more than 1,700 binding hours on 56 permanent and temporary flowgates, SPP staff told the Seams Advisory Group (SAG) on Friday.

M2M settlements hit a record \$51.49 million, in MISO's favor, in February, thanks to Winter Storm Uri. Congestion played a heavy role in limiting the amount of energy MISO could share with its seams neighbor.

The process' settlements have accrued to SPP during the seven months since February and for 22 of the last 24 months, eclipsing the high-water mark of more than \$168 million in January.

The RTOs resettled 15 operating days between August 2020 and June 2021 that resulted in a \$477,982 adjustment in MISO's favor. Staff said that the appropriate transmission reliability margin (TRM) was not applied to a flowgate in North Dakota during the annual TRM update. The TRM affects the firm

M2M HISTORY SUMMARY SINCE GO-LIVE: MISO PAYS SPP \$183,391,171.63

M2M Settlements since Go-Live



Note: Positive values are payments to SPP from MISO; negative values are payments from SPP to MISO.

Market-to-market settlements between SPP and MISO continue to pile up in SPP's favor. | SPP

flow entitlements (FFE) used for settlement purposes, but the difference would not and did not influence dispatch.

The M2M process began in March 2015. The grid operators exchange settlements for redispatch based on the non-monitoring RTO's market flow in relation to FFEs.

Staff also told the SAG that language changes

in the joint operating agreements with MISO and Missouri-based Associated Electric Cooperative Inc. (AECI) are undergoing legal review. SPP plans to file both JOA revisions with FERC at the same time.

The changes are related to interconnection queue priorities in the grid operators' affected system studies. ■

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Company Briefs

DEME Offshore Wins Virginia OSW Construction Contract

Offshore wind contractor DEME Offshore US last week was awarded a \$1.9 billion contract to construct Dominion Energy's Coastal Virginia Offshore Wind project.

The agreement is the largest offshore wind installation contract ever awarded in the U.S. Upon completion, the project will be the largest wind farm in the country.

The 2.6 GW offshore wind farm will be located about 27 miles off the coast of Virginia Beach.

More: [North American Windpower](#)

Entergy to Cut, Close Natural Gas Plants in Arkansas, Mississippi



Entergy Arkansas and Entergy Mississippi last week announced plans

to cut and close natural gas plants in their respective states.

Entergy Arkansas released its 2021

integrated resource plan, which no longer includes a new natural gas plant that was included in its previous plan. To replace the capacity, the utility anticipates adding more renewable energy resources to its portfolio.

Entergy Mississippi also said it intends to shut down aging natural gas plants in the next five years and expand its use of renewable energy sources. However, the company did not say which of its six plants it will close.

More: [Talk Business & Politics](#), [The Associated Press](#)

GE to Split into 3 Companies



General Electric last week announced that it will split into three companies focused on energy, aviation and health care.

GE Healthcare is slated to be spun off in early 2023, while the renewables and power units will be formed into a new energy business in early 2024. The remaining business, GE, will focus on aviation and be led by Chairman and CEO Larry Culp.

"The world demands — and deserves — we

bring our best to solve the biggest challenges in flight, health care, and energy," Culp said in a statement. "By creating three industry-leading, global public companies, each can benefit from greater focus, tailored capital allocation, and strategic flexibility to drive long-term growth and value for customers, investors, and employees."

More: [The Washington Post](#)

Lordstown Delays Launch of Electric Pickup

Lordstown Motors last week delayed next year's launch of its Endurance electric pickup truck by a quarter, citing parts and materials shortages and other supply-chain issues.

The EV startup, while reporting its third-quarter results, said it would begin production and deliveries in the third quarter of 2022, rather than the second quarter as it forecast in August.

Lordstown reported a third-quarter net loss of \$95.8 million.

More: [Reuters](#)

Federal Briefs

Investigation Finds Countries' Climate Pledges Built on Flawed Data

A Washington Post investigation examined 196 country reports on greenhouse emissions and found that many underreport emissions in their accounts to the United Nations.

According to the investigation, the gap ranges from at least 8.5 billion to as much as 13.3 billion tons a year of underreported emissions. At the low end, the gap is larger than the yearly emissions of the U.S. At the high end, it approaches the emissions of China and comprises 23% of humanity's total contribution to the planet's warming, The Post found.

The report suggests the gap comprises vast amounts of missing carbon dioxide and methane emissions, as well as smaller volumes of synthetic gases. It is the result of questionably drawn rules, incomplete reporting in some countries and apparently willful mistakes in others, and the fact that, in some cases, humanity's full impact on the planet is not required to be reported.

More: [The Washington Post](#)

US Renewable Energy has Nearly Quadrupled in Last 10 Years

Using Energy Information Administration data, the United States went from producing 125,820 GWh of wind and solar electricity in 2011 to 470,141 GWh in 2020, said a report released by the Environment America Research and Policy Center last week.

Solar generation grew quickly, with the report finding a 23-fold increase since 2011. Wind, which started at a higher percentage than solar, saw an almost threefold increase. Geothermal generation stayed largely constant at 16,930 GWh.

The analysis also found that if the current growth rate continues, wind, solar and geothermal would meet current electricity demand levels by 2035.

More: [The Washington Post](#)

US Sets Goal of Net-zero Aviation Emissions by 2050

Transportation Secretary Pete Buttigieg last week announced that the U.S. is setting a



goal of achieving net-zero greenhouse gas emissions from the aviation sector by 2050. The goal was supported by analysis from the Federal Aviation Administration.

In addition to sustainable fuel, new aircraft technologies will be needed along with increasing operations efficiency as well as cutting airport emissions, the FAA said.

The White House said in September it was targeting 20% lower aviation emissions by 2030.

More: [Reuters](#)

State Briefs

CALIFORNIA

BOEM Designates OSW Area off Morro Bay



The Bureau of Ocean Energy Management last week designated the Morro Bay Wind

Energy Area for turbine installation and is seeking public input before issuing an environmental assessment.

The area is approximately 240,898 acres located roughly 20 miles off the coast of Morro Bay in central California.

A 60-day public comment period began on Nov. 12. BOEM will organize two virtual public meetings to gather feedback, which it will need to prepare an assessment.

More: [Renewables Now](#)

PUC Approves 3.2-GW Power Tx Link Project

The Public Utilities Commission last week issued a certificate of public convenience and necessity for the construction and operation of the Ten West Link high-voltage transmission link project.

Once operational in 2023, the line will have the capacity to transmit 3,200 MW between central Arizona and southern California and will become part of the CAISO grid.

More: [Renewables Now](#)

San Jose Becomes Largest US City to Set Carbon Neutral Goal

The San Jose City Council last week unanimously voted to adopt a goal of reaching net-zero greenhouse gas emissions by 2030, becoming the largest city in the nation to adopt such a goal.

To reach the target, council proposed, among other measures, planting more trees and adding more electric vehicle charging stations.

The city's timeline is ahead of the statewide goal. In 2018, California set a goal to be carbon neutral by 2045, but earlier this year Gov. Gavin Newsom directed state agencies to accelerate the date to 2035.

More: [The Mercury News](#)

CONNECTICUT

Trial of Former Utility Officials Delayed Due to COVID-19 Infection

The criminal trial of five former utility

officials in U.S. District Court in New Haven will be delayed until Nov. 22 after one of the defense attorneys contracted COVID-19, court docket records revealed.

In the case, former Connecticut Municipal Electric Energy Cooperative CEO Drew Rankin, former CMEEC CFO Edward Pryor, former Norwich Public Utilities General Manager John Bilda and former CMEEC board members James Sullivan of Norwich and Edward DeMuzzio of Groton face felony charges of conspiracy and theft from a program that receives federal funds.

The charges stem from annual trips to the Kentucky Derby that the company arranged from 2013 to 2016. Two other trips were to the Greenbrier luxury golf resort in West Virginia. Four of the defendants face four theft charges, while Sullivan faces three charges, as he resigned from his CMEEC and Norwich utility commission positions prior to the 2016 Kentucky Derby trip.

More: [The Day](#)

ILLINOIS

State's Largest Solar Farm Approved

The Sangamon County Board last week approved zoning for the \$535 million Double Black Diamond Solar Farm. It will be the state's largest solar farm.

The 3,250-acre farm is being developed by Swift Current Energy and is expected to generate about 593 MW. It is expected to be completed by the beginning of 2024.

More: [WICS/WSRP](#)

KENTUCKY

State Can Collect \$2.9M from WV Governor for Mining Violations



Franklin County Circuit Judge Thomas Wingate last week ruled that the Energy and Environment Cabinet can collect a \$2.9 million penalty, with interest, from West Virginia Gov. **Jim Justice** for violations at Eastern

Kentucky coal mines.

Under the order, the state is entitled to take bonds posted to cover reclamation work at several mines and revoke their permits, and it requires the Justice companies to finish the reclamation. The companies also must

pay the state's costs in pursuing the case and will be listed in a federal violator system that will prevent them from getting new permits or amending existing permits until the violations are cleared up.

The case had been ongoing since 2015.

More: [Lexington Herald-Leader](#)

NEW HAMPSHIRE

PUC Rejects Energy Efficiency Plan

The Public Utilities Commission last week denied what would have been the state's most ambitious triennial energy efficiency plan, which proposed spending more than \$350 million on energy efficiency in the next three years.

Despite various stakeholders saying the plan would benefit the state by decreasing energy use and saving residents money, the PUC rejected the plan and ruled that the price was too high and would place "an enormous burden on New Hampshire ratepayers."

The decision incrementally decreases the rates that fund the programs from Dec. 1, through Oct. 31, 2023. The order says the rates will continue decreasing "until they return to a reasonable level." The 2023 rate in the order is on par with 2018 levels.

More: [New Hampshire Public Radio](#)

NEW MEXICO

Hearing Examiner OKs PNM's Exit from Four Corners Power Plant

Hearing examiner Anthony Medeiros last week said that the Public Service Company of New Mexico's giveaway of its Four Corners coal plant to Navajo Transitional Energy "is in the public interest" and should be approved by the Public Regulation Commission.

Medeiros also recommended approval for PNM's plan to issue \$300 million in bonds, in part, to cover capital costs at Four Corners.

PNM intends to pay Navajo Transitional Energy \$75 million to take the coal plant off its hands.

More: [Santa Fe New Mexican](#)

Xcel Energy Completes Southeast Power Loop

Xcel Energy last week announced the com-



pletion of a transmission line

connecting Eddy and Lea counties as the company continues its effort to increase infrastructure in the southeast to adapt to increased demand.

The 345-kV line will connect Xcel's China Draw Substation about 22 miles south of Carlsbad to its Roadrunner Station 23 miles northwest of Jal.

Regional President David Hudson said booming oil and gas production and operations in the Permian Basin area, along with a population increase, were the main factors in the need for a larger grid. The project was

part of Xcel's greater Power for the Plains expansion that began in 2011.

More: [Carlsbad Current-Argus](#)

PENNSYLVANIA

Pittsburgh Outlines Energy Strategy in New Document

In a document released last week, the city of Pittsburgh says it wants private entities to submit climate and energy-efficiency plans, along with building plans, as part of a climate energy strategy the city hopes to implement during the next four years.

The city planning department's division of

Sustainability and Resilience completed the energy strategy to implement long- and short-term goals outlined in its climate action plan, which was released in 2018 and seeks to reduce greenhouse gas emissions by 50% by 2030. The new strategy specifically looks at using and expanding existing resources to implement the plan.

The city hopes to expand green building advisory reviews, which provide developers with information and resources to "create more sustainable buildings," and help them create their climate and energy efficiency plans, according to the strategy.

More: [Pittsburgh Post-Gazette](#)

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