

RTO Insider

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

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April 27, 2021

Biden Commits US to Cutting GHG Emissions 50% by 2030

President also Promises to Double Public Financing for Climate Action in Developing Countries

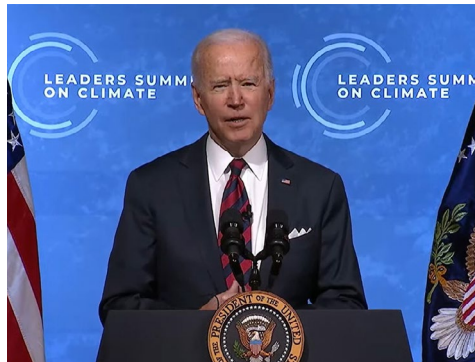
By K Kaufmann

Linking carbon emission reductions with economic recovery and job creation, President Biden opened his virtual Leaders Summit on Climate last week by committing the U.S. to reducing its greenhouse gas emissions 50 to 52% from 2005 levels economywide by 2030.

Such ambitious targets and urgent action are needed, Biden said, if countries around the world are to meet the goals many have set to be carbon neutral by 2050.

"Scientists tell us that this is the decisive decade. This is a decade we must make decisions that will avoid the worst consequences of a climate crisis. We must try to keep the earth's temperature to an increase of 1.5 degrees Celsius," Biden said. "Each of us, each country, can set higher climate ambitions that will in turn create good paying jobs, advance innovative technologies and help vulnerable countries adapt to climate impacts."

The new target doubles the 25% target former



President Joe Biden | The White House

President Barack Obama set in 2015, when the U.S. signed onto the Paris Agreement on climate change, but lengthens the commitment timeline. Obama's original target year was 2025.

Continued on page 13

GOP Senators Grill Biden Cabinet over Infrastructure Bill (p.14)

Wheeling Debate Tests West, CAISO CEO Says

Cooperation, Compromise Needed for Western Regionalization to Succeed

By Hudson Sangree

The controversy over wheel-throughs in CAISO was not so much a rejection of the ISO's proposal as an example of the types of compromises and efforts needed to make Western regionalization succeed, CAISO CEO Elliot Mainzer told RTO Insider Friday.

"I see this as a test of our collective capacity to work together for regional solutions," Mainzer said. "This is the type of issue that we need to prove to ourselves that we can solve through regional collaboration, and it's going to require some amount of compromise by everyone."

Western states are facing resource challenges as they seek to transition from fossil fuels to renewable resources. CAISO experienced

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ENERGY STORAGE ASSOCIATION VIRTUAL ESAACON21



Artist's conception of a storage facility Highview Power is developing in Northern Vermont to address transmission congestion at the Sheffield-Highgate Export Interface. | Highview Power

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Duke Energy Seeks Flexibility in Long Duration Storage (p.9)

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Hybrid Storage Interconnection is a Puzzle, Industry Says (p.12)

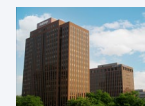
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NetZero Insider is now live!

See p.43 for this week's coverage.

Counterflow

By Steve Huntoon

We See Through a Glass, Darkly

By Steve Huntoon



If you blinked the other day, you may have missed news of an important study. Important on many levels — not least that it's a huge hunk of good news.

The Lawrence Berkeley Lab study is titled “Halfway to Zero: Progress

towards a Carbon-Free Power Sector.”¹ The “halfway” is power sector carbon emissions in 2020 relative to what EIA had projected for 2020 in its 2005 Annual Energy Outlook.

One might quibble that the halving is relative to a 15-year projection but, still remarkably, 2020 actual carbon emissions were 40% less than 2005 actual carbon emissions.² Against the pre-COVID 2019 emissions, the reduction is still 33%. Big stuff no matter how you slice it. (BTW, these power sector percentages should not be confused with the target that the Biden Administration is proposing for 2030, which is economy wide.)

This great graphic tells much of the story.³

As one can imagine there are lots of factors, including lower demand than projected, and increased efficiency like LED lighting should take a bow.

The lower demand meant that the huge increase in natural gas generation from low-cost gas production supplanted coal instead of meeting higher demand.⁴ So coal plants ran less and some closed. Premature deaths from power sector air pollution fell from 43,000 per year to 3,100 per year. That is incredible.

Other contributors: renewable energy growth was much greater than projected, some from cost reduction and some from state mandates and federal tax subsidies. Nuclear plants continued to run.

Electricity prices stayed the same in real dollar terms. And jobs in the electric generation sector actually increased.

So it's a huge hunk of good news.

What are the lessons learned?

Technology is Key

There were a few regulatory/tax factors at work, but the biggest drivers were technology advancements and associated cost reductions — principally in natural gas and renewables —

with an assist from energy efficiency such as LED lighting.

Going forward there is a role for government, but the main focus needs to be on how we help the private sector get us where we need to be.

Fracking Ban Parallel Universe

Imagine a parallel universe in which government — per Bernie Sanders and Elizabeth Warren — banned fracking. Wholesale electricity prices would have doubled, many jobs would have been lost along with global competitiveness, causing a backlash against further climate change measures.⁵

Coal generation would not have been supplanted by natural gas, so carbon emissions would have been greater, making climate change and health deaths and damages worse.

Be careful what you wish for.

It's Tough to Make Predictions, Especially About the Future

It's remarkable how far off the 2005 projection turned out to be. But this is not just an aberrant EIA projection — the study presents a host of studies from roughly the same time period with similar projections that were similarly wrong.⁶

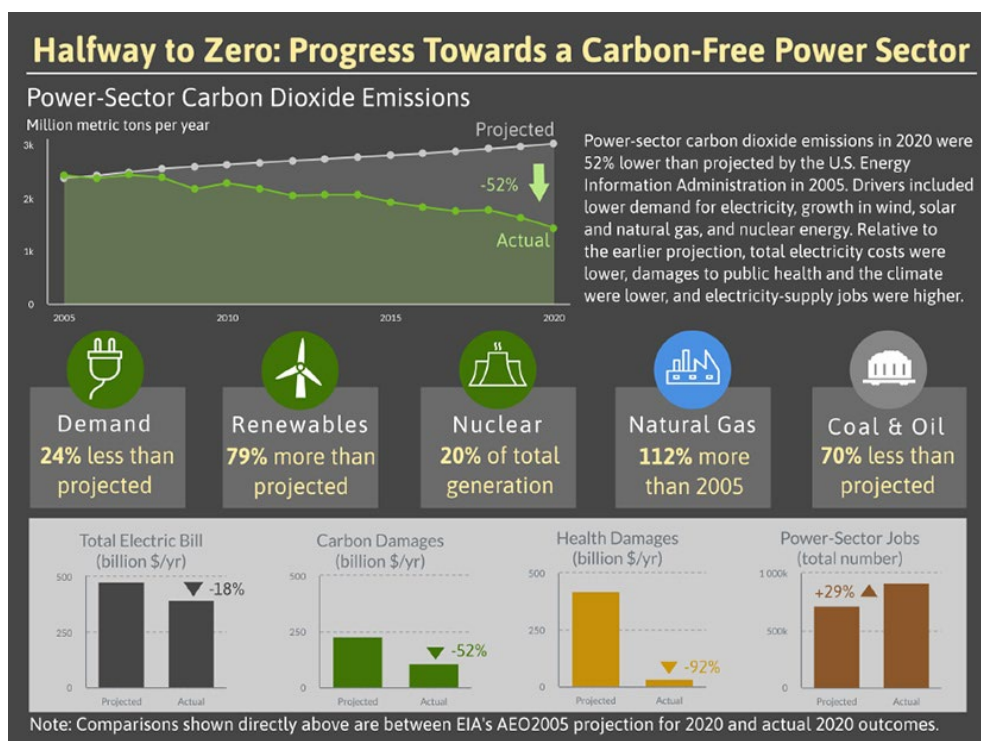
Mass Media Reporting — Zero

Sadly, this study has received zero coverage from the mass media. Perhaps it's not consistent with the climate emergency narrative that the mass media is wedded to, which would be sad because the study is loaded with substance that helps inform the fight against climate change.

Path Forward

The last section of the study addresses “the next half:” what we may need to get to net zero over the next 15 years — by 2035. A number of studies suggest that with the declining cost of solar, wind and battery storage, as much as 70 to 90% of power supply might come from those resources at low incremental cost while preserving reliability. But getting to 100% would be very expensive.⁷

Right now, we're not on track to add enough of these resources to get to that 70 to 90%, but the pace is accelerating. The challenges in terms of preserving reliability, adding sufficient transmission, adapting wholesale power markets, improving siting and permitting,



Lawrence Berkeley National Laboratory

Counterflow

By Steve Huntoon

pursuing more energy efficiency and demand response, facilitating workforce change, etc., seem daunting.

The study closes with “two central lessons” from the past 15 years: “First, policy and technology advancement are imperative to achieving significant emissions reductions. Second, our ability to predict the future is limited, and so it will be crucial to adapt as we gain policy experience and as technologies advance in unexpected ways.”

Thoughts, I've Had a Few

We need to be smart. As *The Economist* recently wrote, “Few people in those parts of the world made rich by carbon-dioxide-emitting enterprises are going to volunteer for a cut in living standards.”⁸ Or for blackouts, BTW.

Here are thumbnails of my past thoughts on getting from here to there as smartly as possible:

1. Optimize the existing transmission grid at no cost before throwing tens of billions at more transmission. How? Require transmission owners/planners to dispatch and plan (including interconnection studies) with discrete emergency (contingency) ratings. Sorry to get into the weeds but this is so important — my column that discussed this

and the comments of the engineering firm Tangibl in the FERC rulemaking on transmission line ratings, are here.⁹

2. Ban “proof of work” cryptocurrencies like Bitcoin. These things have no intrinsic value and are consuming electric power — and creating carbon emissions — like entire countries.¹⁰
3. Support rational wind. Onshore wind costs half as much as offshore wind.¹¹ Mandating X GW of offshore wind far off your coastline, which isn't really in your state, is environmental malpractice. It means that you'll have half the wind generation you could have had for the same money if you'd supported onshore wind instead.
4. Support rational solar.¹² Grid solar costs 80% less than rooftop solar. So subsidizing rooftop solar with rate devices like net metering means that you'll get one fifth the amount of solar generation you could have gotten if you'd provided the equivalent monetary support for grid solar.¹³ Plus, net metering shifts electricity costs from the rich to the poor. Yikes.
5. Develop rational storage. We know from Texas' actual experience with multiday curtailments, German weather patterns, PJM

weather patterns and California modeling that 4-hour battery storage is pixie dust.¹⁴ We need economic long-duration storage — but we don't know what that is.¹⁵ Until we do, we need to keep the (cleanest) fossil fuel resources around.

6. Keep existing nuclear generation. Perhaps the greatest displays of environmental malpractice are the closings of the Indian Point nuclear plant in New York and the Diablo Canyon nuclear plant in California.¹⁶
7. Redouble energy efficiency efforts. As I've said before, LED lighting has reduced carbon emissions twice as much as rooftop solar, and over the next 20 years could provide four times the carbon emission reduction as is projected for rooftop solar.¹⁷ And, unlike rooftop solar, LED lighting is actually economic.
8. Don't ignore potential low-hanging fruit in methane reductions. *The Economist* estimates that one quarter of global warming is caused by methane emissions.¹⁸ Unlike carbon, methane itself is valuable. So much could be captured at little to no net cost.
9. Last, even though it makes too much sense to actually happen: a carbon tax.

Well, that's all folks! ■

¹ https://eta-publications.lbl.gov/sites/default/files/halfway_to_zero_report.pdf.

² https://eta-publications.lbl.gov/sites/default/files/halfway_to_zero_figures.pptx, slide 3.

³ https://eta-publications.lbl.gov/sites/default/files/halfway_to_zero_figures.pptx, slide 2.

⁴ I've discussed this phenomenon in PJM in prior columns. <http://energy-counsel.com/docs/Scary-wrong.pdf>; <http://energy-counsel.com/docs/NRDC-Prescribes-More-Carbon-Emissions.pdf>.

⁵ <http://energy-counsel.com/docs/getting-berned.pdf>.

⁶ https://eta-publications.lbl.gov/sites/default/files/halfway_to_zero_figures.pptx, slide 16.

⁷ One study finds a system average cost of \$73/MWh under optimal design. <https://www.sciencedirect.com/science/article/abs/pii/S2542435120305572>.

⁸ <https://www.economist.com/science-and-technology/2021/04/03/those-who-worry-about-co2-should-worry-about-methane-too>.

⁹ <http://energy-counsel.com/docs/waste-not-what-not.pdf>; <https://elibrary.ferc.gov/eLibrary/filedownload?fileid=15740097>.

¹⁰ My column on Bitcoin and similar cryptocurrencies is here, <http://energy-counsel.com/docs/The-New-Technoking-and-His-Bitcoin-Crown.pdf>.

¹¹ <https://www.lazard.com/media/451419/lazards-levelized-cost-of-energy-version-140.pdf>, slide 3. \$40/MWh for onshore wind (midpoint of the range) versus \$86/MWh for offshore wind. My column criticizing subsidies/mandates for offshore wind is here, <http://energy-counsel.com/docs/Offshore-Wind-Edifice-Complex.pdf>.

¹² Same Lazard analysis as preceding footnote. \$35/MWh for grid solar (average of the ranges) versus \$188.50/MWh for residential rooftop solar (average of the range).

¹³ My past criticism of net metering is here, <http://energy-counsel.com/docs/just-ducky-fortnightly-april-2016.pdf>.

¹⁴ <http://energy-counsel.com/docs/No-Carb-California.pdf>; <http://energy-counsel.com/docs/German-La-La-Land.pdf>; <http://energy-counsel.com/docs/Cue-the-Pixie-Dust.pdf>.

¹⁵ S&P Global says that the cost of green hydrogen might get down to \$100/MWh by 2030. <https://www.spglobal.com/ratings/en/research/articles/210422-the-hydrogen-economy-storage-is-paramount-for-utilities-in-the-long-term-11915188>.

¹⁶ My column on why closing Indian Point will cost New Yorkers \$830 million/year is here, <http://energy-counsel.com/docs/New-Yorks-Surreal-New-Deal.pdf>. My column on the insanity of closing Diablo Canyon is here, <http://energy-counsel.com/docs/Helter-Skelter-September-Fortnightly.pdf>.

¹⁷ <http://energy-counsel.com/docs/LED-Kills-the-Edison-Star-2017-01-24%20RTO-Insider-Individual-Column.pdf>.

¹⁸ <https://www.economist.com/science-and-technology/2021/04/03/those-who-worry-about-co2-should-worry-about-methane-too>.

Stakeholder Soapbox

Another Alarming Moment for Texas

Berkshire Hathaway Energy Again Disputes Huntoon Column

By Chris Brown, CEO, BHE Infrastructure Group

Since my last commentary several weeks ago,¹ Texas again experienced another alarming moment when ERCOT issued an alert caused by capacity insufficiency, and power prices hit \$2,000/MWh. This capacity shortfall is becoming more and more evident, and Texans deserve solutions to this problem. It's also a safe bet that this will not be the last time this happens, and when summer temperatures reach 100 degrees, there will be further strains on the power grid.

Looking back, there must be one clear takeaway from the postmortem of the catastrophic event that Texas experienced with Winter Storm Uri: Even if every generator that was online the night of Feb. 14 had continued operating throughout the event, the state still would have experienced widespread and lasting outages. Texas families and businesses all want to see changes to ensure it never happens again.

No one will argue that numbers can sometimes be challenging, and there is no doubt Steve Huntoon's latest commentary² is challenged by the ERCOT numbers. Mr. Huntoon takes a simplistic approach that the load shed amount of 20 GW is the incremental amount of generation that would have been needed to prevent blackouts. When you compare this figure to the actual outage of 30 GW, it seemingly indicates that there was 10 GW of excess capacity if all 30 GW were operational. However, this is incorrect, and those two figures are not comparable figures and do not allow one to determine the amount of capacity available.

First, ERCOT estimated the peak demand during Winter Storm Uri to be 76.8 GW, which means this is the amount of generation that would have been necessary to prevent blackouts. I would suspect that Mr. Huntoon would respond by asking how there was 20 GW of load shed yet claim a higher gap for peak demand. The reason the gap is bigger than 20 GW is because the load shed occurred prior to the coldest temperatures. And because energy usage is directly correlated to temperature, ERCOT extrapolated the peak demand based on expectations that energy usage per customer would have grown over time as the temperature decreased. This means the load shed would have been a higher amount if it had occurred later in the week.

Second, we reviewed the capacity projections

by ERCOT prior to the event to understand what generation was available to analyze how the outage data fits into the total available generation capacity. ERCOT had 67.5 GW of thermal generation capacity. There was also anticipated to be 7.6 GW from other transmission regions and private capacity, and clearly this did not fully materialize during Winter Storm Uri. ERCOT's estimated peak without load shed was 76.8 GW, with approximately 70.5 GW of thermal resources pursuant to the same presentation. As a result, even if all thermal units were winterized and 100% available at full load, which is highly unrealistic, there remains a 6+ GW gap. This supply gap was also not available from the intermittent resources.

In an independent study conducted by the Texas Public Policy Foundation, policy director Brent Bennett made the same conclusion, stating, "Weatherization and improving the gas supply would have helped in February, but those measures alone would not have prevented the shortage. The Texas grid is short of reliable generating capacity, and absent market changes, that shortage will grow. There must be one clear takeaway from the postmortem of this event: Even if every generator that was online the night of Feb. 14 had continued operating throughout the event, we still would have had widespread and lasting outages. Based on ERCOT's demand forecast, the outages would have still lasted more than 24 hours and reached up to 10 GW in this optimal operating scenario. We should not expect to weather an event of this magnitude without any outages, but we must do better than this."

Concerning Mr. Huntoon's statement about the revenue credits, without any credits from testing, the average cost to residential customers is about \$3/month. When the plant operates in the market for testing, to be sure they work and are available when called upon in an emergency, the revenues from such testing can result in significant amounts that will be fully returned to customers. It doesn't take a significant amount of revenue to partially offset this amount. In addition, Mr. Huntoon is incorrect when he states the plants will run for longer periods to "make the 10 GW free." First, under the proposal, Berkshire Hathaway Energy will not decide when the plants will run; that decision is left to a regulator chosen by the state legislature. But, 14 days per year of testing is necessary to ensure the plants will be ready when called upon for an emergency. And again, our facilities are backed by a perfor-

mance guarantee up to \$4 billion, whereas no other generator in Texas can make this claim.

Mr. Huntoon's math related to the \$9 billion refund to customers is also mistaken. By his logic, it assumes the Berkshire Hathaway Energy plants would have been in service for 40 years and fully paid for before operating for the Winter Storm Uri emergency. This is unrealistic. In reality, if these plants went into service in say 2015, a reasonable period of time after the 2011 winter event, customers would have only paid a small fraction of the upfront cost of the project before the system would have paid for itself during Winter Storm Uri.

Mr. Huntoon also incorrectly believes that high real-time prices that occur during shortage conditions provide key economic signals that incentivize development of new resources and the retention of existing resources. As outlined in ERCOT's annual capacity report, there has been absolutely zero net growth in dispatchable capacity, regardless of the fact that high prices exist each and every year in the current market. Clearly this belief has not translated into reality; in fact, ERCOT is losing ground while system demand increases every year.

The Berkshire Hathaway Energy proposal has nothing to do with existing generators not adding dual-fuel capabilities at their plants. Again, the Berkshire Hathaway Energy units would only come online to the extent the market is not responding with electricity after the market's \$9,000/MWh ceiling is hit and a regulator designates an emergency. It is not being installed to depress hourly prices when units are routinely bidding into the real-time market. It certainly will not "crush" those economics.

Lastly, a regulated rate of return is not a subsidy. Just like the transmission and distribution utilities, the designated return on equity is an opportunity to earn a reasonable return for providing a guaranteed service; although again, the Berkshire Hathaway Energy requested return on equity is lower than any other existing transmission and distribution utility in ERCOT.

We continue to be encouraged by the conversations with lawmakers and stakeholders in Texas around our proposal. All of us ultimately want fixes to ensure a reliable grid. ■

¹<https://rtoinsider.com/rto/berkshire-hathaway-energy-proposal-texas-power-197180/> "Stakeholder Soapbox: Berkshire's Proposal Will Prevent Another Texas Power Catastrophe."

²<https://rtoinsider.com/rto/texas-gifting-still-yikes-197398/> "Counterflow: Texas Gifting – Still Yikes"

Stakeholder Soapbox

More Engineers Please

By Patrick McGary

As long as there are history books, Neil Armstrong will be in them.

Armstrong was a naval aviator, test pilot, astronaut and a university professor.

He was also an engineer.

On Feb. 22, 2000, Neil Armstrong delivered a *riveting speech* to the National Press Club, putting forward the idea the 20th century could, in some sense, be thought of as “the engineered century.” He confessed to being a “nerdy engineer” and spoke about how engineering achievements changed the quality of life in the 20th century.

He outlined the *National Academy of Engineering’s* top 20 choices for the greatest engineering achievements of the 20th century.

No. 1 on the list?

The electricity grid.

This “story of public and private investment”, wrote the NAE, made possible “the modern world as we know it.”

I recalled Armstrong’s speech during the past few months as I listened and read various commentaries from our politicians, regulatory folks and general media regarding the Great Winter Storm of 2021.

After digesting three weeks of various theories, accusations and solutions, as well as rereading Armstrong’s speech, I arrived at two simple conclusions.

All is not lost.

We need more engineers.

Perspective

I was five years old when Apollo 11 landed on the moon in 1969. We watched the lunar landing on a black-and-white Magnavox television in our living room. Some memories last a lifetime. (Including watching The Miracle Mets win a World Series a few months later on the same television!)

The Apollo mission transformed our understanding of our planet.

But it only ranked #12 on the NAE top 20 based on its effect on the quality of life.

Just to provide a little perspective on progress, the iPhones glued to our hands today have more than 100,000 times more processing



Neil Armstrong before the moon launch | NASA

power than the computer that landed astronauts on the moon nearly 52 years ago.

We live in a world completely consumed with the latest technology gadget and a belief that algorithms will solve every problem. Artificial intelligence may even cure cancer soon.

We also, unfortunately, live in a world where people want to be understood before understanding. A world of binary thinking and polarized debates.

In the world of maintaining and enhancing the power grid, that type of thinking and discourse is not only fruitless, it is dangerous.

We used to encourage, appreciate and value our engineers. But I am not so sure anymore — especially in regard to our senior engineers.

I hear people use terms like “boomers” and “dumb old utility guy” who simply don’t get it and are stuck in the past.

And that is regrettable.

The Grid Today

The economy, national security and even the health and safety of our people are all dependent on effective electricity delivery. With more than 9,200 electric generating units and more than 1 million megawatts of generating power connected to more than 600,000 miles

of transmission lines, the U.S. electric grid is an engineering marvel.

More than just generation and transmission infrastructure make up the electric grid. It’s a complex network of asset owners, suppliers, service providers and federal, state and local government officials all working together to maintain one of the world’s most stable power grids.

At least until recently.

According to S&C Electric Company and business consultant Frost & Sullivan’s “2021 State of Commercial and Industrial Power Reliability Report” the number of businesses impacted by power outages lasting less than 5 minutes increased from 20% to 40% from 2019 to 2020. And 44 percent of businesses said they lost power on a monthly or more regular basis, which is more than double the number of outages recorded in 2019.”

According to Paul Cicio, president and CEO of the Industrial Energy Consumers of America, power quality is “consistently getting worse.”

Public Utility Commission Compositions

The Public Utility Commission is expected to represent consumers’ interests, while allowing the utility to earn enough profit. However, since they operate in a highly political setting

Stakeholder Soapbox

and regulate one of the most complex processes ever devised by humanity, regulators can face conflicting incentives.

Public utility commissions face a “revolving door” problem since each new election often brings in new regulators.

But what about the composition of these regulators?

The majority of public utilities commissioners are not engineers. Most political appointees have backgrounds in law or public service.

While you certainly need lawyers to ensure decisions are made that comply with existing public utility law, what about the need to fully understand the complexity of how the power grid works?

In truth, the power grid is a delicate mystery known to very few.

While some state regulators have access to engineering expertise, many do not.

Can we afford not to have some level of engineering expertise on public utility commissions, considering all the challenges to the grid today?

I argue that we should consider some tenured representation of certified electrical engineering experts on these commissions.

Why are engineers some of the most ethical people you will meet professionally?

The things they help design, build and maintain could result in a loss of life, if they put profits, personal advancement or anything else in front of people.

We clearly need more engineers on public utility commissions.

Roger Boisjoly & The Management Hat

Roger Boisjoly.

Even if you don't remember his name, you're probably familiar with his story: He was one of the Morton Thiokol engineers who attempted, but failed, to avoid the Challenger space shuttle launch in 1986.

When NASA overruled the Thiokol engineers, they said something that no one who deals with data on the front lines of a project can ever forget:

“Take off your engineer hat and put your management hat on,” they told Boisjoly and



The Space Shuttle Challenger exploded 73 seconds into its flight in 1986, killing all seven crew members aboard. | NASA

the others.

As a result of that recommendation, seven people were killed, and the U.S. space program experienced a significant setback.

When it comes to tinkering with the greatest engineering achievement of the 20th century, the power grid, we ignore the role of engineers at our peril.

In 2021, we still struggle with the simple concept that some things don't work when it gets really cold outside, just as we did in 1986.

Sometimes we do not like the answers we hear, even when we know they are correct. So we shoot the messenger.

Conclusion

In Armstrong's 2000 speech, he wrote “Engineering is a profession which leaves its imprint on our society in countless ways. We all intuitively understand the term ‘quality of life,’ but we have difficulty in attempting to define it.”

In regard to the power grid, I believe that we all own a basic understanding of the value of grid reliability to our economy, our safety and our national security. But very few people own the technical expertise to understand all the potential impacts of public policy to our grid.

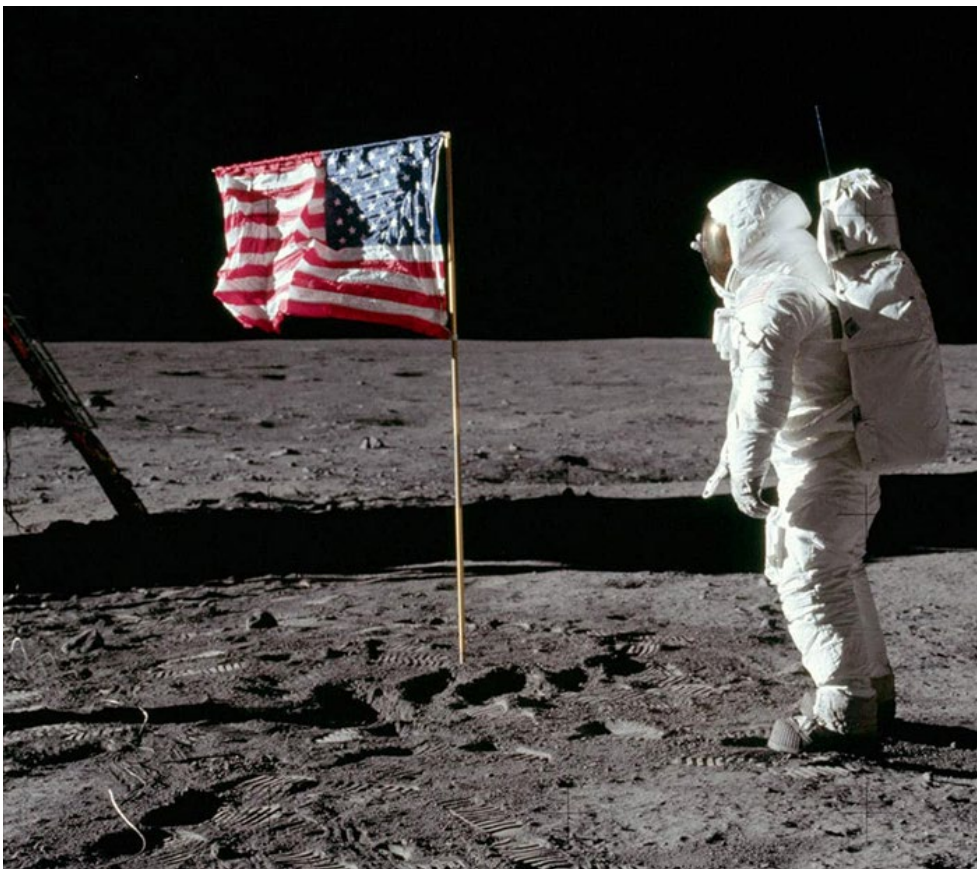
Engineers comprise most of the few.

We should avoid the politics of fear in grid discussions, because it only delays the inevitable. At the end of the day, we will need to adopt engineering solutions to solve complex grid problems and achieve public policy goals.

Let's include engineers of all experiences and ages to solve these problems.

I am pretty sure old Neil Armstrong would have agreed. ■

Patrick McGarry is senior director at Power Costs, Inc.



Mankind's giant leap: Neil Armstrong became the first human to walk on the Moon on July 20, 1969. | NASA

Energy Storage Association Virtual ESACon21

Energy Storage Hopes for ‘Christmas Present’ from Congress

ACORE, GridWise Alliance Forecasts Chances for Climate Plans

By Rich Heidorn Jr.

Climate activists *dumped* manure outside the White House on Thursday, unimpressed with President Biden’s pledge to reduce greenhouse gas emissions by at least 50% from 2005 levels by 2030. (See related story, [Biden Commits US to Cutting GHG Emissions 50% by 2030](#).)

But Greg Wetstone, CEO of the American Council on Renewable Energy — who knows how difficult it will be to enact policies to meet that target — had a decidedly more upbeat appraisal of the Biden administration’s climate initiatives in its first 100 days.

“I think they’re off to a really excellent start,” he told the Energy Storage Association’s virtual *annual conference* Thursday, calling the 50% target “immense.”

“I think we have the scale to actually achieve this and deliver on those commitments,” he said.

Karen Wayland, CEO of the GridWise Alliance, told the conference the administration was wise to seek climate gains through infrastructure legislation, referring to the proposed \$2.3 trillion American Jobs Act.

“I think the approach that the Biden administration is taking ... is one that has a greater chance of success than a purely regulatory play. Investing in infrastructure is durable policy. When you put steel in the ground, you are truly enacting policy. And so starting with a focus on infrastructure, which is highly, highly popular with the American public, is quite a wise thing, and it will result in emission reductions, serious emission reductions, if the investments are made at the scale that he’s talking about.”

With Democrats holding narrow edges in Congress, that’s a very big “if,” Wayland and Wetstone acknowledged. Earlier last week, Republican senators challenged Biden cabinet officials over the infrastructure proposal, saying it is too broad and too costly. (See [GOP Senators Grill Biden Cabinet over Infrastructure Bill](#).)

Tax Credit Proposals

The administration proposal includes an investment tax credit (ITC) to build 20 GW of high-voltage lines and a 10-year extension of a direct-pay ITC for solar and storage.

In contrast, Sen. Ron Wyden (D-Ore.) last

week *reintroduced* a bill that would give wind, solar and any other non-emitting generating source a production tax credit of 2.5 cents/kWh or an ITC of 30%. Transmission investments of 275 kV or higher also would be eligible for the ITC.

The credits would phase out over five years once the power sector reduces emissions 75% from current levels.

“That’s probably the full breadth of the 10-year budget window if this happens through reconciliation,” which would sidestep a Senate filibuster, Wetstone said. “This would be the first time we’ve ever had, in the renewables sector, the same kind of ... certainty that other businesses enjoyed: the ability to plan long-term, knowing that credit’s going to be there in two years, five years, eight years, 10 years. That’s never happened before.”

House Democrats have *proposed* a five-year extension of the ITC with an expansion to include storage.

“I don’t have a crystal ball about whether the House or Senate [proposal] will pop out at the end, but if you had to ask me what my prediction is for when [a bill will be passed], I’d say we’re looking at a Christmas present,” Wayland said.

Macrogrid?

Wetstone said he’s encouraged by the administration’s support for a “macrogrid” — expanding transmission to connect renewables to load.

“Our grid today, a lot of it was designed in the ‘50s. It was designed originally around hydro and then around coal,” he said. “We’re going to need a lot of transmission and a lot of storage and a lot of renewables if we’re going to be able to meet these climate targets.”

Wayland said she was concerned, however, that the legislative proposals have been focused on new transmission, with less support for grid-enhancing technologies (GETs), saying they are essential for meeting climate goals. “For example, on the distribution system, if you want to meet the Biden administration’s goal of 500,000 [electric vehicle] charging stations around the country, those plug into the distribution network. And we’re going to need a lot of investment in the wires and the equipment that services the areas,” she said.

FERC’s Role

Wayland and Wetstone said they believe FERC will play an important role in clean energy policy under Chairman Richard Glick (D).

Wetstone said he expects FERC to address the failure of Order 1000 to boost interregional transmission development. “We don’t know exactly what it’s going to be, but we’ve heard from Chairman Glick a very strong signal that they’re going to be acting,” he said.

He also noted the commission’s recent approval of its policy statement inviting RTOs to propose state-initiated carbon pricing and calls by Glick and Commissioner Allison Clements (D) for eliminating the minimum offer price rule (MOPR) in PJM, which would make state-subsidized renewables more competitive.

“FERC has been clear that that needs to be fixed,” Wetstone said. “We seem to already have a majority in favor of that and that’s going to be clearly solidified when there is a third Democrat on the five-member commission, which will presumably happen in early summer,” after Republican Commissioner Neil Chatterjee’s term expires June 30.

Wayland agreed. “We’re seeing better language coming out of FERC on the role of state policy,” she said.

‘Headwinds’

Jason Burwen, acting CEO of ESA and moderator of the talk Thursday, worried about “headwinds” that could jeopardize progress, citing concerns about supply chains for materials needed for energy storage and “uncertainty about global trade issues.”

Wayland and Wetstone acknowledged that getting proposals through Congress will not be easy.

“Infrastructure makes tremendous sense as a place to start,” Wetstone said. If “we get a level playing field on the tax rule, then there is room for regulatory action down the road. And there the questions are: Is the Supreme Court going to prevent us from addressing the climate problem and protecting our planet?”

“This is it. This is the opportunity to get serious about climate, and I don’t think we’re going to see another one that’s going to be comparable or where we really have time to catch up,” he continued. “So we know we have to get started now in a big way.” ■

Energy Storage Association Virtual ESACon21

Duke Energy Seeks Flexibility in Long-duration Storage *Eos Energy, Highview Power Pursue Different Solutions*

By Rich Heidom Jr.

Jason Handley, Duke Energy’s director of emerging technology, feels pretty good about the utility’s ability to meet its goal of reducing carbon emissions by 50% and eliminating methane emissions from its natural gas business by 2030. Reaching net-zero emissions by 2050, however, is going to require technology that hasn’t been proven yet.

“We think we have a really good line of sight on current technologies that are going to help us meet our 2030 targets,” he said during a panel discussion Thursday at the virtual segment of the Energy Storage Association’s *annual conference* Thursday. “But if we’re going to achieve our net-zero goals in 2050, we’re going to need a variety of flexible storage resources, including multiple types of long-duration storage.”

Storage is the key to avoiding the “heartache” of curtailing renewables, said Balki Iyer, chief commercial officer for *Eos Energy Enterprises*.

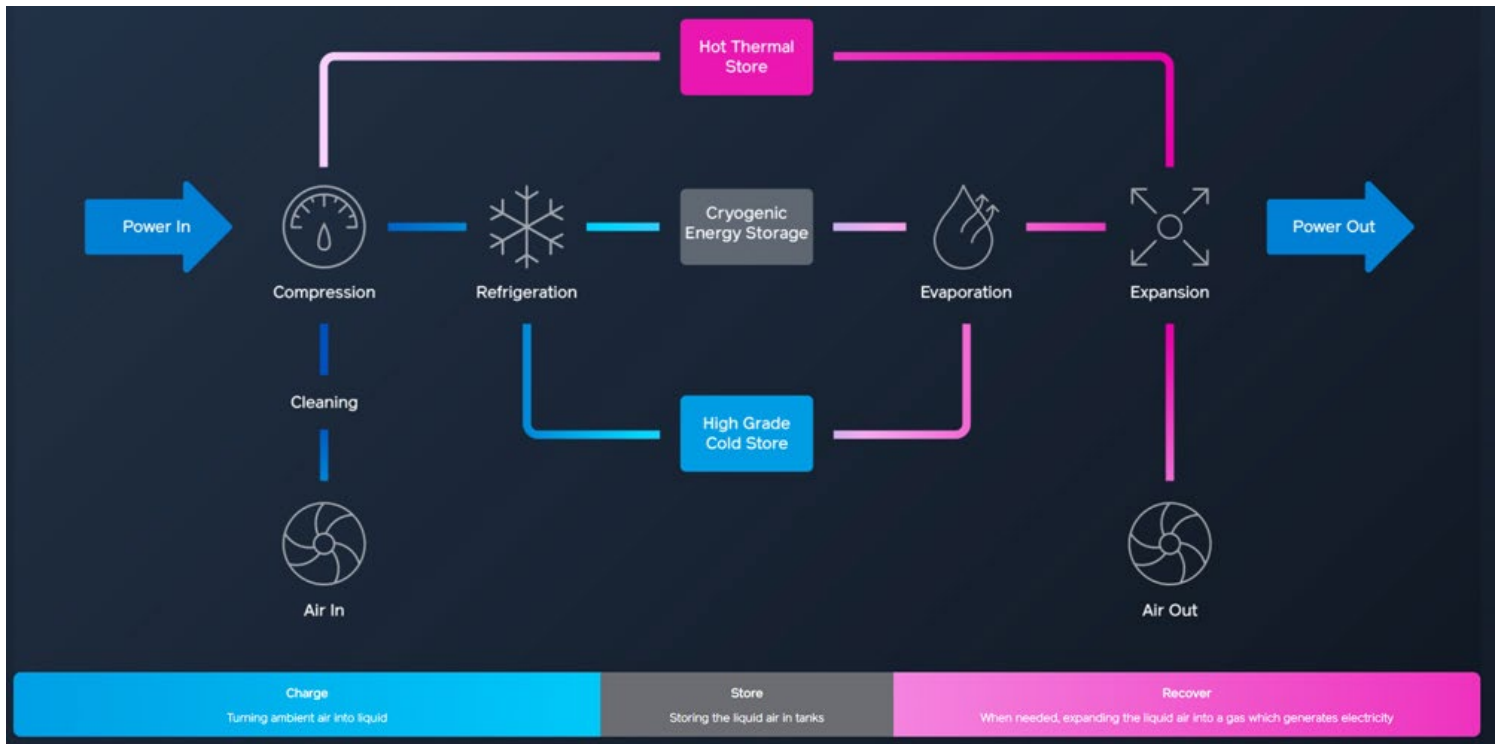
“The last year alone there was close to 100 TWh of renewables that was curtailed,” said



Clockwise from top left: Andy Colthorpe, Energy Storage News; Balki Iyer, Eos Energy Enterprises; Highview Power CEO Javier Cavada; and Jason Handley, Duke Energy | *Energy Storage Association*

Iyer, who joined Handley and Highview Power CEO Javier Cavada on the panel. “That’s enough to power all of the homes in Texas for a year. That’s not a good sign.”

Handley said Duke has done trials of 15 storage projects with 10 different chemistries, including work with Eos, which uses zinc hybrid cathodes.



Highview Power’s cryogenic energy storage cools air to -196 degrees Celsius (-320 F) to liquefy it for storage in low-pressure insulated tanks. The liquid returns quickly to gas when exposed to ambient temperatures, causing a 700-fold expansion in volume, which is used to drive a turbine and create electricity without combustion. | *Highview Power*

Energy Storage Association Virtual ESACon21

Eos Energy

Founded in 2008 under the name Grid Storage Technologies, Eos initially focused on developing the chemistry of its aqueous zinc battery, which it says has two advantages over conventional lithium-ion technology. It uses commodities from non-rare earth and non-conflict minerals that are abundant and recyclable, while Li-ion batteries require lithium and cobalt, which are produced in few countries and could be prone to supply constraints. Unlike Li-ion batteries, which can overheat and explode, Eos says its system is nonflammable.

The company, which began commercial shipments in 2018, went public in November. Through 2020 it had delivered 10 systems totaling 2,500 batteries and 5 MWh. Its current generation product can deliver up to 12 hours of continuous power, it says.

Its customers include San Diego Gas & Electric and Duke, the latter of which was its biggest customer in fiscal year 2019, accounting for 26% of its revenue.

In January it announced its largest order ever, a \$20 million deal to supply long-duration storage to developer EnerSmart, to provide at least 90 MWh of storage over two years. The first project, for 9 MWh of storage in El Cajon, Calif., is scheduled to be installed in the fourth quarter.

Highview Power

Highview says its cryogenic energy storage provides scale like that of pumped hydro, capable of providing four hours to four weeks of power. It cools air to -196 degrees Celsius (-320 F)

to liquefy it before storing it in low-pressure insulated tanks. The liquid returns quickly to gas when exposed to ambient temperatures, causing a 700-fold expansion in volume, which is used to drive a turbine and create electricity without combustion.

It is building a 50-MW/250-MWh plant in Carrington, England, that is expected to enter commercial operation next year. It is also developing facility in Northern Vermont that it says will be a minimum of 50 MW and provide more than eight hours of storage to address transmission congestion at the Sheffield-Highgate Export Interface.

In February it closed a \$70 million round of funding from investors including Sumitomo Heavy Industries. It entered 2021 with a 4-GWh pipeline of storage projects in the U.S., Europe and Latin America.

Duke's Requirements

"It's really exciting to hear about the gains they're making in their technologies," Handley said. "Because when we start out looking for long-duration storage technologies, it's very simple: We're looking for safe, reliable, cost-effective, sustainable and flexible [technologies]. Flexible is going to be a key for us as we move forward because we are starting to need that ability to time shift different types of our loads."

Other use cases Handley envisions for long duration include transmission and distribution deferrals. That "is going to be huge. We're looking at doing non-wires alternative projects. And also the spot solutions for transmission

congestion relief. And of course, as we've seen, there's always backup power needs.

"We also understand that these new technologies are going to need time to mature," he added. "In order for Duke or any company to really invest in these systems, they're going to have to be field-proven."

Turning Coal Plants into Long-duration Storage?

Duke also is involved with Google spinoff Malta Inc. in a Department of Energy-funded *project* to determine if retired coal plants could be repowered long-duration storage using renewable power and *Malta's* molten salt energy storage technology.

In addition to taking advantage of existing transmission infrastructure, Malta and Duke say the concept could provide the same grid stability benefits from rotational inertia as the retiring thermal generation.

"The concept that we're going for is to be able to use the incumbent fossil fuel workforce without relocation and minimal retaining," said Handley. "The engineering study that's going to come out of that is really going to help us lean toward repurposing and reusing some of these existing facilities that we have for renewable/decarbonized purposes."

Malta, launched by Google parent Alphabet's "*moonshot factory*" X, announced in February it had raised \$50 million in Series B funding from investors including Bill Gates' Breakthrough Energy Ventures to bring its technology to market. ■



The Eos Energy Block backs up to 10 MW of storage into a standard 20-foot modular container. | *Eos Energy Enterprises*

Energy Storage Association Virtual ESACon21

Storage will Grow in the Midwest Without Mandates, Expert Says

By Emily Hayes

In the U.S. Midwest, states do not have targets or mandates for energy storage. They also have complex regulations and varying market models. But Brad Klein, a senior attorney with the Environmental Law & Policy Center, said he expects to see “a lot of grid-scale storage being deployed through state Integrated Resource Plans or other utility proposals to replace retiring coal assets.”

“Expect a lot more of that in the future in some states that haven’t risen to the top of the radar [for energy storage deployment], like Wisconsin, Iowa and Indiana,” he said during the virtual segment of the Energy Storage Association’s annual *conference* on Thursday.

Klein expects storage will be a part of a long-term industry strategy to unlog PJM’s interconnection queue. Wind projects in the Midwest are facing high interconnection costs and delays as more renewables join the grid. New tax incentives put even more pressure on RTO interconnection queues, and storage is a “very

big part of the way to solve that,” Klein said.

“We can hopefully deploy storage to get more of these renewable energy projects online while we are continuing to invest in the larger transmission system, which will take some time,” he said.

But deploying storage on that scale will require more policy effort from FERC and the RTOs, along with federal investment. The U.S. cannot wait to build out a transmission grid over decades to support the renewable energy that will help the country cut emissions by 50% below 2005 levels by 2030, Klein said.

Texas and the Northeast also offer strong growth opportunities for storage in the U.S.

As a deregulated market, Texas is growing renewables quickly to meet its ever-increasing load growth, said Doug Moorehead, managing partner and chief technology officer of Broad Reach Power.

The rapid growth has created volatility and transmission congestion, but storage “fixes that problem,” he said.

However, storage interconnection and infrastructure policy will be particularly important in the Northeast’s densely populated markets.

“I don’t want to imply that ... the Northeast has no path forward for large-scale,” Jeremy McDiarmid, vice president of policy and government affairs at the Northeast Clean Energy Council, said.

There is potential for pairing offshore wind installations with large-scale energy storage, whether it is pumped hydro or battery installations that are larger than those in retail programs, McDiarmid said.

Early outlines from President Biden’s American Jobs Plan indicate that the preference at the federal level is for large-scale storage projects that are “semi-shovel ready and can yield big jobs, particularly among building trades,” Harry Godfrey, the director of Virginia Advanced Energy Economy, said.

“The plan would provide a clear pathway to utility-scale storage developments for utilities,” he said. ■



Integrated resource planning in the Midwest will help drive grid-scale energy deployments like Invenergy’s Grand Ridge wind, solar and storage facility in La Salle County, Ill. | Invenergy

Energy Storage Association Virtual ESACon21

Hybrid Storage Interconnection is a Puzzle, Industry Says

By Jennifer Delony

The wide variety of grid interconnection rules that exist across jurisdictions is challenging developers in the proliferating market for hybridized generation and storage.

Interconnection rules for front-of-the-meter, grid-scale projects are “different in every region,” Evan Bierman, director of energy storage product management at EDF Renewables, said during the virtual segment of the Energy Storage Association’s *annual conference* Thursday. “Every ISO has its own set of rules and its own set of market options.” And bringing those rules together under one umbrella with a hybrid project further complicates the developer’s job.

Grid operators are seeing hybrid energy projects growing quickly as a percentage of their interconnection queues. The projects, which pair generation resources with storage technologies, are making renewables dispatchable, and industry experts believe they are central to decarbonization efforts.

Bidding hybrid resources in energy markets, however, is difficult, Bierman said. “You have a solar attribute that is changing, and you have a storage attribute that can do a lot of things, and then you have to tie in the interconnection rules to really optimize the plan.” The industry, he said, is “struggling” to solve that puzzle.

Study requirements associated with the interconnection of hybrid projects also are creating difficulties for developers of new projects, said Mike Bowman, CTO of General Electric’s renewable hybrids segment.

“There are a lot of modeling studies that happen [with interconnecting], which has always happened with power plants,” Bowman said. “But now you bring in multiple generators, storage and bidirectional energy flows, and it turns into a whole new area.”

He said that the challenges associated with modeling are not necessarily a barrier to entry for hybrid projects, but developers are in a steep learning curve right now. Model types and modeling requirements are as disparate by region as interconnection rules, Bowman said, adding that working with the disparity is “time consuming.”

Hybrid projects are now growing beyond just a generation resource and a storage asset, according to Bierman. EDF, he said, is working on projects that include behind-the-meter



Understanding the variety of interconnection rules across jurisdictions is a significant challenge for developers of hybrid storage projects, like solar paired with batteries. | *National Renewable Energy Laboratory*

resources, front-of-meter solar and storage, and electric vehicle charging.

“We have to balance the behind-the-meter load, and then project out what the solar is going to do, what that load is going to do, and add [EV] battery chargers on top,” he said.

Ensuring that the software for hybrid projects can handle the attributes of every type of generator and load is one of the most challenging issues EDF is addressing, according to Bierman.

“It’s a huge growth area that I think is very, very difficult,” he said. “But when you get the challenge right, [electric vehicles and behind the meter solar and storage] can all work together.”

More Education Needed

Developers with advanced knowledge of hybrid projects see a lot of interest in these resources, but very few people really understand how they work, according to Bowman. That is

a hurdle that developers need to address as an industry, he said.

“There is an openness to discussion and learning about hybrid storage,” he said, adding that the amount of education that needs to be done for projects to succeed is “significant.”

Frank Jacob, technology manager for energy storage at Black & Veatch, agrees with Bowman. He said that front-end education is critical to project start-up.

“Half of [the U.S.] is still uneducated about all the benefits of energy storage,” he said. Knowledge centers have built up on the coasts, but Jacob said engineers from companies in the Midwest are approaching Black & Veatch just to find out what storage is, where it should be sited and how they can make money with it.

The industry needs to broaden its education efforts so stakeholders understand that storage “isn’t just a dream solution; it’s a competitive solution today,” he said. ■

FERC/Federal News



Biden Commits US to Cutting GHG Emissions 50% by 2030

President also Promises to Double Public Financing for Climate Action in Developing Countries

Continued from page 1

Biden also committed the U.S. to *doubling annual public climate financing* to developing countries by 2024 and to ending international investments in fossil fuel generation.

As outlined in a White House *fact sheet* released ahead of the summit, Biden's strategies for meeting the 50% emissions reduction target closely parallel the policies and programs in his \$2 trillion infrastructure package. Emissions reductions will be achieved through decarbonizing the electric grid by 2035, electrification of buildings and transportation and the development of green hydrogen and carbon capture technologies, along with leveraging U.S. forests and agricultural lands to create "nature-based" carbon sinks. (See *Biden Infrastructure Plan Would Boost Clean Energy.*)

The plan is the result of a sector-by-sector, bottom-up analysis, said National Climate Adviser Gina McCarthy, speaking at a White House press briefing after the summit. "We see multiple pathways across all sectors, across all policy levers, across federal and state and local actions to grow our economy and to reduce our emissions," McCarthy said.

Biden had framed the summit as a warm-up for the U.N. *Climate Change Summit*, scheduled for Nov. 1-12 in Glasgow, and re-establishing U.S. leadership on global climate action.

Former President Donald Trump withdrew the U.S. from the Paris Agreement last year; Biden rejoined on his first day in office.



Special Presidential Envoy for Climate John Kerry | *The White House*

"On Jan. 19, we were nowhere; we were in deficit with respect to our [climate] efforts," said Special Presidential Envoy for Climate John Kerry, who also spoke at the post-summit press briefing. "We now have [countries representing] 55% of global GDP

committed to levels of reductions that keep faith with holding the earth's temperature



French President Emmanuel Macron | *The White House*

at 1.5 degrees."

He noted that all 20 of the countries with the largest GHG emissions were at the summit, and several echoed Biden's call for urgent action.

"We need to move quickly to implement the commitments for 2030; a plan of action that is clear, measurable and verifiable," French President Emmanuel Macron said. "Basically, 2030 is the new 2050."

Similarly, Italian Prime Minister Mario Draghi said, "The climate commitments we make now will determine our chances of tackling climate change effectively in the next decade and beyond. We want to act now, not to regret it later."

'Carbon must have its price.'

The diplomatic limitations of the virtual event were clear with Biden, Kerry and Secretary of State Anthony Blinken masked and socially distanced at a circular conference table facing a large screen where one by one, international leaders appeared to make statements, in some cases, prerecorded.

Each country's climate actions were highlighted, and new higher commitments announced. For example, Japan upped its GHG reduction goal from 26% from 2013 levels to 46 to 50% by 2030; and South Korea announced it would be terminating its overseas investments in coal. The day before the summit, the European Union passed a mandate to cut emissions by 55% from 1990 levels by 2030.



European Commission President Ursula von der Leyen | *The White House*

Ursula von der Leyen, president of the European Commission, said carbon pricing



Italian Prime Minister Mario Draghi | *The White House*

was a key part of the EU plan. "We will make emissions trading work, not only for energy generation and industry, but also for transport and for buildings," she said. "Carbon must have its price because nature cannot pay the price any longer."

Canadian Prime Minister Justin Trudeau said Canada's emissions reduction plan also includes a "world-leading price on pollution. ... In 2030, our carbon [pricing] will reach \$170/ton."

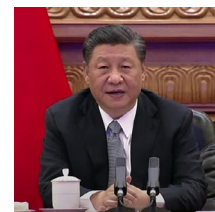
Trees-for-citizenship Swap

The Paris Agreement's commitment for developed countries to provide \$100 billion a year to finance climate change adaptation and mitigation in developing countries has been hit hard by the COVID-19 pandemic, U.N. Secretary-General António Guterres said.

"So far, only 18 to 24% of pandemic recovery spending is expected to contribute to mitigating emissions, reducing air pollution or strengthening natural capital," Guterres said. "The trillions of dollars needed for COVID-19 recovery is money we are borrowing from future generations. We cannot use these resources to lock in policies that burden them with a mountain of debt on a broken planet."

Guterres called for a phase-out of coal by 2030 in the wealthiest countries and by 2040 elsewhere, and he said multinational development banks should more than double their investments in resilience and adaptation before the Glasgow summit.

"Developed countries must deliver on public finance," he said.



Chinese President Xi Jinping | *The White House*

While reiterating China's intention to peak climate emissions before 2030 and restrict new coal-fired generation, President Xi Jinping called for a commitment to "common but differentiated responsibilities" between developed and developing economies.

It is, he said, "the cornerstone of global climate governance. We need to give full recognition to developing countries' contribution to cli-

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FERC/Federal News



GOP Senators Grill Biden Cabinet over Infrastructure Bill

By Rich Heidom Jr.

Republican senators grilled members of President Biden's cabinet last week over his proposed \$2.3 trillion infrastructure plan, saying it is too broad and too expensive.

The exchanges over Biden's American Jobs Plan came at the first meeting of the full Senate Appropriations Committee since Democrats took control of the upper house. The proposal includes investments in rural broadband service and tax credits to spur electric transmission, solar power, energy storage and carbon capture technology. (See [Biden Infrastructure Plan Would Boost Clean Energy](#).)



Sen. Patrick Leahy (D-Vt.) | U.S. Senate

Committee Chair Patrick Leahy (D-Vt.) opened the hearing by beseeching his Republican colleagues to join with Democrats in enacting the bill, calling it a "once-in-a-generation opportunity" to rebuild the nation's infrastructure and "begin to chop away at the long-ignored climate issues.

"It's not a question of whether or not we take this opportunity. It's necessary for our future that we do so," he said. The issues are "all connected, not just by roads and bridges."

He said the U.S. is spending only 2.3% of GDP on infrastructure, a 60-year low and half that of Europe. "We can't continue our position as the leader of the global stage by thinking small.

"This is the Senate Appropriations Committee. I know all of you. You're all friends. I think the world of you," he said. "Let's set aside partisan rancor. Let's work together as this committee has so many times over our history and agree on the bold step we need at this time."



Sen. Richard Shelby (R-Ala.) | U.S. Senate

Vice Chair Sen. Richard Shelby (R-Ala.) said he was happy the committee was holding hearings on the bill after being "sidelined" during passage of Biden's COVID-19 relief bill.

"I believe there is broad bipartisan agreement on the need for investment in our nation's crumbling infrastructure. But the breadth of that support, I think, depends on how broadly



The full Senate Appropriations Committee held its first meeting April 20 since Democrats took control of the upper house. | U.S. Senate

the term infrastructure is defined. For me that is a simple question for today's hearing. What kind of investments can we agree fall into the category of infrastructure? I believe most people associate the term with roads, with bridges, airports, transportation ... water systems, sewage systems and the like," he said. "The administration's proposal, on the other hand is so broad — and ambiguous in areas — that it seems there is little, if anything they do not consider ... infrastructure."

'Visionary Infrastructure'



Transportation Secretary Pete Buttigieg | U.S. Senate

Transportation Secretary Pete Buttigieg defended the administration's proposed spending on EVs and charging networks.

"Much has been said about the term 'traditional' infrastructure," he said. "But America's greatest tradition of visionary infrastructure investments has always included decisions that expand the horizon. The interstate highway system might not have been considered traditional infrastructure at one time. Railroads were not traditional infrastructure until we built them."

Shelby told Commerce Secretary Gina Raimondo he was concerned that rather than help the U.S. compete with China the bill would emulate the Communist regime by "providing massive subsidies to grow domestic manufacturing capabilities in certain segments



Commerce Secretary Gina Raimondo | U.S. Senate

of the economy."

Raimondo said the U.S. faced a "crisis" in its supply chain, citing as an example the lack of domestic production of semiconductor chips. She said the bill would require private companies to invest at least \$4 for every \$1 in

spending by the government.

"I can tell you from experience that investments like this work," she said. "When I became governor of Rhode Island we had the highest unemployment rate in the country. During my administration, we made infrastructure and workforce investments like those this package calls for, and before the COVID-19 pandemic, Rhode Island had the lowest unemployment rate in a generation."



Sen. Susan Collins (R-Maine) | U.S. Senate

Sen. Susan Collins (R-Maine) said Biden's proposal conflicts with the "fix it first" policy Buttigieg cited as the Transportation Department's philosophy for prioritizing spending. She said the administration's proposal would spend \$174

billion supporting electric vehicles and only \$157 billion "on roads, bridges, ports, airports and waterways combined.

"It's certainly appropriate to look ahead and

FERC/Federal News

accommodate newer and cleaner modes of transportation,” she said. “But what the administration is doing is spending billions more on subsidies related to electric vehicles than on the roads and bridges on which they will travel.”

Buttigieg said roads and bridges also have other sources of funding but that EVs need government support to provide a foundation for growth. “The U.S. aviation sector might not have blossomed the way it did if not for New Deal-era investments in airports across the country,” he said.

‘Not Enough’

Sen. John Kennedy (R-La.) pressed EPA Administrator Michael Regan on how much the bill would impact climate change. He cited a comment by Le Yucheng, China’s vice minister of foreign affairs, who *told* The Associated Press that it was “not very realistic” for other nations to expect China, which is responsible



EPA Administrator
Michael Regan | U.S.
Senate

for 28% of carbon emissions, to do more on climate change. “They’re not going to participate. We’re going to spend \$2.3 trillion; a lot of it is climate change,” Kennedy said. “I’m not sure I take the statement at face value,” Regan responded. “China is investing a lot of money in renewable energy and battery storage and being globally competitive in the very areas that this jobs bill” seeks to improve.

After repeated questioning, Regan acknowledged that the administration had no climate modeling on the impact of the jobs package alone.

Kennedy also asked Raimondo why Biden hadn’t asked cabinet officials to “scrub” their

budgets for savings before he proposed a \$1.5 trillion discretionary budget that would boost non-defense discretionary spending by 16%. (See *Biden Budget Seeks Major Spending Hikes on Climate.*)



Sen. John Kennedy
(R-La.) | U.S. Senate

“We’re all going through our budgets every day and looking for ways that we can be more efficient,” Raimondo said. “But the truth of it is we need an investment.” “How much money do you think you’re going to reduce your budget?” Kennedy pressed.

“I don’t have a great answer to that at the moment,” Raimondo responded. “But I can promise you it’s not enough — we’re not going to save our way out of decades of underinvestment in R&D and in infrastructure.” ■

Biden Commits US to Cutting GHG Emissions 50% by 2030

President also Promises to Double Public Financing for Climate Action in Developing Countries

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mate action and accommodate their particular difficulties and concerns.”

Leaders from developing countries in Central America, the Caribbean and Africa were more specific.

Small island nations may not be able to access international aid financing because of per capita income requirements, Antigua and Barbuda Prime Minister Gaston Browne said. “This requires action to design new and innovative instruments and debt relief, including debt cancellation, debt suspension, debt restructuring and debt-for-climate swaps,” he said.

Debt-for-climate swaps allow a country debt relief in return for specific climate actions. Mexican President Andrés Manuel López Obrador suggested a more radical swap for Mexicans participating in the country’s massive tree planting program — a U.S. work permit and eventual citizenship. The program is intended to incentivize the planting of fruit trees and timber in rural areas, but in some instances it may be resulting in deforestation, according to a recent *report* from Bloomberg.

Electric Bills and Jobs

Biden’s ability to deliver on a range of climate

goals remains uncertain. His infrastructure package, the American Jobs Plan, faces strong opposition from Republicans in Congress, where the Democrats’ razor-thin majority in the Senate may not be able to guarantee passage. Arguments from both sides of the aisle are based on appeals to basic economic issues — electric bills and jobs.

Sen. John Barrasso (R-Wyo.), ranking member on the Senate Energy and Natural Resources Committee, was quick to label Biden’s commitment “drastic and damaging.”

“The last thing the economy needs is higher energy prices and fewer jobs, but that’s exactly what we’re going to get,” he said.

Democrats and clean energy advocates were just as quick to applaud the stepped up-goal and echo Biden’s efforts to link emission reductions with clean energy jobs.

“This commitment provides us an opportunity to empower our workers with new, good paying jobs in manufacturing, construction and clean energy that can’t be shipped overseas,” said Rep. Frank Pallone (D-N.J.), chair of the House Energy and Commerce Committee. “It will also allow us to prioritize the needs of our environmental justice communities, and revi-

talize our energy communities with the jobs and security they both need and deserve.”

“The renewable energy sector already employs hundreds of thousands of Americans and is poised to do its part in the transition to a carbon-free grid, a step that will create millions of additional good-paying jobs while saving money for consumers and preventing the worst impacts of climate change,” said Gregory Wetstone, CEO of the American Council on Renewable Energy.

Reporters at the White House pushed McCarthy and Kerry on exactly how Biden would be able to meet his carbon reduction commitments when his successor could roll them back with a stroke of a pen.

“No politician in the future is going to do this because all over the world, trillions of dollars, trillions of yen, trillions of euros are going to be heading into this new marketplace,” Kerry said. “Wind and solar had the biggest year they’ve ever had last year, and what we saw last year was continuation of tax credits pass through a Republican-controlled Congress. So, we all know where this is heading. The real question is, do we want to have the courage to grab it?” ■

FERC/Federal News



AEP's Akins Lambasts FERC's RTO Adder Proposal in Earnings Call

By Tom Kleckner

American Electric Power CEO Nick Akins on Thursday expressed his "extreme disappointment" with FERC's recent proposal to limit a transmission rate adder incenting utilities to join RTOs.



AEP CEO Nick Akins |
© RTO Insider LLC

"Participation in RTOs has resulted in ensuring the most efficient regional solutions are advanced," he told financial analysts during AEP's first-quarter earnings call. "Participation should be encouraged and not discouraged."

Akins' ire was raised by FERC's approval last week of a supplemental Notice of Proposed Rulemaking to limit the eligibility period for collecting the rate adder to three years after joining an RTO, rather than for as long as the utility is a member. The commission also proposed maintaining the adder at 50 basis

points, reversing a proposal more than a year ago to double it. (See [FERC Proposes to Narrow RTO Incentive](#).)

He said FERC's "abrupt about-face" on incentives would certainly lead to litigation.

"It's vital that the federal policy continues to support transmission investment, and particularly those made by companies who are participants in RTOs," Akins said. "There is a cost to being in an RTO, and upsetting this cost-benefit equation could change the dynamic of RTO participation."

Clean Energy Developments

"Every reputable expert" has found transmission to be an "integral part of the solution" in reaching clean energy goals, Akins said. AEP, which owns the nation's largest transmission system, said in February that it has set an 80% reduction in carbon emissions by 2030 and net-zero emissions by 2050.

The Columbus, Ohio-based utility made progress toward that goal when its 199-MW Sundance Wind Energy Center in northern

Oklahoma *began commercial operations* earlier this month. Sundance is the first of three wind farms that will compose the *North Central Energy Facilities*, which will eventually provide 1,485 MW of clean energy. (See [AEP a Go with \\$2B North Central Wind Project](#).)

Akins also said AEP plans to complete a strategic review of its eastern Kentucky assets, which include the 1.56-GW coal-fired Mitchell Power Plant. Kentucky Power, with about 165,000 customers in eastern Kentucky, is easily the smallest of AEP's seven operating companies.

Any revenue from a potential sale would go to the North Central project, CFO Julie Sloat said. "To the extent we get dollars in the door, that would be a wonderful place to put it."

AEP *reported* first-quarter earnings of \$575 million (\$1.16/share), up from the quarter a year ago of \$495 million (\$1/share). Zacks Investment Research had projected earnings of \$1.23/share.

The company's share price dropped by \$1.40 on Thursday, closing at \$87.95. ■



AEP has energized the first of its three North Central Energy Facilities wind farms. | Shutterstock

FERC/Federal News



Report: Southeast Utilities Must Speed up to Get to Net Zero

By Amanda Durish Cook

Despite their recent progress in reducing greenhouse gases, Southeastern utilities are not poised to reach net-zero emissions by 2050 without more clear-cut plans to do so, the Southern Alliance for Clean Energy (SACE) said last week.

That was the key finding from SACE’s third annual “Tracking Decarbonization in the Southeast” report, which follows Southeastern utilities’ progress on carbon reduction.

SACE said while Southeast carbon emissions fell by about 34% from 2010 to 2019, emissions are projected to fall this decade by only 18% from current levels. The region on average emitted 833 lbs/MWh in 2019, compared 1,100 lbs/MWh in 2010.

Report co-author Heather Pohnan said April 20 that most of the 18% reduction will take place in the next three or four years “with little or no action after that” planned.

“The decline in emissions is really tapering off in the near future, and that’s opposed to the sharper reductions that we’ve seen in the past decade,” Pohnan, SACE’s energy policy manager, said during a webinar to discuss the report.

Pohnan said the stagnation in reductions can be chalked up to flat loads coupled with the replacement of retiring coal plants with gas-fired

generation. The region’s utilities are “stuck” in the natural gas generation era and the continuing gas boom will cause them to miss decarbonization targets “by several decades,” she said.

Climate scientists have agreed that countries must reach net-zero GHG emissions between 2040 and 2055 to limit global warming to 1.5 degrees Celsius and avert climate disaster.

“For utilities to decarbonize at the pace seen in the 2010s they will have to retire remaining coal plants at a steady pace and replace fossil gas with clean, zero-carbon energy sources like wind, solar, storage and energy efficiency,” SACE said.

SACE found that Duke Energy, Southern Co., NextEra Energy and the Tennessee Valley Authority (TVA) account for more than 70% of all carbon emissions from Southeastern power generation.

The two utilities with net-zero pledges by 2050, Duke and Southern, currently account for 40% of all emissions in the region. NextEra has made a 40% total emissions reduction commitment, while TVA hasn’t provided any official guarantees.

Even accounting for the Duke and Southern net-zero goals, none of the four major utilities “are on track to decarbonize by 2035, 2040 or even 2050,” SACE said.

Pohnan said gas generation is set to provide nearly half of the Southeast’s power production into 2030. And some of the region’s coal generation could linger until 2030 because many utilities have yet to announce retirement dates for those plants, she said.

Based on the four utilities’ existing plans, NextEra and Southern won’t decarbonize until 2071 and 2086, respectively, while Duke and TVA will keep emitting past 2100, SACE Director of Utility Reform Maggie Shober said.

“Some of the results were quite startling,” she said.

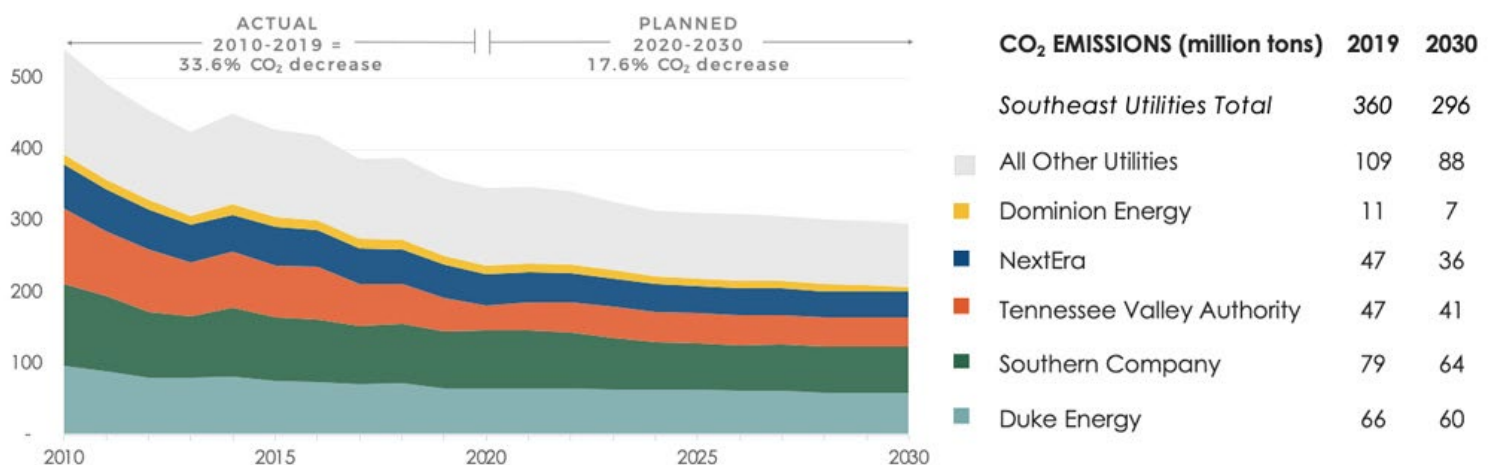
Shober said the most “impactful” thing utilities can do is register clean energy commitments and blueprints in their integrated resource plans.

“This year is particularly important because we are beginning to see some of the Southeast utilities [setting] targets on carbon reductions and even begin discussing getting to ... net-zero carbon emissions,” SACE Executive Director Stephen Smith said.

Shober agreed that the decarbonization outlook in the Southeast is improving.

“This year we’re seeing a better trajectory, so we’re closer to where we need to be. We’re still pretty far off track, but there has been incremental improvement,” she said. ■

EMISSIONS FORECAST FOR UTILITIES



Major Southeastern utilities emissions forecast | SACE

FERC/Federal News



Offshore Wind Industry Working to Include MWBEs

By John Funk

The U.S. offshore wind industry's efforts to meet demand from East Coast states trying to decarbonize their grids by 2050, and now the Biden administration's goal to get 30,000 MW of generation in the water by 2030, puts new pressure on it to include minority/women-owned business enterprises (MWBEs) in their immense supply chains.

Presentations at a virtual program held by the Business Network for Offshore Wind on Thursday included a well attended session showing that the equity issue is already embedded in the OSW industry's practices.

Jessica Dealy, external affairs lead at Atlantic Shores Offshore Wind — a joint venture between EDF Renewables and Shell New Energy, and one of two project bidders before the New Jersey Board of Public Utilities — said the company is aware that bidding “can be quite intimidating to new and smaller companies.”

She said Atlantic Shores has taken a very deliberate recruitment strategy to focus on finding MWBEs well before it seeks suppliers.

“We're in fact building an internal tracking system ahead of our project implementation phase, which is when we do the bulk of our contracting with the supply chain, and we want to do that to help ensure that we engage with MWBEs to the maximum extent possible,” she said.

“We look for organizations that can actually help the market and build these companies up. If you just give one small company a chance to break into this industry, chances are they're going to flourish,” she added, noting that Karp



Strum Contracting Co. COO Teaera Strum | *Strum Contracting Co.*

Strategies — a leading women-owned New York urban planning firm whose CEO, Rebecca Karp, was also a panelist in the program — is one such company.

“When we approached them two years ago to help us with stakeholder engagement, they were not in the offshore space. They knew very little about it, but they quickly jumped on the boat, if you will, and now they have an entire offshore division within their company and have been a huge asset to our team,” Dealy said.

“Local businesses create local content. So that helps incentivize developers to try to find resources within a state and support smaller businesses and contract them and bring them into the fold. It just makes good sense to us [to] develop our projects to involve communities [and] local business.”

Panelists Teaera Strum, COO of Balti-

more-based Strum Contracting Co., a specialty welding company, and Mark Rice, owner of Maritime Applied Physics Corp., an engineering and maritime manufacturing company, also based in Baltimore, told the audience how their previous relationships in Baltimore manufacturing networks allowed them to marshal their knowledge and experience and break into offshore contracting.

After traveling to Denmark and Germany in a tour sponsored by the Business Network for Offshore Wind to learn about OSW projects, Rice said he could see how much of a “workforce challenge” projects in the U.S. would be. “We were able to talk to developers and manufacturers and really got an overview of what was required to enter the [offshore] business,” he said. The firm began winning contracts once back home.

Rice and Strum knew one another because they had served on business network boards in Baltimore and had become friends. They decided to partner in order to compete for some contracts.

“We are not an MWBE company, and teaming with Teaera has let us compete for contracts as a subcontractor to Tierra. It's been a two-way street. We're able to include Teaera in contracts we do for the Navy,” Rice said.

Strum said the relationship has helped her company grow. “I will say that because of the Business Network for Offshore Wind, a very small firm like Strum Contracting now has the ability and the trust to work with someone like Mark Rice. This industry has truly transformed Strum Contracting. We have been able to grow substantially.” ■



Jessica Dealy, Atlantic Shores Offshore Wind | *Atlantic Shores Offshore Wind*



Mark Rice, Maritime Applied Physics Corp. | *Regional Manufacturing Institute of Maryland*

FERC/Federal News



DOE to Support Clean Grid Resilience in Remote Locales

By Cody Brooks

The U.S. Department of Energy announced last week that it will work with 11 remote and island communities to strengthen energy infrastructure, reduce outage risks and “improve their future energy and economic outlook.”

The program, called the Energy Transitions Initiative Partnership Project (ETIPP), will bring together DOE experts and national energy labs “to advance local clean energy solutions and improve resilience” in the communities.

“Residents of remote and island communities face energy disruptions, natural disasters and climate change impacts, and pay some of the nation’s highest energy costs,” Secretary of Energy Jennifer Granholm said in a statement April 20. “These 11 communities – working hand-in-hand with DOE’s network of experts – will implement resilient and secure clean energy solutions.”

The ETIPP is also intended to help the Biden administration reach its goal of 100% carbon-free electricity in the U.S. by 2035, Granholm said.

The program will include projects in Dillingham, Ouzinkie, Sitka and Wainwright in Alaska; Honolulu and Kauai in Hawaii; Eastport and Isleboro in Maine; and Oracoke Island and Nags Head in North Carolina.

“As the threats of climate change grow more severe, it is essential that communities across the country make investments in clean, resilient infrastructure,” Maine Sens. Susan Collins (R) and Angus King (I) said in a statement. “This is especially true for coastal Maine towns,

which have both high risks associated with climate change and an immense amount of untapped natural resources at their disposal.”

ETIPP will provide “resources and technical support” to the communities, helping them identify the best course of action and creating concrete infrastructure plans. DOE says the program “empowers remote, island and island-ed communities to proactively identify and implement strategic, holistic solutions tailored to their needs.”

To aid in the effort, ETIPP will partner with Lawrence Berkeley National Laboratory, National Renewable Energy Laboratory (NREL), Pacific Northwest National Laboratory and Sandia National Laboratories. The program is supported by the DOE’s offices of Solar Energy Technologies, Water Power Technologies and Electricity.

In Hawaii, ETIPP will cooperate with the state and the Hawaii Natural Energy Institute to bolster infrastructure and implement renewable energy to both reduce greenhouse gas emissions and make the energy grid more resilient against climate change. It will work with Honolulu and Kauai to create projects spanning 12 to 18 months.

For Honolulu, the goal is to “harden their electrical infrastructure from the threat of severe weather [by looking] to develop a hybrid microgrid opportunity map that identifies the best opportunities for this technology to support resilience.” The Kauai effort will “explore alternative and autonomous mobility options for its residents and tourists to move away from fossil-fuel powered single occupancy vehicles and toward a modern, clean transpor-



DOE’s ETIPP will seek to harden Honolulu’s grid by helping the city develop a microgrid opportunity map. | ErgoSum88, Public Domain, via Wikimedia Commons

tation system.”

The program drew praise from both of Hawaii’s senators.

“These projects address two of the most important steps in achieving our goal to become carbon negative by 2045: clean transportation and grid improvements,” Sen. Brian Schatz (D) said.

“The Energy Transitions Initiative is focused on embracing local knowledge and helping community organizations use federal expertise and assistance to find solutions to the unique energy needs of each island community,” Sen. Mazie Hirono (D) said.

This is not the first time Hawaii has received federal help for improving its energy infrastructure. Last July, NREL trained Hawaii’s Public Utilities Commission in ways to deal with the aggressive advancement of renewable integration because of the state’s goal of achieving 100% renewable energy by 2045, which is now being pressured even further by the Biden administration’s push to reach that level nationwide by 2035. ■

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FERC/Federal News



US Lagging Small Countries on Climate Innovation

Climate Summit Closes with Calls for Action, not Rhetoric

By K Kaufmann

Danish shipping company Maersk will launch its first carbon-neutral container ship in 2023, and starting in 2030, shipping companies in Norway will only order zero-emission vessels. Denmark is also working on an “energy island,” where power from the country’s offshore wind projects can be tapped to produce green hydrogen, and Sweden will soon be launching a “fossil-free” steel plant, also run on green hydrogen.

The message from the second day of President Biden’s virtual Leaders Summit on Climate last week was that meeting ambitious climate goals is possible, even when tackling hard-to-decarbonize sectors, like international shipping, or weaning countries and communities off their reliance on cheap but dirty coal-fired generation.

And, Special Presidential Envoy on Climate John Kerry said, smaller countries have become key innovators in developing new technologies and opening new markets. The leaders speaking on the summit’s second day — from Denmark, Israel, Kenya, Norway, Singapore and the United Arab Emirates — represent countries that “are smaller than the 20 that are providing 81% of all emissions. There are exciting things happening, unbelievable things happening,” Kerry said.



John Kerry, special presidential envoy for climate | Leaders Summit on Climate

Energy Secretary Jennifer Granholm promised “bold, achievable leaps” in the U.S. as well, as part of Biden’s pledge on the first day of the summit to cut U.S. carbon emissions 50% by 2030. (See related story, [Biden Commits US to Cutting GHG Emissions 50% by 2030](#).) Granholm’s to-do list includes lowering the cost of clean, renewable hydrogen 80% before 2030, while also slashing battery prices in half and reducing the industry’s reliance on rare earth minerals.

“We’re going to dramatically reduce the cost of industrial, atmospheric carbon capture, while we’re ramping up incentives for large-scale efforts across the world,” she said. “This is our generation’s moonshot.”

At the same time, the can-do enthusiasm of speakers like Granholm was tempered by calls for concrete action — and significant investment — over rhetoric as countries prepare for the [U.N. Climate Change Conference \(COP26\)](#) in Glasgow in November.



IEA Director Fatih Birol | Leaders Summit on Climate

Emissions in 2021 this year are a warning for humanity. Emissions are on track for the second largest increase in history. We are not recovering from COVID in a sustainable way.”

Further, getting to net zero by 2050 will depend on technologies that are not yet ready for market, Birol said.

The innovation needed to fill that gap “will require doing three things at once,” Microsoft founder and clean tech investor Bill Gates said. “First, we need to develop and deploy breakthrough technologies that allow us to eliminate emissions, throughout the physical economy. Second, we need to tap the power markets to fund and deploy these innovations. ... Third, governments and corporations need to adopt policies that will make it faster and cheaper to make the transition, and leaders will need to reward those who take difficult steps.”

Winners and Losers

The phaseout of coal is still another critical area where the U.S. is lagging behind other, smaller countries. Israel will cut all coal-fired generation by 2024 — down from a 30% share of the nation’s power in 2019 and 60% in 2015, according to figures from the U.S. International Trade Administration.

Spanish Prime Minister Pedro Sánchez reported his country has closed its mines and most of its coal-fired generation. “By 2022, we will have phased out 85% of the standard coal power generation capacity that existed in 2018,” he said.

But, Sánchez said, “the process of decarbonization will produce winners and losers.” Spain’s

dramatic reductions in coal-fired generation have been achieved by working with unions, businesses and communities “to channel direct investments, restore declining areas, support innovative industrial projects, retrain workers, and protect small and medium enterprises,” he said.

In the U.S., Biden has made a “just transition” a central tenet of his emissions-reduction plan and used the second day of the summit to announce [new initiatives and funding](#) for drawing new jobs and industries to fossil-fuel communities. The Department of Energy announced \$109.5 million in funding for projects advancing carbon-capture technologies, the extraction of critical minerals from mining waste streams and the development of geothermal energy.

Another \$38 billion in federal funds could be available for “infrastructure, environmental remediation, union job creation, and community revitalization efforts,” according to a new report from the Interagency Working Group on Coal and Power Plant Communities and Economic Revitalization.

A Circular Carbon Economy

Still more announcements underlined the critical role of international collaboration and U.S. participation in a growing number of global initiatives.

The U.S. will partner with the UAE on the Agricultural Mission Innovation on Climate, which will focus on “agricultural innovation and R&D for climate-smart food systems by its participants over the next five years,” according to a [fact sheet](#) from the State Department.

The Net-Zero Producers Forum will bring together the U.S., Canada, Norway, Qatar and Saudi Arabia — which together represent 40% of global oil and gas production — to “develop pragmatic net-zero emission strategies,” according to the [announcement](#) from DOE. Technologies and policies to be explored range from methane abatement to carbon capture and storage to advancing a “circular carbon economy approach.”

The U.S. is also joining the [Global Power System Transformation Consortium](#), an international group of grid operators formed last year to accelerate and scale the clean energy transition. The National Renewable Energy Laboratory, the Electric Power Research Institute and CAISO are already partners in the coalition. ■

CAISO/West News

CAISO Approves Controversial Wheeling Limits

Summer Readiness Provision Contested by Southwest, Northwest Utilities

By Hudson Sangree

CAISO's Board of Governors on Thursday approved limits on wheel-throughs during strained system conditions, despite opposition from utilities in the Desert Southwest and Pacific Northwest and a lack of support from the Governing Body of the ISO's Western Energy Imbalance Market.

The measure would prioritize serving CAISO native load over some wheel-throughs when the ISO's transmission system is congested during times of peak summer demand. It is one of a series of *summer readiness* actions CAISO pushed through this year to avoid the rolling blackouts and energy emergencies of August and September. (See [EIM Governing Body OKs Summer Readiness Measures](#).)

The ISO identified transmission constraints as a factor in the Aug. 14-15 blackouts. (See [CAISO Says Constrained Tx Contributed to Blackouts](#).)

CAISO management said the plan is a temporary fix to the problem of self-scheduled wheel-throughs receiving higher priority than imports or internal generation needed to serve ISO load. It requires entities seeking to serve their own reliability needs to request high-priority wheel-throughs 45 days in advance from CAISO.

The plan is scheduled to sunset in May 2022 and be replaced by the longer-term results of a stakeholder initiative scheduled to start next month, the ISO said.

"Our proposed enhancements are designed to fairly balance the need to reliably serve ISO load and also provide open access to the ISO transmission system with limited changes that we can implement by this summer," said Greg Cook, executive director of market and infrastructure policy.

Those challenging the plan included the Bonneville Power Administration, several smaller Northwest utilities and a coalition of Southwest utilities: Arizona Public Service, Salt River Project, NV Energy and Tucson Electric Power. They said the plan is inequitable and runs counter to FERC's open-access rules.

"We recognize the difficulty of this issue, and we really want to emphasize that it isn't the desire of any of us to have any unserved load this summer across the entire Western Interconnection," Bobby Olsen, director of supply

trading and fuels at Salt River Project, told the board. "Unfortunately, we're just not at a point where we can endorse the final proposal, as it still fails for several reasons."

A major concern, Olsen said, is that the plan fails to "recognize or accommodate priority for transactions within the 45-day window ... [and] so could effectively limit Southwest access to reliable energy necessary to overcome generation outages and other unforeseen contingent events on our system that have historically been accommodated by market purchases."

In addition, he said, "this proposal really disregards foundational open-access principles by failing to respect the priority of transmission offered by neighboring" balancing authorities. Instead, CAISO is attempting "to supersede that prioritization and substantially restrict access to its own transmission system when it deems conditions warrant" it.

Mark Holman, managing director of power for Powerex, said the proposal differentiates between imports meant to serve CAISO load and wheel-throughs to serve the Desert Southwest, which also experienced strained system conditions during last summer's extreme heat waves.

John Prescott, chair of the Western EIM Governing Body, told the board that the body had voted 4-1 on Monday not "to opine" in its advisory role on the plan but believed CAISO should quickly seek FERC input and work to develop a more durable long-term solution.

Body members also heard from the Southwest and Northwest opponents. (See related story, [EIM Governing Body Rejects CAISO Summer Plan](#).)

"The concerns expressed to us about this proposal are valid," Prescott said. "The core issue is a collision of two very different paradigms for transmission allocation" serving native load in an ISO and wheel-throughs to other parts of the West. "We don't believe this issue has appeared in any other parts of the country."

The Governing Body found the matter "particularly complex and vexing especially in a compressed time," as CAISO fast-tracked it to adoption in about four months.

Governors Vote

CAISO Board Chair Angelina Galiteva thanked Prescott for the EIM's work on the issue but ultimately voted for the plan.

"We do acknowledge that stakeholders across the spectrum remain concerned about the interim proposal," Galiteva said. "Some people [think it] goes too far in addressing the needs for native load customers in California, [while others in California feel] it does not go far enough."

Southern California Edison was among several entities that said the proposal had been revised to the point where it would not ensure a reliable supply of imports during system constraints. A prior version of the plan did not include the 45-day notice provision, which could continue to give wheel-throughs equal priority to CAISO load-serving capacity, SCE said.

Others said the proposal struck a difficult balance. The ISO's Department of Market Monitoring (DMM) and Market Surveillance Committee (MSC) each endorsed the provision as a carefully crafted measure meant to prevent shortfalls this summer.

DMM Executive Director Eric Hildebrandt said the department believed the measure adheres to FERC's open-access rules. "FERC seems to have made it clear that open access really applies to transmission that is not needed to serve native load," he said.

James Bushnell, professor of economic at the University of California Davis and a member of the MSC, said CAISO was designed with an open transmission system in which rising prices were meant to limit wheel-throughs. That didn't happen last summer, he said, requiring the new limits.

CAISO Governor Jan Schori said she had found the DMM and MSC endorsements helpful and decided that preventing further outages this summer was the top priority.

"I think that across all load-serving entities in the West, the first obligation is to keep the lights on, and that didn't happen last summer," Schori said. "So we know we have to address the issues that we can address and get it done by this summer while working towards a better overall long-term solution."

The board also voted to approve other, less controversial summer readiness measures dealing with exports and load priorities. The provisions will be submitted to FERC, which CAISO hopes will approve the measures for implementation by this summer. ■

CAISO/West News

Wheeling Debate Tests West, CAISO CEO Says

Cooperation, Compromise Needed for Western Regionalization to Succeed

Continued from page 1

energy emergencies in August and September that highlighted the challenges of that transition, including limited resources and strained transmission in the West.



CAISO CEO Elliot Mainzer | CAISO

"The region has not had to cope with scarcity like this for a long time," Mainzer said. "When you're suddenly recognizing that there's a scarce resource, whether it's scarce power or scarce transmission, and you suddenly have to allocate it ... [and] you have to come up with a short-term compromise on it, it's difficult."

The compromise was the ISO's wheeling plan, hotly contested and now headed to FERC for consideration. It would re-prioritize wheel-throughs so that transfers between the Northwest and Southwest would no longer take precedence over capacity needed to serve CAISO native load. Non-CAISO entities would have to apply at least 45 days in advance to designate high-priority wheel-throughs needed for reliability, giving the wheels equal standing with native CAISO load. (See [CAISO Approves Controversial Wheeling Limits](#).)

During meetings of the Western Energy Imbalance Market Governing Body and the CAISO Board of Governors last week, a coalition of large Southwest utilities, the Bonneville Power Administration (BPA) and smaller Pacific Northwest generators voiced their displeasure with the plan.

Even those who opposed the wheeling provision, however, began their remarks by thanking CAISO staff and management for their hard work on a difficult matter, Mainzer noted.

"Everyone acknowledged how hard the ISO had worked to try to find compromise," he said. "I think they really honored the work of our team to listen and adjust and [saw] that it was a very, very tough issue."

The EIM Governing Body declined to "opine" on the measure, but members expressed concern that EIM entities outside of California would be treated differently from in-state EIM members, undermining FERC open-access principles. (See [EIM Governing Body Rejects Part of CAISO Summer Plan](#).)

Vice Chair Anita Decker, for instance, said she was worried about the effect the plan could have on the expanding EIM and regional collaboration.

"It feels like a little bit of a failure that as a Western region we couldn't get closer together on this issue," said Decker, formerly executive director of the Northwest Public Power Association and COO at BPA.

Greater regionalization, whether a "souped-up" version of the EIM or an RTO — or multiple RTOs — is key to sharing renewable resources and building transmission, FERC Chair Richard Glick said in a recent webinar. (See [Glick, Robb Call for Tx Build in West](#).)

Mainzer, former head of BPA, said the wheeling provision was one of the most complicated and controversial issues in the West in recent years, but he played down the controversy and stressed the collaborative aspects of the process.

"I think the prevailing sentiment on that call, particularly amongst our EIM Governing Body and others, was a recognition that we really need to work on this together, and we need to find a solution," Mainzer said.

The wheeling limits adopted by the CAISO Board of Governors are scheduled to sunset in May 2022 and be replaced by the product of a new CAISO stakeholder initiative.

CAISO load-serving entities were also critical of the temporary provision, saying it does not go far enough to ensure the state has sufficient capacity this summer.

The general displeasure was a sign that neither side had gotten all it wanted, Mainzer said.

"That was by design," he said. "We certainly were trying to find a balanced solution."

"If we had walked away with one constituency saying, 'Hey, this is wonderful.... Thank you so much; [it would have meant we hadn't] done a lot of work to compromise for the others,' he said.

Wheeling Not a Root Cause

Transmission constraints were a key factor in the Aug. 14-15 blackouts, but wheel-throughs did not play a significant role, according to a root-cause analysis prepared by CAISO, the California Public Utilities Commission and the state Energy Commission. (See [CAISO Issues Final Report on August Blackouts](#).)

CAISO spokesperson Anne Gonzales said there were "no wheel-throughs of consequence" on Aug. 14 or 15.

The situation caused some critics to question why CAISO had prioritized wheeling restrictions in its package of *summer readiness* proposals. The measures were fast-tracked and approved this spring after only a few months of consideration. (See [CAISO Speeds Rule Changes to Avoid Shortfalls](#).)

Mainzer said CAISO is concerned about transmission congestion this summer. Because of resource scarcity in the West, entities in the Southwest are contracting for larger amounts of energy from the Northwest, much of which travels on transmission paths through California, he said.

"A lot of entities looked at what happened last summer and said, 'the West is short,' and they started going out and they started buying more on a forward basis from the Northwest and wanting to wheel more power through this summer," Mainzer said.

While Mainzer acknowledged that wheel-throughs were "a relatively modest issue, if maybe almost a non-issue, last summer," they had a "super-priority above California load service" and are likely to increase this summer.

Gonzales said CAISO does not know for sure that wheel-throughs will be a problem this summer; the ISO cannot predict with certainty how much to expect, she said.

"We don't have visibility into the actual megawatts, but we have been informed that buyers are planning to contract for them this summer," she said in an email. "If the summer heat doesn't reach the level of last August, this won't be a problem, but if we get into tight conditions, even a few hundred megawatts could be critical."

The proposal will likely be challenged at FERC. CAISO and the EIM are both hoping for guidance from the commission. Mainzer noted that FERC Order 888, which requires public utilities to provide open access transmission service, also lets utilities reserve transmission capacity for native load. FERC needs at least 60 days to issue an opinion.

"My gut feeling is we got what we needed [last] week, which was to get it filed and to try to get some clarity for this summer," he said. "We're already huddling up to figure out how to design a long-term solution." ■

CAISO/West News

EIM Governing Body Rejects CAISO Summer Plan

Wheel-through Provisions Challenge Open Access to Transmission

By Hudson Sangree

The Western Energy Imbalance Market Governing Body on April 19 issued an advisory opinion that essentially rejected CAISO’s proposal to head off summer capacity shortfalls by limiting wheel-throughs during times of scarce supply and strained transmission.

The plan favors the interests of CAISO and California EIM entities, leaving out-of-state EIM members feeling disenfranchised, Governing Body members said.

“It’s not ready for approval,” Governing Body Vice Chair Anita Decker said.

Despite the opposition, the CAISO Board of Governors approved the proposal later on Wednesday. (See related story, [CAISO Approves Controversial Wheeling Limits.](#))

The proposal was part of the ISO’s second phase of *summer readiness* initiatives that it fast-tracked this year to deal with issues identified in a root-cause analysis of last summer’s rolling blackouts. The EIM body last month endorsed Phase One measures without controversy.

(See *EIM Governing Body OKs Summer Readiness Measures.*)

Other provisions of Phase Two dealing with export priorities and resource adequacy were less divisive, but the wheel-through provisions prompted strong protests from EIM entities.

“Numerous aspects of the final proposal provide disparate treatment between uses of CAISO [balancing area authority] versus uses to serve load in an external BAA,” Powerex wrote to the Governing Body. “The final proposal stands in clear contrast to the non-discriminatory open-access transmission service provided by other transmission service providers throughout the Western region.”

Four Southwest load-serving entities that participate or plan to participate in the EIM — Salt River Project, Arizona Public Service, Tucson Electric Power and NV Energy — said they “appreciate CAISO’s efforts to find short-term solutions while developing long-term policy proposals to address the wheeling concerns; however, the CAISO proposal is not fair, equitable or aligned with the intent of FERC’s

open-access requirement and non-discriminatory service.”

CAISO has said the wheel-through provisions are temporary and that it plans to start a stakeholder initiative soon to tackle the transmission constraints that contributed to the Aug. 14-15 blackouts. (See *CAISO Says Constrained Tx Contributed to Blackouts.*)

The Bonneville Power Administration, which is scheduled to go live in the EIM next year, also opposed the wheel-through provisions as unfair and inequitable.

EIM GB Comments

After a series of remarks in which they criticized the CAISO plan, the EIM governors passed a hastily crafted motion by a vote of 4-1, saying they would “not opine” on the wheel-through provisions but instead urge CAISO to seek a long-term solution to the issue and to quickly seek FERC advice.

Governing Body Member Valerie Fong noted none of the 14 participating EIM entities were “particularly thrilled” with the plan and that “the impacts of the proposed changes are reverberating throughout the EIM footprint.”

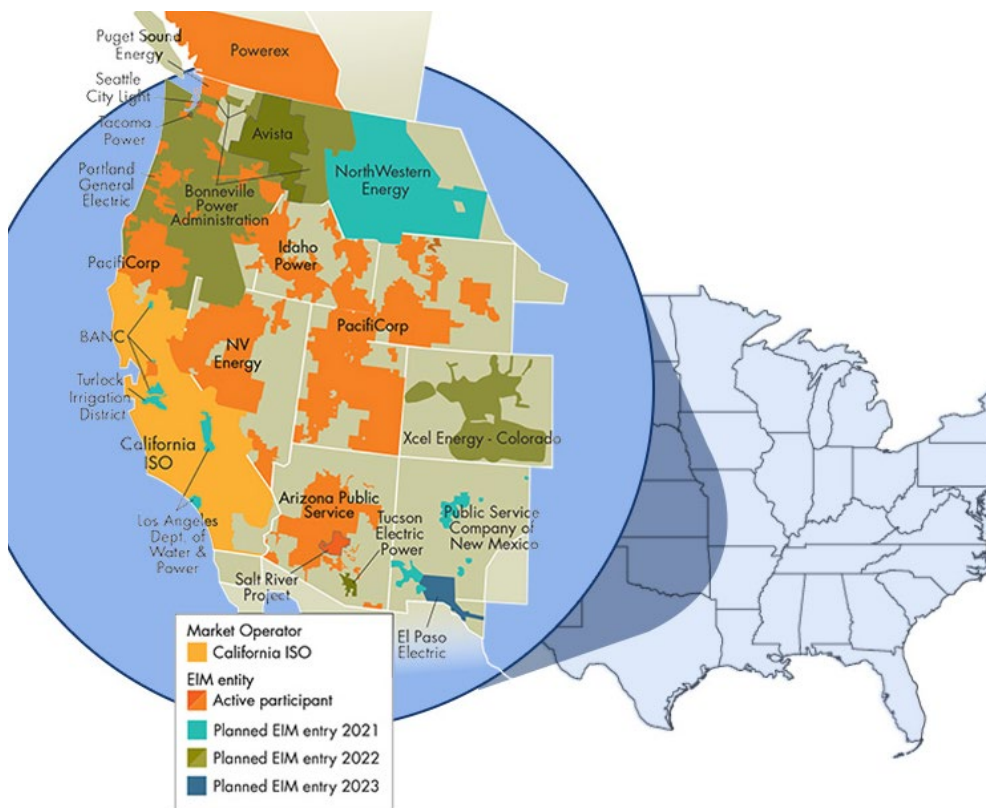
Decker, who cast the lone “no” vote on the motion because it did not go far enough, said limiting open transmission access through CAISO could jeopardize the EIM, a voluntary interstate trading market with participants throughout the West.

“There is an interest in a Western market, and if we can’t solve these kinds of things, [the hope for] a Western market becomes a dim light,” Decker said. She asked all the participants to “stay at the table ... and try to hold the Western market together.”

At the beginning of the session, CAISO COO Mark Rothleder acknowledged the divisions but said the second phase of summer readiness initiatives are urgently needed.

“The wheel-through provisions of this proposal are more challenging and remain contentious, as it opens up foundational concepts of open access, native load protection and resource adequacy that are most relevant during times of scarce supply and transmission,” he said.

Nevertheless, he said, “it is essential to get this proposal in front of FERC to get guidance for this summer.” ■



As of spring 2021, 14 participants are active in the Western EIM. | CAISO

CAISO/West News

FERC OKs Avangrid Purchase of PNM

NRC, New Mexico Approvals Awaited

By Rich Heidorn Jr.

Avangrid moved one step closer to completing its acquisition of PNM Resources on April 20 as FERC approved the deal, turning aside protests by the city of Farmington, N.M. (EC21-25).

The Connecticut-based Iberdrola subsidiary will pay \$8.3 billion (\$50.30/share) in the all-cash purchase, which still needs approval from the Nuclear Regulatory Commission and New Mexico regulators. (See *Avangrid to Acquire PNM Resources for \$4.3B.*)

It has been approved by the Federal Communications Commission, and the waiting period under the Hart-Scott-Rodino Antitrust Improvements Act also has expired. In March, Avangrid reached a settlement with the Public Utility Commission of Texas over the deal. (See *Avangrid, Texas PUC Agree to TNMP Purchase.*)

PNM's utilities provide electricity to nearly 800,000 homes and businesses in New Mexico and Texas. With the acquisition, Avangrid will have 10 regulated utilities in six states and the

nation's third largest renewables company, operating in 24 states.

FERC said it agreed with Avangrid and PNM, which said the transaction would not harm competition because none of the generation owned or purchased by the companies and their affiliates overlap in any markets where Avangrid has uncommitted capacity. FERC said Avangrid "is affiliated" with 604 MW of existing and planned generation capacity in the PNM market that is all committed under long-term contracts.

Farmington and Enchant Energy protested the deal, telling FERC that it would diminish competition and interfere with their bid to acquire the San Juan Generating Station, an 847-MW coal-fired plant that previously announced it would retire in 2022. PNM, which operates San Juan, owns 66% of the plant, and Farmington owns 5%.

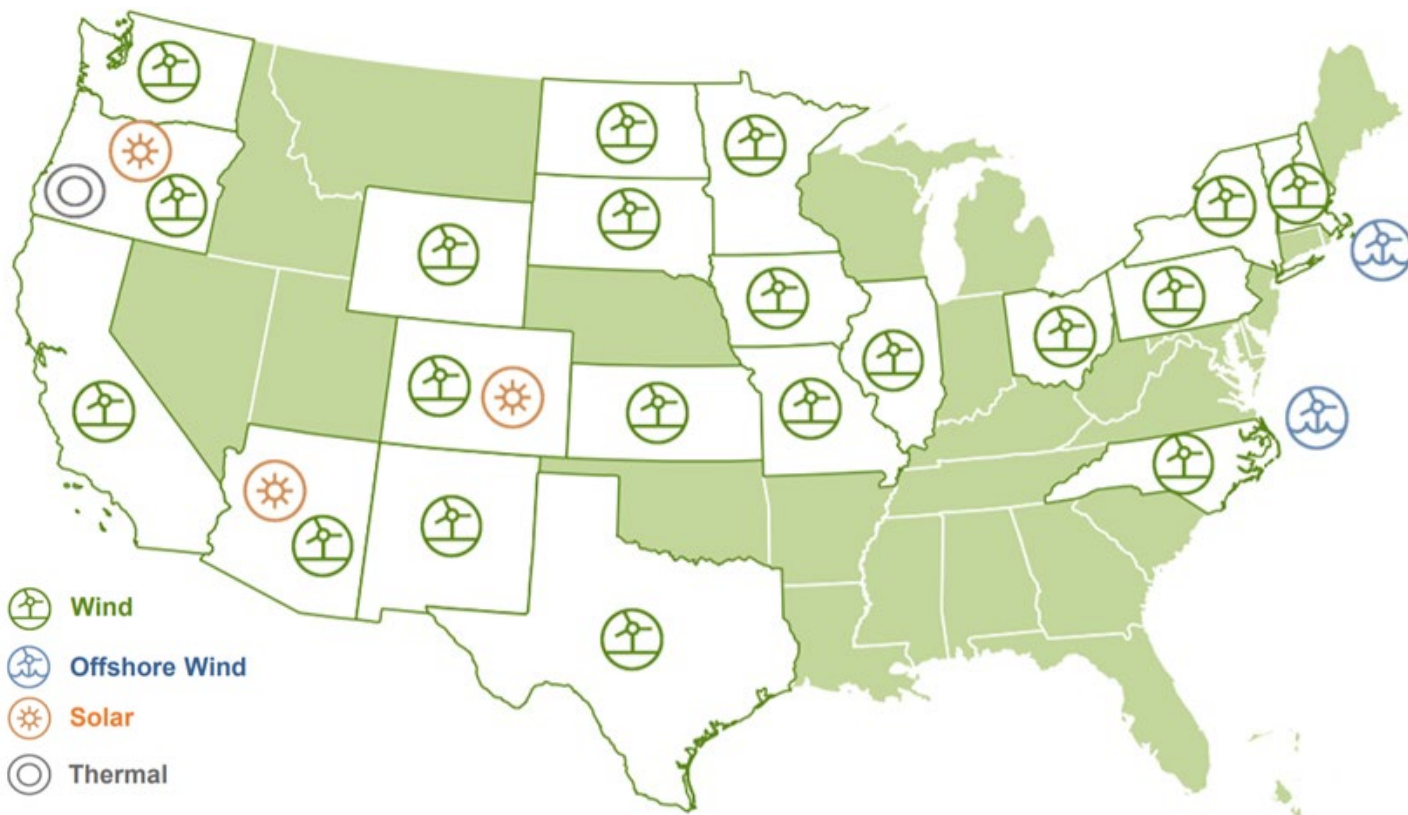
The city wants to acquire the power plant and transfer a portion of the asset to Enchant, retrofitting the existing coal-fired units with carbon capture and sequestration technology.

Farmington and Enchant asked FERC to convene a hearing to determine whether the merger applicants "intend to cause PNM, despite its legal obligation to negotiate in good faith, to fail to reach agreement with Farmington and force the San Juan Generating Station to retire."

FERC said the dispute over San Juan is outside the scope of its merger review under Federal Power Act Section 203 and that Farmington and Enchant have "not demonstrated that the proposed transaction creates the incentive or ability to engage in behavior harmful to competition."

"The 2022 scheduled retirement of the San Juan Generating Station predates the announcement of the proposed transaction, and Farmington-Enchant has not shown that the proposed transaction provided any incentive for retirement plans that did not exist prior to the merger agreement," the commission added.

Avangrid committed to hold customers harmless from costs related to the merger, which it hopes to close in the second half of 2021. ■



Avangrid is the third largest wind and solar operator in the U.S. | Avangrid

ERCOT News



Vistra's Winter Storm Loss Deepens to \$1.6B

CEO Morgan Blames Gas Industry for Making Storm's Effects Worse

By Tom Kleckner

Vistra on Monday boosted its loss from February's winter storm to \$1.6 billion, an increase from its previous estimate of as much as \$1.3 billion.

The company's financial hole deepened after receiving 55-day resettlement statements from ERCOT, resulting in a more than \$200 million increase in its short position during the storm's weeklong devastation. Vistra said firm gas contracts were not honored as the storm hit, forcing it to buy gas at prices as high as \$700/MMBtu and power at or near the system's \$9,000/MWh price cap.



Vistra expects to lose as much as \$1.6 billion this year over high natural gas costs during the February winter storm. | *Luminant*



Vistra CEO Curt Morgan
| © RTO Insider LLC

"We are very disappointed in the financial losses," Vistra CEO Curt Morgan told financial analysts during a conference call only scheduled late last week. "We believe we were as well positioned as anyone heading into the storm. We consistently generated more megawatts than our market share of total generation [during the event]. You would think this would translate into positive financial results, but what we didn't expect was a gas system that didn't function properly."

Morgan pointed his finger at the state's oil and gas industry, contradicting a *recent industry report* that found power outages were to blame for the failures in gas supplies. He said Vistra

received force majeure claims with start dates as early as Feb. 12 — two days before the storm hit — and 70% had a start date earlier than Feb. 15. Poor deliverability of gas supplies resulted in more than 2 GW of dual derates.

During that week, Morgan said, Vistra spent more than twice on natural gas than what it spends during a year to fuel its gas generators. He said the company is evaluating legal claims against entities that claimed force majeure for "alleged inability to deliver contracted gas."

"We simply cannot expect to run a grid where nearly 50% of the supply stock is composed of gas assets without confidence that the gas fuel supply will be available," Morgan said.

The Irving, Texas-based company *reissued* its 2021 ongoing operations adjusted EBITDA guidance range of \$1.48 billion to \$1.88 billion.

That essentially halved 2020 expectations of \$3.08 billion to \$3.48 billion.

Vistra said that absent the gas deliverability and increased gas costs, it believed the adjusted EBITDA impact of the storm would have been a slight positive.

The company uses adjusted EBITDA as a measure of performance because it says that analysis of its business is improved by visibility to both that metric and net income prepared in accordance with generally accepted accounting principles.

Vistra's stock price opened at \$16.83 and jumped to \$17.42 before closing at \$17.05. The company's shares have lost more than a quarter of their value (25.1%) before alerting the market Feb. 26 of its pending losses. (See *Vistra Stock Plunges After Market Losses.*) ■

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ISO-NE News

Vt. Regulators Revisit Net-metering, Interconnection Rules

By Jennifer Delony

Vermont regulators are taking another look at draft rules they issued in 2019 to overhaul the state's net-metering and interconnection application processes.

The Vermont Public Utility Commission had released the draft rules with a request for input in two separate proceedings ([19-0855-RULE](#), [19-0856-RULE](#)). After comments were filed in each case, however, little happened until Green Mountain Power (GMP) asked the commission in January to restart the proceedings.

In a [letter](#) to the PUC, the utility said that the lack of clear net-metering and interconnection application processes "has created unnecessary friction between customers hoping to have solar installed without delay, their developers, and GMP."

GMP cited concerns about the overlap between the state's interconnection rule (5.500) and net-metering rule (5.100). It pointed to a recent case [decision](#) in which a hearing officer acknowledged that "the interplay between [the rules] is complex and has led to confusion on some cases."

Siloing the two rules could simplify the application processes, Bill Jordan, director of engi-



Ambiguous interconnection and net-metering rules for projects up to 500 kW, like this solar carport, pushed Green Mountain Power to ask Vermont regulators to revisit draft rules they issued in 2019. | SunCommon

neering at the Vermont Department of Public Service, said April 19 during a PUC [workshop](#) for the draft rules.

That "decoupling" would mean that the net-metering rule would point to the other rule for all the interconnection processes, he said.

GMP said that it had to seek resolution for a dispute with a developer because project review timelines are not clear. The developer expected a fast-tracked approval process, but GMP did not agree. The project was delayed, as the parties sought a decision on their dispute.

There is currently a "disconnect" between the rules governing project review times, according to Jordan.

Rooftop solar systems up to 500 kW have a 30-day review time, but if the project's interconnection information is not filed, then the interconnection process will usually take more than 30 days from the time of filing.

The PUC's draft net-metering rule would strip out ambiguous language and simply direct all net-metering applicants to demonstrate that they have completed an interconnection application and related reliability studies.

Flexible Structure

Updating the regulatory structure governing interconnection would allow regulators to keep up with market changes in the future, DPS Regulated Utility Planning Director Ed McNamara said.

One of the department's concerns, he said, is that "things are evolving very quickly on the distribution level, especially with [distributed energy resources], and we're looking at creating a structure that allows for flexibility going forward so we don't have to come back to revisit the rule every six months or every year."

The department has suggested that the interconnection rule be amended so that it only addresses minimum process requirements, while all technical requirements would be moved to a tariff filed by the state's utilities.

A tariff approach would allow regulators to quickly update tariffs to address technical changes, such as NERC requirements or cybersecurity issues, McNamara said.

"The department's main concern is that a rulemaking is a significant amount of work and time, and a tariff provides a lot of the same protections for all of the stakeholders, with the

same review, and allows a lot more flexibility," he said.

Considering Storage

DPS staff said that while the draft interconnection rule adds energy storage as a generation resource to its definitions, there are many other storage issues to address in the proceeding.

"The interconnection of storage resources is becoming more of a consideration as we see more storage resources seeking to either couple with PV or other distributed generation resources or site in a stand-alone fashion," Anne Margolis, deputy director of the DPS Planning Division, said.

Unlike solar, storage has a range of use cases, and it can toggle between use cases quickly, she said. How storage is used also can evolve based on emerging market opportunities. DPS is recommending that the commission seek input on how those cases are viewed for interconnection and whether the interconnection process ever needs to be revisited when the use cases change, Margolis said.

Storage is one of the most important interconnection issues that utility regulators around the country need to be focusing on, Sky Stanfield, a partner with Shute, Mihaly & Weinberger, said during the workshop on behalf of the Interstate Renewable Energy Council.

"It's not that energy storage is that different from the basic technical review for solar, for example, but it is controllable in a way that solar and traditional generating resources historically were not," she said.

The interconnection process needs to capture that control ability. Doing so encourages "the exact behavior that we want storage to perform on our systems," such as discharging during peak hours, Stanfield said.

Up Next

Based on the input provided by participants in the workshop, the PUC plans to issue another request for comments and determine next steps once comments are submitted. Staff said it sees a need to set a phased rulemaking timeline.

A phased approach will allow the commission to lock in reforms already identified in the draft rule, such as project review timelines, and then move to new issues, such as energy storage and building a utility tariff for interconnections. ■

ISO-NE News

US Offshore Wind Critical to New England's Decarbonized Future Grid Resources may also be Important to Decarbonizing Global Shipping

By John Funk

The success of the drive by five New England states to decarbonize their economies may ultimately depend on the development of massive offshore wind farms only now being developed, says a nationally recognized Maine-based renewable energy expert.

"New England states are rapidly decarbonizing their electricity grids. Every state in New England, with the exception of New Hampshire, is rapidly trending towards 50% new class one renewables, primarily wind and solar," Andy Price, president of Portland, Maine-based Competitive Energy Services (CES), told participants attending the Business Network for Offshore Wind Virtual International Program, held on Earth Day last week.

In addition, the region has aggressive renewable portfolio standards; and its overall decarbonization strategy is to electrify as many areas as possible, including residential and commercial heating, putting the five states on a trajectory toward 80 to 100% net-zero emissions by 2050, he said.

An in-depth analysis CES did for the state of Maine shows what a zero-carbon economy in 2050 would look like: "The grid needs to be roughly triple in size, where peak demands are increasing by roughly a factor of five," he said.

"This is a very significant transition in the overall size of the electricity market, which raises some pretty interesting challenges," he said, including that the state's grid will see peak demand in the winter because heating will also have been electrified. (See related story, *Weatherization, Backup Heating Called Key to Managing Winter Peaks.*)

erization, Backup Heating Called Key to Managing Winter Peaks.)

Noting that solar output decreases in the winter, Price concluded: "We're going to become very dependent on offshore wind to meet this seasonal challenge. This seasonal challenge is really big. This is something we'll be watching closely and are excited to see how the industry expands in the future and develops."

The challenge facing shipping may be even tougher, said panelist Charles Haskell, program manager of Lloyd's Register Group's Maritime Decarbonization Hub, based in Southampton, England.

Four years ago, Lloyd's looked at the decarbonization of the sector and concluded it would take a new source of energy unlike anything done in previous epochs, when shipping changed from wind to coal and then to oil.

The International Maritime Organization agreed, realizing that as shipping grew and other energy-intensive sectors reduced their carbon output, shipping would account for a larger and larger percentage share of global carbon emissions.

That new source of energy could be electricity, especially to power smaller vessels operating close to power sources and would therefore not need the massive batteries of larger vessels.

For example, battery technology could "very much be part of the solution" to power "crew transfer vessels" moving workers and supplies from the shore to OSW farms, Haskell said.

"Can you plug in at the turbine as well, in order



| Dominion Energy

to charge your vessels? It's quite a unique market, and one of the things we're really looking at in shipping is scalability," Haskell said. "If we're doing one project, how can you take the learnings of that project and take it somewhere else?"

Putting such a supply chain in place now, as East Coast ports are expanding to prepare for OSW projects, could work, he said, particularly if the wind developers were also involved.

One potential new energy source for larger electrified vessels, said Haskell, is hydrogen, specifically hydrogen produced by the electrolysis of water using power generated by wind. It would then be used by onboard fuel cells, which would electrochemically produce electricity by combining hydrogen and oxygen pulled from ambient air.

Again, the challenge is to put the supply chain for hydrogen production in place. And the development of OSW is the right time to do that, he said, "particularly if you're in an early development stage, working together between the ship operators and the port and even the wind turbine operators to ensure that that supply chain and the takeoff agreements can be met. ■

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MISO News

MISO Report Focuses on Electrification's Impacts

By Amanda Durish Cook

In less than two decades, increasing electrification could have MISO members building hundreds of gigawatts of new generation and faced with winter systemwide peak demand that eclipses the summer peak.

According to the RTO's [electrification report](#) published earlier this month, by 2040 it could see a more than 200 GW peak during a January day. The report expects July afternoon peaks of 193 GW.

MISO said electrification load growth, paired

with the region's decarbonization goals, will require substantial investments in generation and transmission. It said electrification is set to escalate demand and revolutionize the grid "after many years of negligible load growth."

The report conservatively projects the need for about 163 GW of new resources, more than double the current fleet. MISO said last year it had 152 GW of available capacity to meet a 125-GW peak. (See [MISO Preps for Balmy Summer with Pandemic Effects.](#))

More aggressive electrification adoption and renewable goals could require anywhere from

200 to 300 GW in new capacity, the report said.

MISO says it needs 200 GW of new capacity to be placed in-service within 20 years to meet the more conservative electrification estimate and a 40% renewable generation fleet. It said it added 10.8 GW in 2019 and 9.9 GW last year, both record years for completing generator interconnection agreements.

MISO said the new peak will likely force a change to its resource adequacy construct, resource accreditation, transmission planning and generation-outage coordination procedures.

"Electrification could have profound impacts on how we prepare for a potential shift in electricity usage across the MISO region and the entire country," Richard Doying, executive vice president of market and grid strategy, said in a press release.

A summer-to-winter peak transformation would be predominantly driven by the electrification of heating loads in commercial and residential buildings, the RTO said. The footprint's northernmost — and coldest — regions have the most electrification potential, it said. Consulting firm Applied Energy Group (AEG), which prepared electrification scenarios for MISO, singled out Michigan as the state with the greatest potential.

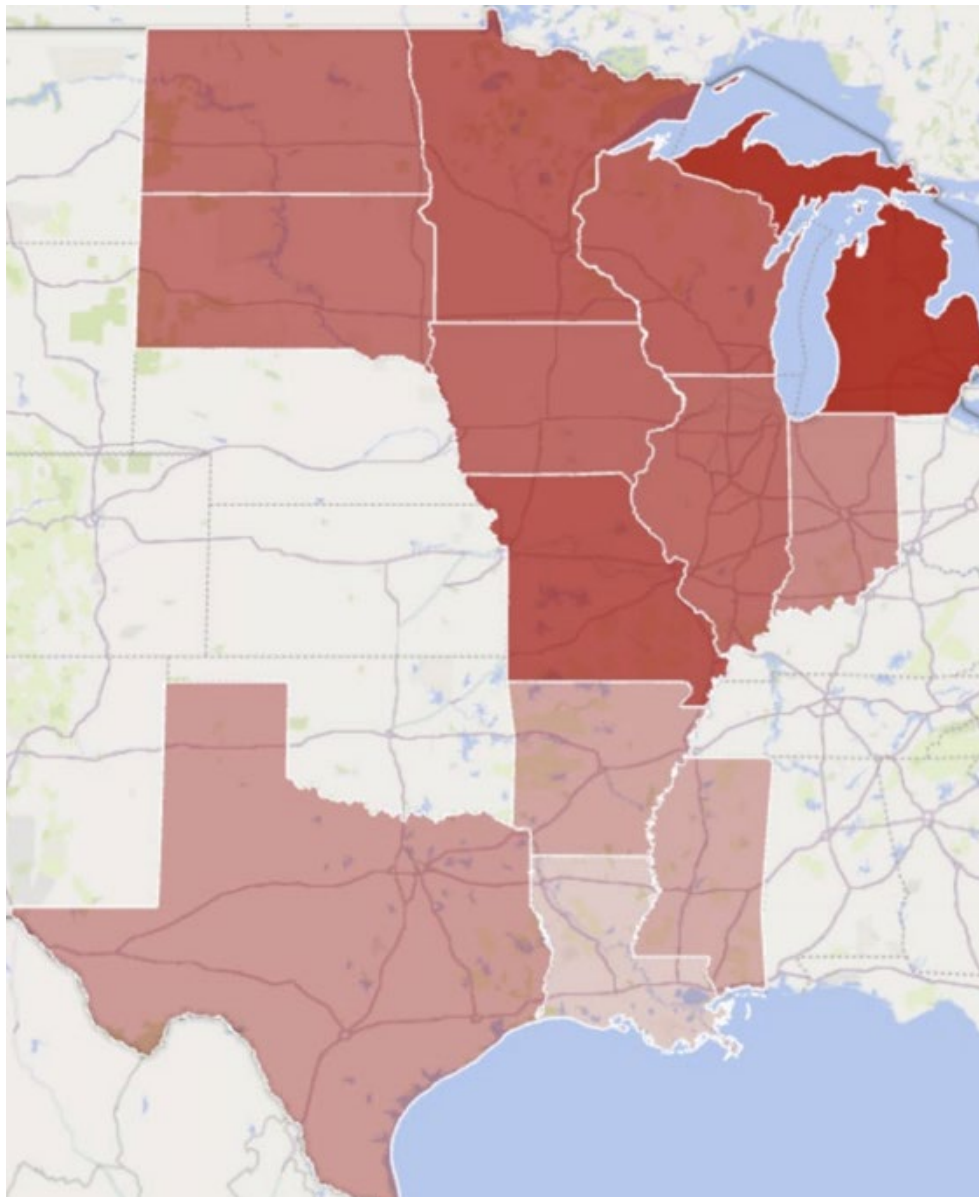
States with more existing natural gas heating infrastructure also have more potential for electrification, AEG said.

MISO also said growing electrification will be manifested in two daily power demand peaks in nearly all months, with a morning peak added to the afternoon peak. The change in load shapes is due to "uncontrolled" electric vehicle charging and heating and cooling loads, the grid operator said.

The daily demand's "camel-hump" peaks will require more ramping services, MISO said, though flexible loads could meet more extreme ramping needs. The grid operator said ramps could vary from 2 GW to 30 GW over a one-hour period.

"While the level and pace of change are outside of MISO's control, it is critical that MISO anticipate the impact of increased electrification in order to maintain reliability at a reasonable cost as the region evolves," staff said in the report.

MISO will host an [electrification workshop](#) May 5 to discuss the report with stakeholders. ■



Darker red indicates greater potential for electrification. | AEG

MISO News

Consumer Groups Question Duke Indiana-Singapore Transaction

By Amanda Durish Cook

Consumer and environmental groups are dismayed over Duke Energy Indiana's plan allowing a Singaporean government-owned investment firm to own a 20% stake in the company.

Duke Indiana in February filed with FERC a new holding company structure of its utility operations for the purpose of selling a 19.9% stake in the company to Singapore-based GIC Private Limited. Duke Indiana plans to retain and control its remaining 80.1% indirect interest ([EC21-56](#)).

Public Citizen, Citizens Action Coalition of Indiana and the Sierra Club say that it's unacceptable for Duke to turn over minority control to a wealth fund controlled by the Government of Singapore. They have complained to FERC that the new ownership plan "would result in a change of control of a state-franchised monopoly utility with more than 850,000 captive customers."

Should FERC approve the transaction, GIC will be able to name two directors to Duke Indiana's 10-member board of directors.

The groups also say Duke is deliberately circumventing Indiana's regulatory approvals, alleging the transaction is intentionally struc-

tured to dodge the Indiana Utility Regulatory Commission (IURC). The new intermediate Duke holding company would own all of the stock in Duke Indiana and distribute the 19.9% interest in two phases. According to Indiana code, the IURC can only oversee "the franchise works or system" of the utility, not in the stock of a holding company that owns the utility.

Public Citizen's Tyson Slocum said the arrangement is exposing the "utility's consumers to significant financial risk."

The consumer groups said Duke has "boasted that Singapore's \$2.05 billion investment is a significant premium to Duke Energy's current public equity valuation."

"The only reason a sophisticated investor like the Government of Singapore would agree to overpay for 19.9% of Duke Indiana's equity is if it was promised lucrative, above-market dividends in return," they wrote. "The government of Singapore's two-stage investment will result in a foreign nation controlling two of the 10 seats on [the holding company's] board of directors, giving the government of Singapore clear control over a franchised utility."

The groups also claim that GIC's 27.6% indirect minority interest in the Genesee and Wyoming Railroad, coupled with Duke's interest, would create an affiliate relationship because

the railroad delivers coal to Duke Indiana's power plants.

"Absent more specificity and affirmations by the IURC, FERC should require full divestment of the Government of Singapore's financial interest in Genesee and Wyoming as a condition of approving the transaction," the advocates said.

Duke Indiana said those concerns don't invalidate the fact that its sales to retail customers are still supervised by IURC and its wholesale power sales are made at market-based rates. It said the consumer advocates "wrongly assert that the transaction may impair effective state regulation of Duke Indiana" by IURC.

Duke also said the groups' criticisms are peppered with "egregious falsehoods." It said the railroad concern was overblown because the IURC itself did not intervene in Duke's FERC filing for the transaction's approval. The utility also said GIC isn't promised any "net income or any specified level of return on investment" and the financial integrity of Duke Indiana remains uncompromised.

GIC also acquired a 19.9% equity interest in ITC Holdings in 2016 through an agreement with Canadian utility Fortis, which bought ITC a couple of months earlier. ■



Gibson coal station | Duke Energy Indiana

MISO News

MISO Manages Typical March

Energy consumption in MISO was nearly normal last month as the pandemic rounded into its second year, an RTO official said last week.

Speaking at an April 20 Informational Forum, Director of Reliability Coordination Jessica Lucas said MISO is experiencing “minimal” COVID-19 impacts on load and that demand is essentially back to normal.

But she said the pandemic has rendered 2020 a poor reference point for load forecasting.

Because load was down a year ago due to multiple public lockdown orders, MISO’s year-over-year comparisons aren’t reliable and resulted in some under-forecasting of day-ahead load in March, she said.

March’s cold start drove an 83.3-GW peak load, though the rest of the month was warmer than normal.

March load peaked at a mere 80 GW last year, but 98 GW in 2019.

Real-time energy prices also *rebounded* to an average of \$24.07/MWh during the month, with day-ahead prices closely tracking at



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\$23.69. Last March, real-time prices dipped to an average of \$18/MWh.

The grid operator also set a new record on March 30 when wind generation served 20.7 GW, or 29%, of total system load.

So far this year, MISO has completed one generator interconnection agreement, while 91 projects have withdrawn from the inter-

connection queue. MISO will open one queue cycle this year; project hopefuls have until July 22 to apply to enter.

MISO’s interconnection queue stands at 557 projects totaling 83.3 GW. Historically, only about 20% of projects that enter the queue ever connect to the system. ■

— Amanda Durish Cook

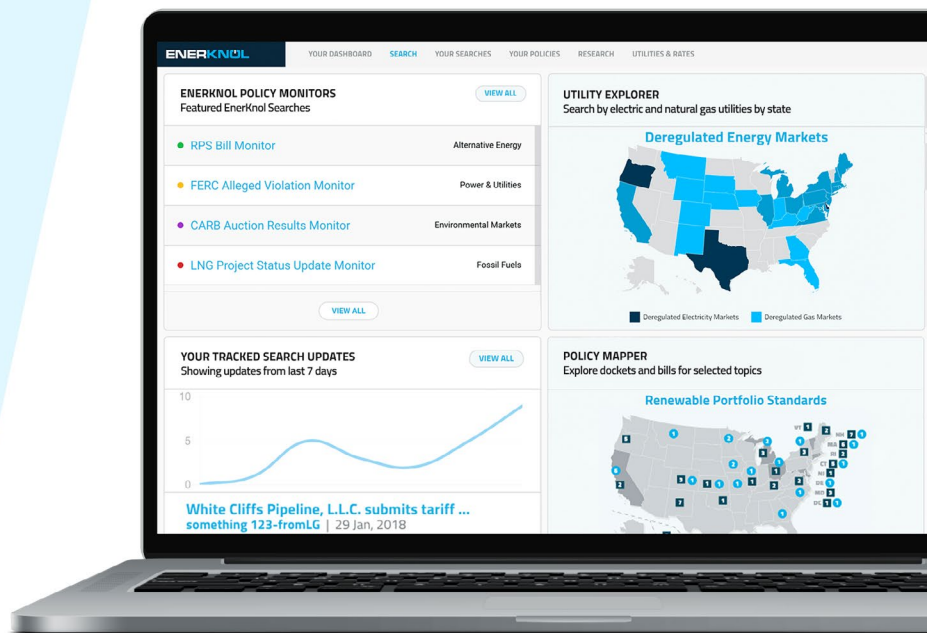
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NYISO News

NYPSC Considers Champlain Hudson Tx Capacity Upgrade

By Michael Kuser

New York officials are considering a plan to increase the capacity of the proposed Champlain Hudson Power Express (CHPE) line by 25%, from 1,000 MW to 1,250 MW.

The state's Public Service Commission on Wednesday held a public hearing on the proposed change to the \$3 billion HVDC line, which would run 330 miles between Quebec and New York (Case No. 10-T-0139).

Environmentalists told the state Public Service Commission that the project would harm rivers in New York and Canada, while a union supported the infrastructure investment and the jobs it creates. A navigation expert expressed interest in participating in technical deliberations on how deep to bury the cable.

The line was first proposed by Blackstone's Transmission Developers Inc. (TDI) in 2010 and has so far united environmentalists and

power producers in opposition to it, according to comments received earlier this year by the PSC. (See *Enviros, Generators Oppose Canadian Hydro Line to NYC.*)

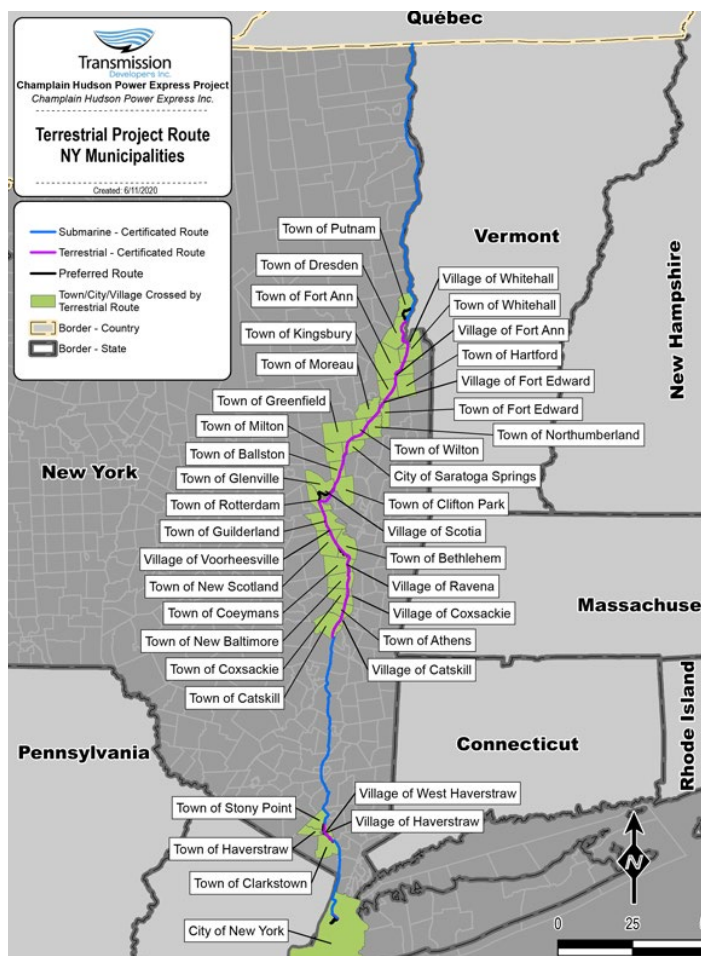
Asked why Hydro-Québec would not be defending itself in the proceeding, company spokesperson Lynn St-Laurent told *RTO Insider* that "HQ has had opportunities to discuss the merits and attributes of our hydropower with a variety of stakeholders. ... In this case however, the PSC will be hearing testimony on an amendment to authorize an increase in the nameplate capacity of the CHPE transmission line project ... [and] therefore such comments about HQ or its energy are not pertinent to the matter at hand."

Speaking at a Columbia University webinar April 19, Hydro-Québec CEO Sophie Brochu did not address CHPE directly but did say that communicating with customers is the No. 1 challenge facing energy companies today.

Hudson River and likely lead to additional river destructions in Quebec and Labrador," Ellis said. "This proposed 25% increase [in capacity], combined with all the route changes approved last year by the PSC, should trigger federal and state orders that the developers prepare a new environmental impact statement."

John Lipscomb, a patrol boat operator and advocate for Hudson *Riverkeeper*, and a voting member of the Hudson River Safety, Navigation and Operations Committee, called for study to determine if the electromagnetic frequencies resulting from the 25% increase have impacts on migrating fish, especially the severely endangered Atlantic sturgeon.

With tankers and barges carrying many different toxic cargoes, from oil to asphalt to ethanol, the safety committee is concerned that the bury depth of the cable has been permitted at six or seven feet instead of the customary 15 feet recommended by the U.S. Coast Guard, Lipscomb said.



Approximately one-third of the proposed CHPE route will be on land. | TDI

"Let's take New York," Brochu said. "We believe at Hydro-Québec that we have a great contribution to make, but we don't view ourselves in competition with the offshore wind into your neck of the woods."

New York City will "need everything," including local offshore wind, onshore wind, solar and storage, "all hands on deck," Brochu said. "Balance it as you wish ... but if it costs a fortune, the people will go bankrupt and the citizens will be angry because the taxes will go through the roof."

Mixed Response

Representing the grassroots Solidarity Committee of the Capital District, Tom Ellis of Albany said the group has opposed the CHPE project since it was first proposed in 2010.

"The CHPE transmission line would damage the

Shipping industry representatives have long been "waving a red flag" that a bury depth of seven feet will not prevent the cables from being snagged by the flukes of their anchors if they are forced to anchor in an emergency, he said.

"The track of the cable is still to be determined, and details like the bury depth are in draft form still to be finalized ... and we'd like to see the commercial operators on the river involved in the final bury depth and routing deliberations," Lipscomb said. "Once an accident happens on the Hudson, cleanup is going to be virtually impossible ... and the best way to save the Hudson is not to have an accident."

Daniel Ortega of the Engineers Labor-Employer Cooperative (*ELEC 825*) said, "We represent over 8,000 union members and over 1,000 signatory contractors in the Hudson Valley and New Jersey ... and we proudly support the CHPE project."

The innovative CHPE project will supply New York City with enough renewable energy to power one million homes and will create 1,000 construction jobs and an additional 1,100 indirect jobs during its nearly four-year construction period, Ortega said.

FERC last May authorized TDI to charge negotiated transmission rates and also granted its request for waiver of certain reporting requirements (ER20-1214). (See *FERC OKs Negotiated Rates for Champlain Hudson Project.*) ■

NYISO News

NYISO Outlines Goals for Capacity Market

By Michael Kuser

NYISO last week laid out a *plan* to revise its capacity market rules, especially those on buyer-side mitigation (BSM), by this fall to address regulators' views that they stymie the cost-effective deployment of state-subsidized resources like solar and wind, which have environmental attributes not normally accounted for in market valuations.

"We are thinking holistically about what we should be doing with buyer-side mitigation. ... It is our No. 1 priority for the capacity market right now, and it is affecting the class year and intermediate class year as we speak, so it's a problem that's here today," Michael DeSocio, NYISO director of market design, said during a meeting of the Installed Capacity Working Group April 20.

Earlier this month, FERC Chairman Richard Glick had urged the ISO to consider "more holistic reforms in light of New York's green-

house gas reduction goals ... [and to] take steps to better align the capacity market's principal parameters with the goals of the state in which it operates." (See *FERC Approves NY Demand Curve Reset, Rejects 17-Year Amortization.*) The state's Climate Leadership and Community Protection Act (CLCPA) mandates the procurement of massive amounts of renewable energy resources to get to 100% zero-emission electricity by 2040.

The ISO wants to eliminate BSM risk for state-subsidized resources and simplify the "unnecessarily complicated" BSM process, DeSocio said.

"This [initiative] is focused on making sure that BSM is not a deterrent to state programs ... but ultimately the idea is to make sure that the capacity market is available for all resources that are trying to compete and help the state achieve its goals," DeSocio said.

One stakeholder asked how carbon pricing fits into the ISO's plans for the capacity market.

"Carbon pricing is still a concept that we believe strongly in at NYISO," DeSocio said. "We see that as a remedy that would help the energy market utilize these new technologies more effectively than not having such a mechanism, but we don't necessarily see carbon pricing as the solution to buyer-side mitigation. We do believe that we need to

address [BSM] with or without carbon pricing.

"Where carbon pricing shines is that it certainly helps make sure the energy prices are more meaningful, which has a lot of pluses regarding incentives for resources to follow dispatch and resources to take outages during the right times of year."

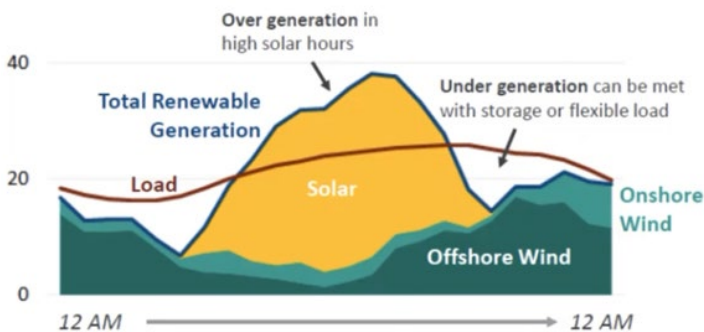
Focus on Reliability

NYISO also wants to better align the assumptions that go into setting different capacity requirements. It also wants to explore creating a new capacity requirement that would reflect the resource mix's impact on transmission. The ISO said it also aims to improve "resource adequacy tools and models to account for the evolving critical reliability time periods, changing load shapes and load variability, new technology operation such as energy storage, and consideration of regional conditions that may inhibit shared assistance."

DeSocio said the ISO believes the new approach — tweaks here and there, not a major revamp — sets up the capacity market to be viable for the foreseeable future.

"We don't want to overstep what the state wants us to do in terms of facilitating entry of renewable resources," he said.

Regarding proposals for multiple value pricing or establishing requirements for procuring a certain amount of capacity from certain technologies, "until we hear that's something the state wants us to think about, we won't spend a lot of time on it," DeSocio said. ■



The National Offshore Wind R&D Consortium in March hosted a webinar on opportunities for OSW grid integration. | EPRI

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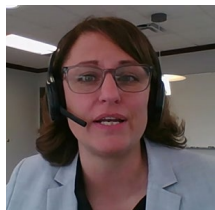
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NYISO News

NY Works to Sustain Community Solar Growth

By Michael Kuser

New York ranks No. 2 in the country in the completion of community distributed generation (CDG) solar projects, which comprise 60% of the statutory goal to deploy 6 GW of solar by mid-decade, state officials said Thursday.



NYISERDA CEO Doreen Harris | DPS

"Today we are at 87% of our [total] 6-GW solar goal ... and have established New York as one of the fastest-growing solar markets in the country," New York State Energy Research and Development Authority (NYISERDA) CEO Doreen Harris

said while co-hosting a technical conference on the value of distributed energy resources (VDER).

The conference, which also addressed potential ways to continue advancing commercial, industrial and community solar development (15-E-0751), was co-hosted by the state's Department of Public Service. It will conclude with a second virtual session on May 7, to look at commercial, industrial and CDG policy options for pricing externalities, i.e., via monetary cost of damages or the marginal abatement cost. Following the second session, DPS staff will issue a white paper that incorporates comments submitted by stakeholders.

A damages-based approach would have the state set an externality value equal to the social cost of carbon (SCC), while the marginal abatement cost represents a price that society would need to pay to achieve a specific distributed solar goal.

New York's Climate Leadership and Community Protection Act requires the state to consume 70% renewable electricity by 2030, switch to 100% zero-emission power by 2040 and reduce greenhouse gas emissions to 85% below 1990 levels by midcentury. The act also calls for the procurement of 6 GW of solar by 2025, 3 GW of storage by 2030, and 9 GW of offshore wind by 2035.

Value of E

"We've certainly made great progress ... since our early days of experimenting with net metering," interim Public Service Commission Chair John Howard said. "As always, it is critical that the costs to abate carbon emissions continue to be driven down and that proposals



NYPS Chair John Howard | DPS

continue to recognize the balance that must be struck by funding critical programs and consumer rate relief."

The PSC's VDER Phase One order of March 2017 directed that the Environmental Value (E) be fixed for the life of the project, and set at the higher of either:

- the Clean Energy Standard Tier 1 renewable energy credit price, based on the latest Tier 1 procurement price published by NYISERDA; or
- the social cost of carbon (SCC), net of the expected Regional Greenhouse Gas Initiative (RGGI) allowance values, as calculated by DPS staff (15-E-0751).

The DPS on Wednesday issued an updated value of E at \$31.03/MWh, up from the previous \$27.41/MWh because of a higher SCC over time and based on the 20-year period from 2022 to 2041. DPS staff recalculated the SCC, net of RGGI allowance values, using the same method that was used in 2018.



Warren Myers, DPS | DPS

Regarding the white paper to be issued following the conclusion of the technical conference in May, "we're always balancing the appropriate compensation against

the benefits to be paid for by New York state ratepayers," DPS Director of Regulatory Economics Warren Myers said. "That's why we have to go through this process of providing well-thought-out options to the commission rather than rushing to one solution."

A December 2018 white paper said the commission must balance the desire to provide precision in compensation with the risk that a more sophisticated tariff may result in price signals that do not fully encourage and motivate developers and customers to make decisions based on the goal of maximizing grid value. (See *NYPSC Refines Value Stack, Boosts Community DG*.)

One unidentified stakeholder asked if the state could keep VDER stable to give certainty to investors.

"We hear you, and we discuss this all the time internally," Myers said. "We take very seriously when we change VDER, but it was a brand-new program, and we did learn as we went along."

While improvements to VDER in April 2019 might have been unstable in respect to tariff rules, they produced stabler revenues in some instances, he said.

"We tried to make the [demand reduction value] element more bankable by making it more reliable," Myers said. "Now that has a downside in making it less dynamic in reflecting the changing system conditions, so we're always trying to strike a balance between what economists might think is the best possible price signal, and what practical markets need to be able to invest." ■



Distributed solar generation projects around New York City cost more than ones sited in rural locations. | ILSR

PJM News



NJ's Offshore Wind Project Faces Criticism, Support

BOEM Hearings Show Diverse Reactions

By Hugh Morley

New Jersey's 1,100-MW offshore Ocean Wind project faced vigorous opposition from fishermen, shore-town homeowners and tourism-related businesses, and support from trade groups and unions, at three U.S. Bureau of Ocean Energy Management (BOEM) public hearings held this month to determine whether the agency should grant approval to the state's first offshore project.

Speakers at the hearings, the most recent of which took place Wednesday, voiced an array of fears over developer Ørsted's proposal to plant 98 wind turbines in the ocean bed 15 miles off the Jersey Shore, as the federal agency gathered public comment for an Environmental Impact Statement (EIS).

Speakers worried about the potential for damage to the undersea environment for fish, whales and dolphins, the destruction of fishing beds, and a drop in tourism for New Jersey shore communities, fearing visitors will go elsewhere to enjoy the ocean rather than on a beach looking out at a windmill cluster.

Bob Stern, who represented New Jersey Coalition for Wind Without Impact, based in Long Beach Island, said BOEM's decision would shape not only Ørsted's \$1.6 billion Ocean Wind project, but all similar projects in the future. Ocean Wind, with 900-foot high turbines, is the first of six offshore projects that New Jersey expects to approve by 2035 in an effort to generate 7,500 MW from offshore wind. The state is aiming to achieve 100% clean energy by 2050.

"The advent of the huge, large turbines we have today will result in significant visible impacts to Atlantic City and other shore communities," Stern told the first of the BOEM hearings on April 13. "And it will result, based on numerous studies, in significant losses in tourism, property values and rentals."

Diverse Economy

Yet the project drew strong support from the Laborers International Union of North America, whose members build infrastructure projects, and environmental groups such as Environment New Jersey and the New Jersey Work Environment Council, a coalition of labor and environmental organizations.

Several trade groups said the project would



Artist's conception of the northern edge of the Ocean Wind farm, as seen from the beach at Atlantic City | Ørsted, PSEG

bolster the local economy, including the New Jersey Chamber of Commerce, several South Jersey chambers and the Southern New Jersey Development Council. Some said the project, by creating construction and technology jobs, would reduce the area's economic reliance on tourism and Atlantic City's casinos.

"It's absolutely imperative that we diversify this local economy and bring that type of employment in here," said Max Slusher, business development officer for the Atlantic County Alliance. That would, he said, "keep us from backsliding into the economic dislocations that we've had over the last decade."

The New Jersey Board of Public Utilities, which picked Denmark-based Ørsted's project to be the state's first in 2019, says the project will generate \$1.17 billion in economic benefits for the state. The board says the project will create more than 15,000 jobs over its 20-year lifespan.

Construction on the project, which is *quarter-owned* by Public Service Enterprise Group, is expected to begin in 2022, with operations scheduled to start in 2024.

The BPU in June expects to announce the successful bidder from two solicitations for a second OSW project that is expected to generate 1,200 to 2,400 MW. One was submitted by Ørsted and the other is a joint venture between affiliates of the Anglo/Dutch oil giant Shell and France's EDF.

BOEM, which held public hearings on April 13, 15 and 20, expects to release a draft EIS in Spring 2022, and the final report a year later.

Engaging Stakeholders

Acting Commissioner Shawn LaTourette of the New Jersey Department of Environmental Protection, which is also collecting public comment on the project, said Wednesday that the state is working to engage all stakeholders in the permitting process.

"Folks fear what they don't know," he told a panel on OSW development at a conference organized by the Atlantic Council, a global think tank. "The idea of steel in the water to a commercial or recreational fishery that has used a particular fishing ground going back generations — that is a frightening concept."

PJM News



And folks wonder how it will affect them, how it will affect their livelihood.”

LaTourette said that in general, his strategy for developing infrastructure projects is “engage, engage, engage upfront, so that you eliminate the risk to any critical path item.” He said he first tries to reduce the impact of a project, then tries to minimize the impact when it can’t be avoided, and finally to try to “mitigate the impacts.”

“As we go and put that steel in the water, it will have an inevitable impact to the ecosystem,” he said and offered some theoretical solutions while the ecosystem recovers. “Do we facilitate artificial reef development? Do we help the fishing community to find other fishing grounds of similar nature in the meantime? It’s a thought process that we all have to go through together.”

Wind Farm on the Horizon

Opponents of the Ocean Wind project said it carries too many unknowns. Among them are whether electromagnetic waves from the power cables linking the wind turbines to the grid would impact fish, and whether they would affect people who live near where the cables will come onshore: grid connections at the BL England power plant and now closed nuclear generator at Oyster Creek. Ørsted, in response, said submarine power cables are common and emanate a magnetic field that is

no stronger than that from a household appliance such as a hair dryer or refrigerator.

Although Ørsted’s video simulations of the view from different Jersey Shore locations suggest the turbines will be barely visible, Duane Watlington, founder of Vacation Rentals Jersey Shore, said he did not believe it.

“[Visitors] pay over and over again every summer to see our beautiful beaches, clean ocean water and unobstructed view of the eastern horizon,” he said. If it’s dotted with turbines, “vacationers who rent at the shore might not return,” he said, urging BOEM to conduct a study on the impact of the project on tourism, and specifically the shore rental business.

Trisha Conti, one of a group of opponents to the project who have created a website, saveourshorelineNJ.com, said the group is concerned that electric bills will go up by between 25 and 100%. Greg Cudnik, the owner of a 15-employee business that runs recreational fishing charters, agreed.

“New Jersey ratepayers are being forced into much more expensive energy, with higher generation, interconnection and transmission costs,” he said, adding that the recreational fishing business will be hurt by the wind farm.

However, Paul Ivan, the captain of a charter boat for fishermen, speaking at the BOEM session Wednesday, said he believes that

“responsibly developed offshore wind farms will greatly benefit the fishing off of the New Jersey coast.”

“Burning fewer fossil fuels leads to cleaner, healthier waters, which benefit all of us,” he said. “More structures in the water means more fish habitat.”

Ørsted spokesperson Gabriel Martinez said the project would mean a residential bill would increase by \$1.46/month, and a commercial bill would go up by about \$13.05/month. He said the company’s experience at other wind projects it operates is that the turbines can help fishing by acting as a reef.

“Ørsted has built many wind farms in Europe where the company has been able to coexist with the fishing community,” he said. Likewise, he said, studies have shown that tourists do not shy away from areas with wind generation projects.

“Offshore wind farms have actually proven to be attractive for sightseeing tours and represent a significant opportunity in the rapidly growing ecotourism sector of the hospitality division,” he said.

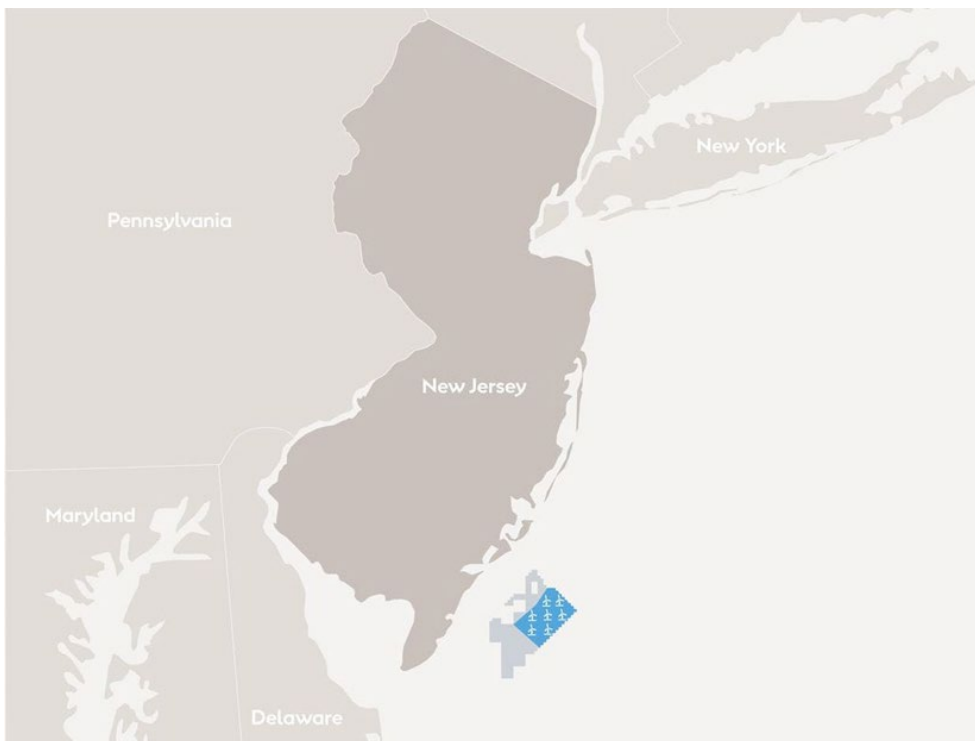
Cost of Doing Nothing

Suzanne Hornick, a local of Ocean City, an 11,000-resident community on a barrier island that looks out at the proposed wind farm site, was one of several speakers who expressed concern that the construction of the wind turbines could damage the cold pool, a layer of cold water on the ocean bottom that runs along the mid-Atlantic Coast and is key to the life cycle of some fish.

“If this affects our cold pool, which we know it will, and the recreational fishermen and the commercial fishermen can’t fish or can’t bring the volume of fish, that’s going to affect our restaurants” and other businesses that rely on a flow of tourists, she said. “If this ruins our tourism, it ruins our community,” she said.

But Jody Stewart told the Wednesday meeting that her experience of seeing her home flood during Superstorm Sandy in October 2012, had convinced her that the state had no choice but to back Ocean Wind.

“I lost my home in Sandy, and all that was important to me,” she said. “If there is anything I have learned, it is we cannot continue to do nothing. We need to move forward with renewable energy. How long do we continue to delay projects, put off moving forward, all the while communities like my own continue to struggle with sunny day flooding?” ■



The Ocean Wind farm would be built 15 miles off the coast of New Jersey. | Ørsted, PSEG

PJM News



Pennsylvania DEP Pushes for Solar Plus Storage

By Michael Yoder

A report released this month by the Pennsylvania Department of Environmental Protection (DEP) encourages the state to significantly increase its energy storage capacity and pair it with an expansion of solar energy.

The report identifies a series of programs, policies and incentives lawmakers can implement to add energy storage technologies to the state energy portfolio. It comes on the heels of last month's announcement by Gov. Tom Wolf that nearly 50% of the electricity used by the state government will be produced by seven new solar arrays composed of 191 MW of capacity to be built around Pennsylvania. (See [Pa. to Source 50% of Govt. Electricity from Solar.](#))

"Solar-plus-storage ... can help slow down climate change by incorporating more clean renewable energy into Pennsylvanians' daily electricity use, and it can also make the grid more reliable during extreme weather events, better protecting Pennsylvanians' health and safety as well as critical facilities," DEP Secretary Patrick McDonnell said.



Pennsylvania DEP Secretary Patrick McDonnell | *Commonwealth of Pennsylvania*

Pennsylvania currently has about 1.5 GW of storage capacity, the report found, including 1.07 GW of traditional pumped hydro facilities, 18 MW of lithium-ion batteries, 12.5 MW of lead carbon batteries, 6 MW of ice and chilled



One of three solar farms that make up the 70-MW solar array in Franklin County, Pa., that will provide Penn State with 25% of its purchased electricity, across all campuses, over 25 years | *Lightsource bp*

water thermal storage, and smaller amounts of other technologies.

The report recommends setting a state energy storage capacity target similar to ones created in seven other states. Other recommendations include convening a statewide storage issues forum to discuss the issue, designating public funding to increase storage deployment, establishing incentive programs for storage projects and accelerating microgrid deployments at critical facilities.

"This look at our current and potential statewide energy storage capacity provides leaders in the utility, government, industry, academia and other sectors with information to make

proactive decisions to protect Pennsylvania from the worst impacts of a changing climate," McDonnell said. "Interest has steadily increased in rooftop solar and other distributed solar energy systems in the past decade, but as we move to make real progress in addressing climate change, we need to also move proactively and thoughtfully in the direction of grid-scale solar and storage."

As of February there were 64 solar-plus-storage projects, totaling more than 2.3 GW, in the PJM planning queue, according to the DEP. Officials said that amount reflects a recognition of the value of solar-plus-storage for the state. ■

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PJM News



PJM MRC/MC Briefs

Markets and Reliability Committee

CRF Endorsed

Stakeholders endorsed PJM’s proposed solution to update the value of capital recovery factors (CRFs) after a last-minute amendment at last week’s Markets and Reliability Committee meeting was shot down.

In a unanimous vote by acclamation, members endorsed the proposed solution and associated tariff revisions addressing the CRF for avoidable project investment cost determinations. PJM and the Independent Market Monitor had indicated the CRF values on a table in section 6.8 of Attachment DD of the tariff needed updating to reflect current federal tax laws. (See “Capital Recovery Factor Endorsed,” *PJM MIC Briefs: March 10, 2021.*)

Jeff Bastian, PJM senior consultant of market operations, said the current CRF values were “hardwired” into the table in the tariff and had been in place since 2007. Bastian said the hardwiring approach was problematic because it did not allow for a timely update of the values if federal tax laws change in the future.



Jeff Bastian, PJM | © RTO Insider LLC

The issue has been under review since the Monitor notified PJM in a Dec. 4 letter that the CRF values did not reflect the 2017 reduction in federal corporate tax rates and should have

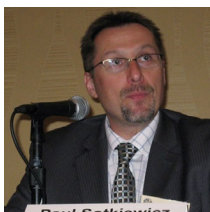
Age of Existing Units (Years)	Remaining Life of Plant (Years)	Levelized CRF
1 to 5	30	0.107
6 to 10	25	0.114
11 to 15	20	0.125
16 to 20	15	0.146
21 to 25	10	0.198
25 Plus	5	0.363
Mandatory CapEx	4	0.450
40 Plus Alternative	1	1.100

Current CRF values on the table of section 6.8 of Attachment DD of PJM’s tariff | PJM

been updated in 2018. (See “Capital Recovery Factors Discussion,” *PJM MIC Briefs: Feb. 10, 2021.*)

PJM proposed to post the table of CRF values no later than 150 days before the beginning of the offer period of each capacity auction, beginning after the auction for the 2022/23 delivery year, which will be held in May. Bastian said the values would reflect federal income tax laws in effect for the relevant delivery year at the time of the determination.

Bastian also said PJM was moving forward swiftly on the updates to have the tariff changes approved by FERC and implemented by December’s auction for 2023/24.



Paul Sotkiewicz, E-Cubed Policy Associates | © RTO Insider LLC

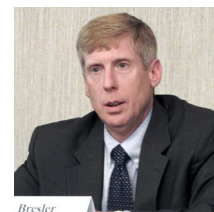
Paul Sotkiewicz of E-Cubed Policy Associates said the tax laws are “not monolithic and provide flexibility.” The 2017 tax law passed during the Trump

administration allows for accelerated depreciation, but Sotkiewicz said it may not be in the best interest of all the companies to take advantage of that.

Sotkiewicz said he is concerned that there may be different interpretations between PJM and the Monitor over the tax issues. He posed a situation in which a company could bring tax treatments to the RTO and IMM and be told the tariff doesn’t allow the different tax treatment. He suggested that PJM provide extra clarity in its filing to FERC on the rationale of the CRF values to avoid a potential deficiency notice.

“I’m worried that there’s something lacking in the language,” Sotkiewicz said.

Stu Bresler, PJM senior vice president of market services, said the RTO will consider Sotkiewicz’s advice for the FERC filing. Bresler said the process to formulate the solution was not ideal, as it had to be completed in a quick-fix approach for it to be in place before the December capacity auction.



Stu Bresler, PJM | © RTO Insider LLC

While the CRF issue was originally listed for a vote on the consent agenda at the Members Committee meeting on the same day, Sotkiewicz made a motion to remove it to take a separate sector-weighted vote. He also offered a friendly amendment formulated after discussions at the MRC.

The amendment said, “Notwithstanding the use of the formula above, market sellers also have the option of providing alternate tax rates and or depreciation schedules consistent with the tax rate and depreciation used in filing taxes to arrive at a unit-specific CRF that appropriately matches the market seller’s actual

Age of Unit	Remaining Life of Plant	2022/23 Delivery Year	2023/24 Delivery Year	2024/25 Delivery Year	2025/26 Delivery Year
1 to 5	30	0.077	0.081	0.086	0.091
6 to 10	25	0.082	0.087	0.092	0.096
11 to 15	20	0.091	0.096	0.101	0.106
16 to 20	15	0.107	0.112	0.118	0.123
21 to 25	10	0.140	0.147	0.154	0.162
25 Plus	5	0.242	0.256	0.270	0.284
Mandatory CapEx	4	0.293	0.311	0.329	0.346
40 Plus Alternative	1	1.1	1.1	1.1	1.1

Newly adopted CRF values for the PJM tariff | PJM

PJM News



tax and depreciation treatment.”

Monitor Joe Bowring said he disagreed with the amendment and that it complicated the CRF issue. Bowring said the reason for having a proposed manageable formula rate was to make it “simple, straightforward and equitable across all resources” and that it only applies to a small portion of the avoidable-cost rate, which are the capital additions necessary to keep a unit in operation.



PJM Monitor Joe Bowring | © RTO Insider LLC

Susan Bruce, counsel to the PJM Industrial Customer Coalition, also objected to the friendly amendment. Bruce said she was “mindful” that the process to make changes to the CRF table were done quickly and that they will have a significant impact, but she said she didn’t want to make another change so far along in the stakeholder process.



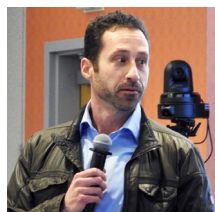
Susan Bruce, PJM ICC | © RTO Insider LLC

“I might be open to it when we have a fuller conversation,” Bruce said. “But I cannot in good conscience say I can do this on the fly.”

The original tariff revisions without the friendly amendment passed with a sector-weighted vote of 4.79 (95.8%).

Long-term 5-minute Dispatch Endorsed

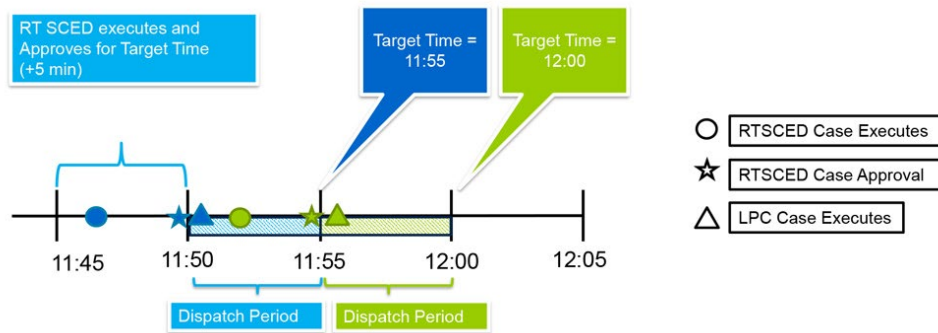
Members unanimously endorsed the proposed solution and associated tariff and Operating Agreement *revisions* addressing long-term five-minute dispatch and pricing changes. Stakeholders had previously endorsed a proposal by PJM and the Monitor at the March Market Implementation Committee meeting on the long-term five-minute dispatch evaluation that was under consideration for several months. (See “5-Minute Dispatch Plan Endorsed,” *PJM MIC Briefs: March 10, 2021.*)



Aaron Baizman, PJM | © RTO Insider LLC

The tariff revisions were also unanimously endorsed on the consent agenda vote at the MC meeting.

Aaron Baizman, senior engineer for PJM, *reviewed* the solution pro-



PJM’s tentative timing design for five-minute dispatch | PJM

posal for the long-term *five-minute dispatch and pricing* issue worked on in MIC special session meetings. Baizman said there were no changes made to the proposed language presented at previous meetings and that the tariff changes were meant to “add clarity and additional transparency” for PJM business practices.

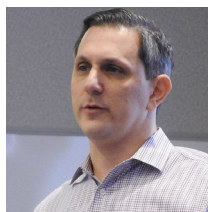
Baizman underscored the highlights of the long-term package, including the creation of new real-time security-constrained economic dispatch (RT SCED) instructions that utilize previous ones. He said PJM dispatchers will also be provided flexibility for exceptions for case-by-case approval caused by unanticipated conditions or application issues.

PJM will also discontinue the use of degree of generator performance (DGP), a software logic designed to determine how well a unit is following the dispatch signal. Baizman said DGP is being replaced with a less complex and more efficient software program.

Baizman said the long-term timeline implementation features software testing from May to June, parallel operations and evaluation from July to September, and a pilot evaluation and implementation by Nov. 1. He said PJM will file tariff and OA language updates with FERC after receiving stakeholder endorsement.

New Service Requests

Jason Connell, director of infrastructure planning for PJM, *provided* a first read of the *problem statement* and *issue charge* of the proposed solution to address new service requests deficiency review requirements. The issue has been discussed and debated for several months at Planning Committee meetings. (See “New Service Reviewed Again,” *PJM PC/TEAC Briefs: April 6, 2021.*)



Jason Connell, PJM | © RTO Insider LLC

Connell said PJM processes new service requests under several parts of the tariff and administers two new queue windows each year: one from April 1 to Sept. 30, and another from Oct. 1 to March 31. The tariff establishes a “fairly strict timeline,” Connell said, requiring PJM to review a new service request and issue a notice of any deficiencies within five business days.

Interconnection customers then are required to respond to a deficiency notice within 10 business days, Connell said, and PJM is provided an additional five business days to review the response to the deficiency notice.

PJM receives 50% or more of new service requests during the last month of a queue window, Connell said, leading to overworked RTO staff attempting to complete reviews and regularly seeking waivers from FERC to extend the deadlines.

Connell said the new service queue that ended Sept. 30 represented an approximately 27% increase in total number of requests over the previous queue. Of the September queue, Connell said, 340 of the 563 requests were filed in the last week, including 247 on the last day. The latest queue window that ended March 31 had a new record number of requests, he said, coming in at 691.

“We have a very short window to process a very large volume of requests,” Connell said.

PJM’s proposed solution is to change the five-day deadline to 15, Connell said, or to “use reasonable efforts to do so as soon thereafter as practicable.” Stakeholders encouraged the RTO to move up the closing of the new service queue by about three weeks to allow more review time of the applications by staff.

Connell said the proposed solution would also provide PJM with 15 business days to review the interconnection customer’s response to the deficiency notice.

PJM News



Alex Stern, PSEG |
© RTO Insider LLC

Alex Stern, director of RTO strategy for PSEG Services, said several stakeholders had shared concerns that PJM's original proposed approach could cause an even bigger backlog for staff. Stern said PJM responded to the stakeholder concerns

and was able to make changes that will satisfy any uneasiness with the schedule changes.

"I think this revised approach seems to have benefits to all three core groups impacted: queue applicants, those with study responsibilities and PJM," Stern said.

Public Distribution Microgrids

After a several month hiatus with PJM attempting to assuage stakeholder concerns, the RTO again brought proposed manual changes to respond to the growing interest in public distribution microgrids.

Natalie Tacka, PJM engineer in the applied innovation department, *reviewed* proposed revisions to *Manual 11: Energy & Ancillary Services Market Operations*, *Manual 14D: Generator Operational Requirements* and *Manual 18: PJM Capacity Market*. The committee will be asked to endorse the revisions at its next meeting.

The Operating Committee in December unanimously endorsed new rules, and the MRC received a first read at its meeting the same month. (See "Microgrid Rules Endorsed," *PJM Operating Committee Briefs: Dec. 3, 2020*.)

Tacka said work on the issue first began in 2019 at the former Distributed Energy Resources Subcommittee and continued into the new DER and Inverter-Based Resources Subcommittee.

A microgrid is defined as a system of generating facilities and load that can operate both while connected to and off the main grid, Tacka said, and PJM is looking to define a public distribution microgrid as one that contains a facility that can generate while connected to and "islanded" from the broader grid and uses public utility distribution wires.

Tacka provided a summary of the proposed manual changes that differed from the December first read. She said stakeholder discussion led to updates to the public distribution microgrid definition to clarify the scope and establishment of a microgrid.

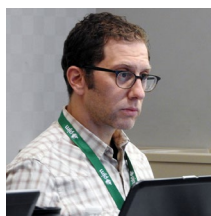
Language was also added to specify the coordination and consent between an applicable fully metered electric distribution company,

an affected electric distributor and a public distribution microgrid operator in determining whether the load is reported to PJM as wholesale when it is islanded. Tacka said telemetry and notification clarifications were also made that consider additional data flow scenarios between a public distribution microgrid operator and generator.



Jim Davis, Dominion Energy | © RTO Insider LLC

Jim Davis, regulatory and market policy strategic adviser for Dominion Energy, thanked PJM for its work on the issue. Davis said Dominion was the "genesis" for requesting work on the issue and felt there needed to be more clarification in the manual language.



Steve Lieberman, AMP | © RTO Insider LLC

Steve Lieberman, assistant vice president of transmission and PJM affairs for American Municipal Power (AMP), said PJM "afforded a significant amount of time" to AMP to educate them on the public distribution microgrid issue

and to work with them make some language changes.

Lieberman said the slower-paced approach and collaborative effort has put stakeholders "in a much better place" on the issue.

Manual 14D Revisions

Stakeholders *endorsed* the proposed *revisions* to Manual 14D: Generator Operational Requirements regarding the Resource Tracker ownership confirmation requirement in a vote on the MRC consent agenda. The OC unanimously endorsed a quick-fix proposal in March. (See "Resource Tracker Ownership Endorsed," *PJM Operating Committee Briefs: March 11, 2021*.)

The proposal included changing "market participants are requested" to the "generation owner, or designated agent, is required" to confirm resource ownership by Nov. 1. PJM officials said owners of 60 resources, out of 1,503, did not confirm their information in 2020 by Nov. 1.

PJM will also refresh the user interface of the Resource Tracker application to align it with other tools used by the RTO and also add additional information fields to provide contacts associated with the resources.

Members Committee

Manual 34 Revisions Endorsed

Members endorsed revisions to Manual 34 to address motions and amendments in the stakeholder process.

The *revisions*, originally listed to be voted on in the consent agenda of the MC meeting, were pulled from the agenda and endorsed with a sector-weighted vote of 3.81 (76.2%). Under review for more than a year at the Stakeholder Process Forum, the revisions modify three sections in Manual 34, including a clarification on when members can bring an issue directly to the MC for a vote. (See "Manual 34 Revisions," *PJM MRC/MC Briefs: March 29, 2021*.)

John Horstmann of AES Ohio originally presented the proposed Manual 34 revisions, saying the group in the Stakeholder Process Forum that worked on the issue wanted to ensure that no member has "undue influence" over the stakeholder process and to clarify when members can bring an issue directly to the MC for a vote.

The consensus-based issue resolution process was intended to be the mechanism for issues to be raised and discussed by stakeholders, Horstmann said, and an issue that was never discussed in the lower committees could be brought forward as an amendment at the MC for a vote without the manual changes.

Greg Poulos, executive director of the Consumer Advocates of the PJM States (CAPS), requested that the manual changes be pulled off the consent agenda and instead have a sector-weighted vote. Poulos said there's always a concern from the consumer advocate perspective of adding to administrative requirements on the ability to bring items up in the stakeholder process and for a vote.

TLR Buy-through

Stakeholders *approved* proposed *revisions* to remove the transmission loading relief (TLR) buy-through congestion process from the OA in a vote on the MC consent agenda. TLR buy-through is a tool PJM uses to curtail interchange transactions that cause loop flow to the RTO around the time emergency procedures are being conducted to reduce the impact on a flowgate or a transmission facility. The process was created when PJM was fully within the Mid-Atlantic region and was issued more frequently than it is today, according to the RTO. (See "TLR Buy-through Quick Fix," *PJM Operating Committee Briefs: March 11, 2021*.) ■

— Michael Yoder

PJM News



FirstEnergy Seeking Deal with DOJ in Bribery Case

Company Believes it Could 'Incur a Loss' in Seeking 'Deferred Prosecution'

By John Funk

FirstEnergy has disclosed it is negotiating with the U.S. Department of Justice regarding its role in a \$60 million bribery and racketeering scheme involving Ohio Rep. Larry Householder (R), the former speaker of the House of Representatives.

Householder and four associates *were indicted* in July 2020 on corruption charges in connection with the legislative approval of a seven-year bailout of the company's former Ohio nuclear power plants that would have cost the public an estimated \$1.1 billion. FirstEnergy has not been indicted, though the investigation is ongoing.

That bailout has already been blocked, first by a suit brought by the Ohio attorney general and more recently by the General Assembly in legislation to remove the language from a law created through the passage of H.B. 6 in 2019. (See [Ohio Lawmakers Repeal Nuclear Subsidy](#)

for Energy Harbor.)

"As previously disclosed, FirstEnergy has been cooperating with the [U.S. Attorney for the Southern District of Ohio] regarding the ongoing investigation," the company stated in its *first-quarter 10-Q* filed late Thursday night.

"Discussions have begun with the U.S. Attorney's Office regarding the resolution of this matter, including the possibility of FirstEnergy entering into a deferred prosecution agreement," the company revealed. "As these discussions are preliminary, FirstEnergy cannot currently predict the timing, the outcome or the impact of a possible resolution of this ongoing investigation."

In a deferred prosecution agreement, a corporation typically pays a fine and formally agrees to continue to cooperate with prosecutors. For example, Commonwealth Edison, a subsidiary of Exelon, entered a *deferred prosecution agreement* in 2019 with the Justice Department and agreed to pay a \$200 million fine.

FirstEnergy said it is too early say what a deferred prosecution agreement would cost the company but that it faces a "probable loss."

"While no contingency has been reflected in its consolidated financial statements, FirstEnergy believes that it is probable that it will incur a loss in connection with the resolution of this investigation," the company wrote in the 10-Q.

The deferred prosecution disclosure comes just weeks after former U.S. Attorney David DeVillers revealed what had happened to the probe over the winter. (See [Icahn Capital Given 2 Seats on FirstEnergy's Board.](#)) After federal grand jury sessions were canceled for five months because of the COVID-19 pandemic, the Justice Department began presenting evidence again in March.

The company continues to maintain that it knew nothing about the nearly two-year federal investigation until the morning of July 21, 2020, *when FBI agents arrested Householder and his associates*, charging them with federal



FirstEnergy's Akron, Ohio, headquarters | [DangApricot CC BY-SA 3.0, via Wikimedia Commons](#)

PJM News



racketeering conspiracy in the creation of a complex network in which FirstEnergy and its subsidiaries, referred to only as “Company A,” allegedly contributed more than \$60 million to a nonprofit corporation. The nonprofit funneled the funds — without having to disclose their origin — to Householder, who allegedly used the money to back candidates willing to support the company’s request for the bailout of its nuclear plants.

After receiving federal subpoenas on that same July day when Householder was arrested, FirstEnergy vowed it would launch an internal investigation. The company fired CEO Charles Jones and two others in October as a result, and in November it announced in an 8-K that it had fired its chief legal officer and chief ethics officer.

“Such former members of senior management did not maintain and promote a control environment with an appropriate tone of compliance in certain areas of FirstEnergy’s business, nor sufficiently promote, monitor or enforce adherence to certain FirstEnergy policies and its code of conduct,” the company stated in its 10-Q. “Furthermore, certain former members of senior management did not reasonably ensure that relevant information was communicated within our organization and not withheld from our independent directors, our Audit Committee and our independent auditor.”

During Friday’s first-quarter earnings call with financial analysts, new CEO Steve Strah stressed that FirstEnergy and its board of directors are not only cooperating with federal prosecutors but also working diligently to create internal ethics rules and stand-up new compliance departments.

“As we discussed on our fourth-quarter call, we are committed to taking decisive actions to rebuild our reputation and focus on the future and continuing to cooperate with the ongoing government investigations,” Strah said at the beginning of the public discussion with analysts, *now available as a recording* on the company’s website.

“Our goal is to take a holistic and transparent approach with a range of stakeholders across the spectrum of matters under review,” Strah told analysts. “This approach is consistent with the changes we’re making in our political and legislative engagement and advocacy. For example:

- We are stopping all contributions to 501(c)(4) organizations.
- We paused all other political disbursements, including from our political action committee, and we’ve limited our participation in the political process.
- We have also suspended and/or terminated various political consulting relationships.

- We’ll be expanding our disclosures around political spending in order to provide increased transparency.
- We have committed to post updates on our website on our corporate political activity, relationship with trade associations and our corporate political activity policy, which is under revision.”

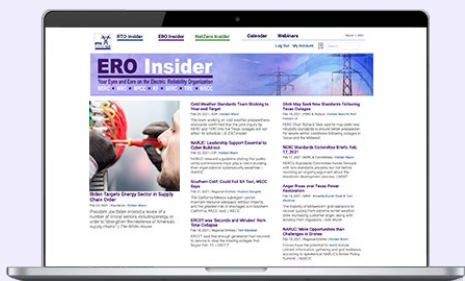
FirstEnergy’s drive to find public money to subsidize its nuclear operations began in 2014, when the company proposed that because its nuclear plants were temporarily uncompetitive in PJM, the Public Utilities Commission of Ohio should approve a plan in which the company’s distribution subsidiaries buy the nuclear-generated power at whatever it cost to generate and immediately sell it into the PJM market, making up the loss with adjustable-rate increases. PUCO approved the plan, but FERC intervened.

The company had argued that combined cycle gas turbines were outbidding its nuclear plants but that the price of natural gas would soon rise, so the arrangement would produce discounts for customers. Gas prices have not risen significantly, and renewable generation has replaced gas as the new threat to nuclear power. Ohio lawmakers at the time were not interested in approving statewide charges to fund a public bailout, and bills offered to do that died in committees. ■

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PJM News



In-person MACRUC Conference Scheduled for June

By Michael Yoder

After more than a year of lockdowns and cancellations stemming from the COVID-19 pandemic, a major energy conference will have in-person attendance early this summer.

The Mid-Atlantic Conference of Regulatory Utilities Commissioners (MACRUC) announced last week that its 26th annual Education Conference will take place from June 27 to 30 at the Nemaquin Woodlands Resort in Western Pennsylvania.

The four-day conference, featuring regulators from PJM and NYISO, will be a hybrid model featuring both live and virtual panels with discussions on FERC Order 2222, PJM's minimum offer price rule (MOPR), offshore wind and solar power. MACRUC last met in person at the Omni Homestead Resort in Hot Springs, Va., in 2019. (See [Overheard at MACRUC 2019: The Carbon-free Future.](#))

Willie Phillips, president of MACRUC and chair of the D.C. Public Service Commission, said members started discussing the possibility of conducting a hybrid conference in January. Phillips said commissioners met to gauge the comfort level of being in person for a conference, going from "almost zero support" at the start of discussions to having a "clear majority" earlier this month.

As the COVID-19 vaccine rollout ramped up and travel and meeting restrictions are being relaxed across the country, Phillips said, commissioners decided to look at best practices from other successful in-person events and began conceptualizing what a hybrid meeting could look like.

"With an intentional focus on safety protocols, our MACRUC members agreed that we should give it a shot," Phillips said. "It's like I tell my D.C. PSC staff: 'Safety is always the priority, and I'll never ask for anything that I wouldn't do myself: If I didn't have confidence that MACRUC could host this conference safely, then I wouldn't support it.'"

Education Conference

Phillips will kick off the [conference](#) before Virginia State Corporation Commissioner Jehmal Hudson moderates a discussion on several FERC issues, including resource adequacy and the MOPR.

Delaware Public Service Commissioner Kim Drexler will lead a discussion on how RTOs



Entrance of The Chateau at Nemaquin resort in Farmington, Pa. | Nemaquin Woodlands Resort

oversee interregional coordination among states with different decarbonization standards and the environmental impacts of new transmission lines.

Green energy takes center stage on the second day of the conference with Delaware PSC Commissioner Harold Gray leading a panel on offshore wind. Attendees will also hear a talk about Pennsylvania's recent announcement that nearly 50% of the electricity used by the state government will be produced by seven new solar energy arrays comprising 191 MW of capacity. (See [Pa. to Source 50% of Govt. Electricity from Solar.](#))

The conference will close with a discussion between FERC Commissioner Neil Chatterjee and Maryland Public Service Commission Chairman Jason Stanek on ways to strengthen relationships between state and federal regulators.

MACRUC also announced the next two conferences will also be at the Nemaquin. The luxury resort in Farmington, Pa., was originally a hunting lodge built by Pittsburgh businessman Willard F. Rockwell in 1968 before being turned into an upscale hotel and resort in 1987 by 84 Lumber founder Joseph Hardy III.

"I also want to credit the folks at the Nemaquin Woodlands for being flexible as we worked through the decision process," Phillips said. "Now, people are getting excited to mask up for MACRUC on June 27."

Other In-person Events

MACRUC is not the only organization looking to transition back to in-person events.

The [Energy Storage Annual Conference and Expo](#) is scheduled to take place in Phoenix from Dec. 1 to 3. Registration to the annual event, which features buyers, sellers, investors and devel-

opers in the energy storage industry, hasn't officially opened but is expected to within a month.

Becca Dietrich, vice president of operations for the Energy Storage Association, said the organization decided to host the conference in person to "provide value to our members who were missing the in-person networking," along with the business development aspects of the conference. Originally scheduled for April, Dietrich said ESA decided to move the in-person component to December while also retaining a virtual session, which was held last week. (See coverage, pp. 8-12.)

Dietrich said the organization is working with the Phoenix Convention Center to develop safety measures adhering to Centers for Disease Control and Prevention guidelines. A redesign of the expo floor is being instituted to provide social distancing between booths.

"We believe that there will be continued evolution and innovation when it comes to hosting in-person events before December," Dietrich said. "We are preparing for this event as if it were taking place now."

Some RTOs and ISOs are also getting closer to returning to in-person work environments.

SPP CEO Barbara Sugg told committees last week that staff will be returning to its Little Rock, Ark., office on a limited and voluntary basis beginning May 10 if local COVID-19 infection rates don't worsen. The grid operator's leadership will determine whether to allow more volunteers to return to the office following the first phase.

Sugg said she hoped that SPP could have a limited number of in-person attendees for its July governance meetings, but she advised members not to make travel plans yet. ■

Tom Kleckner contributed to this report.

SPP News

NextEra Chief Declares ‘Love’ for GridLiance Tx Assets

By Tom Kleckner

NextEra Energy said Wednesday that its recent acquisition of transmission developer GridLiance furthers its strategy to be “North America’s leading competitive transmission provider.”

The Florida-based company closed its purchase of GridLiance last month, giving it ownership of regulated assets in 10 states and six RTOs. FERC last month approved the \$660 million acquisition of GridLiance’s transmission operations in CAISO, MISO and SPP. (See [FERC Approves NextEra Purchase of GridLiance.](#))

“We love GridLiance,” NextEra Energy Partners President John Ketchum told analysts during the company’s quarterly earnings call. He compared NextEra’s transmission presence to a doughnut, saying, “We had a hole in the middle. This gets us in the SPP and MISO. We’re now a member as a [transmission owner]. It’s strategic. It’s going to help enable a lot of new renewable development for us, so it lines up really well with where we see renewable growth opportunities going forward.”

“GridLiance ... is an excellent complement to our existing operations and further expands NextEra Energy’s regulated business through the addition of attractive rate regulated assets,” CFO Rebecca Kujawa said. “I expect that we’ll grow the business through both going forward as well continued efforts on the development side. ... We do think there are lot of opportunities to improve how transmission is sited and built across the U.S., and we’re optimistic that this administration and this FERC will start to focus on those.”

NextEra [reported](#) first-quarter earnings of \$1.67 billion (\$0.84/share), compared to \$421 million (\$0.21/share) a year earlier. The company’s adjusted earnings of 67 cents/share beat the Zacks Consensus Estimate of 60 cents.

NextEra Energy Resources’ earnings jumped 13% during the quarter. The renewable development subsidiary added an additional 1.75 GW of projects to its backlog, including 190 MW of solar paired with 100 MW of battery storage.

The company still has its sights set on Santee Cooper, the South Carolina state-owned utility

that is loaded with billions of dollars in debt after abandoning the V.C. Summer nuclear project. State lawmakers last year rejected a purchase offer from NextEra for the utility, but the Senate’s president recently [asked interested parties](#) to return with updated proposals.



NextEra CEO Jim Robo
| © RTO Insider LLC

“We’ve been pretty clear that we remain interested,” CEO Jim Robo said, acknowledging he had sent a [letter](#) to Senate President Harvey Peeler. “We have a very strong bid out there. Fundamentally, our bid stands and we’re ready to get going and negotiating with the state on the sale.”

Robo said it is clear that the state’s best option is to “de-municipalize Santee Cooper and get it in the hands of an entity like ourselves that will run it in a best-in-class way.”

NextEra’s share price lost \$2.56 on Wednesday on what was an up day for the markets. The stock closed at \$77.97, a 3.2% drop. ■

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National/Federal

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MidAtlantic

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Midwest

Minn. Hits Midway Point in Zero-emission Efforts

Northeast

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Vermont City Memorializes its Energy Transition

Conn. DEEP Anticipates ‘Tidal Wave’ of Federal Funding

VT Climate Council Might Delay Release of Action Plan

West

HECO on Hot Seat – Again – over Maui Coal Plant Closure

Shortfall Looms for Calif. EV Rebate Program

Nev. Land-use, EE, Tx Buildout Bills Head for Home Stretch

Green Transportation Bills Headed for Inslee’s Desk

Wash. Becomes 2nd State to Adopt Cap-and-trade

LCFS Bill Passes Washington Legislature

Colorado Net-zero Home Wins Solar Decathlon

Company Briefs

Alaska Air Touts Road Map to Net-zero Emissions

Alaska Airlines last week announced its plan to join the Amazon Climate Pledge and reduce its carbon emissions to net-zero by 2040, with interim goals for specific cuts in carbon, waste and water use by 2025.

The first steps outlined by the airline included deploying more fuel-efficient Boeing 737 MAX aircrafts and reducing fuel use through operational efficiencies. Long-term plans include powering aircraft with biofuels, as well as exploring technologies that allow electric-powered aircraft for regional flying.

More: [The Seattle Times](#)

Amazon Adds 9 Wind, Solar Projects



Amazon last week announced the addition of nine new utility-scale wind and

solar energy projects in the U.S., Canada, Spain, Sweden and the United Kingdom.

Among them is a solar and energy storage facility in California's Imperial Valley capable of generating 100 MW and 70 MW of storage. Other projects will be in Oklahoma and Ohio.

The company has 206 renewable energy projects worldwide capable of generating 8.5 GW of electricity, which includes 71 utility-scale solar and wind projects and 135

solar rooftops.

More: [Amazon](#)

Hershey Signs 2 Solar PPAs

The Hershey Company last week announced it has signed two power purchase agreements to develop two solar projects as it moves toward renewable energy use.

The first, a 20-MW project in North Carolina, has a 15-year PPA for the company's first utility-scale solar farm. It is expected to be completed in late July. The second solar PPA with National Grid Renewables is for 50 MW of the Noble Project, currently under construction in Texas.

The projects are expected to reduce Hershey's carbon footprint by 115,650 metric tons each year.

More: [Renews](#)

SDG&E, Dominion Starting Hydrogen Pilot Programs



San Diego Gas & Electric and Dominion Energy last week unveiled details about projects to blend

hydrogen into their natural gas distribution systems, along with other applications, to push toward net-zero emissions.

SDG&E, which has set a target to reach net-zero greenhouse gas emissions by 2045, is developing two hydrogen pilot projects,

building multiple battery storage facilities and starting a vehicle-to-grid pilot program. The company said it will begin construction this year on the hydrogen projects that will "test half a dozen use cases."

Dominion, which has set a target of net-zero carbon dioxide and methane emissions for its electric and gas operations by 2050, said it is working on multiple pilot projects to blend hydrogen into its gas distribution system to reduce emissions. The company also said it is exploring projects that use hydrogen for clean electricity, renewable storage, transportation and manufacturing.

More: [S&P Global](#)

U.S. Steel Sets Goal to be Net-zero by 2050

U.S. Steel last week announced plans to achieve net-zero carbon emissions by 2050. The goal builds on the company's existing pledge to reduce greenhouse emissions by 20% by 2030

The company claimed its goal can be reached by leveraging its electric arc furnaces with technologies such as direct reduced iron, carbon-free energy sources and carbon capture, sequestration and utilization. However, environmentalists were critical of the move, saying it would not benefit the Pittsburgh area, where the company is based.

More: [Pittsburgh Post-Gazette](#)

Federal Briefs

Biden Admin. Proposes Restoring State's Right to Set Car Pollution Rules

The Department of Transportation last week announced it is withdrawing part of a Trump-era rule that blocked states from setting their own car pollution standards. The proposed rule change, which will be subject to a 30-day comment period, would restore California's authority to set greenhouse gas emission standards for cars and SUVs and require companies to sell more electric vehicles.

Trump revoked California's waiver in 2019 shortly before his administration issued a new set of fuel economy and emissions rules that were significantly weaker than the Obama standards. The change also affected the District of Columbia and the 13 states

that follow California's tighter standards.

The EPA is expected to begin taking steps to reinstate the waiver this week.

More: [Los Angeles Times](#)

Governors Urge Biden to Order 100% Zero-emission Car Sales By 2035

Governors from 12 states wrote President Joe Biden a letter asking him to ban the sale of cars and light trucks that emit greenhouse gases by 2035.

The governors also called on the administration to set standards and adopt incentives to ensure 100% zero-emission sales of medium-duty and heavy-duty vehicles by 2045. While the letter urges a transition to entirely zero-emission vehicles by that date,



it does not specifically call for the elimination of gasoline-powered vehicles.

The governors represented California, Connecticut, Hawaii, Maine, Massachusetts, New Jersey, New Mexico, New York, North Carolina, Oregon, Rhode Island and Washington.

More: [NPR](#)

IEA Says Carbon Emissions Set for 2nd Largest Yearly Increase in History

A new report released last week by the IEA estimates that global carbon emissions from energy use are on track to spike by 5% (1.5 billion metric tons) in 2021, as heavy coal consumption in Asia outweighs growth in renewable sources. It would be the second-largest annual increase in energy-related emissions in history (2010, 5.9%).

Energy-related emissions are expected to end the year just below where they stood in 2019, reversing 80% of the decline seen in 2020. The IEA estimates energy demand will rise by 4.6% in 2021 and exceed 2019 levels.

More: [CNN Business](#)

Miners' Union Backs Shift from Coal in Exchange for Jobs

Cecil Roberts, president of the United Mine Workers of America, said the union would accept President Biden's plan to move away from fossil fuels in exchange for a "true energy transition" that includes thousands of jobs in renewable energy and spending on technology to make coal cleaner.

"I think we need to provide a future for those people, a future for anybody that loses their job because of a transition in this country, regardless if it's coal, oil, gas or any other industry for that matter," Roberts said. He went on to say ensuring jobs for displaced miners, including 7,000 coal workers who lost their jobs last year, is crucial to any infrastructure bill taken up by Congress.

More: [The Associated Press](#)

White House Removes Trump Scientist Who Led Key Climate Report

Officials at the White House Office of Science Technology Policy last week removed Betsy Weatherhead from her position. Weatherhead is an atmospheric scientist appointed by President Trump to oversee the government's report on the effects of climate change. She has been reassigned to the U.S. Geological Survey.

According to people with knowledge of the situation, there was friction between Weatherhead and some officials on the direction of the report.

A replacement has yet to be named.

More: [The Washington Post](#)

State Briefs

ARIZONA

Regulators Give Initial OK to New Utility Shutoff Rules

The Corporation Commission last week voted 3-2 to approve new, tentative rules for utility disconnections.

The rules, which won't replace current emergency rules until they are finalized, would add further protection from disconnection during periods of extreme heat or cold. The rules, which would raise the level of past-due balances that could trigger a shutoff, will be submitted for review and a rule-making process that likely won't be concluded until next fall.

The commission approved an amendment that would prohibit utilities from shutting off electricity either when the temperature is above 95 degrees, or between June 1 and Oct. 15 each year. Last year, Tucson set records for highest average temperature and days over 100 degrees, while Phoenix had its second-hottest year and its most days over 100.

More: [Tucson.com](#)

CALIFORNIA

Newsom Seeks Ban on New Fracking by 2024

Gov. Gavin Newsom last week said he wants the state to stop issuing fracking permits

by 2024 and halt all oil drilling by 2045. Newsom's order, if successful, would make California the largest state to ban fracking and one the first in the world to set a deadline to end oil production.

California was once one of the largest oil-producing states, but by 2020, its oil production fell to its lowest level in history. Still, it is the seventh-largest oil producing state and has more than 60,000 active oil wells.

More: [The Associated Press](#)

KENTUCKY

LG&E Agrees to Reduce Proposed Rate Increase



Louisville officials last week reached a settlement with Louisville Gas & Electric and Kentucky

Utilities that will trim a rate increase proposed by the companies. The deal, which was announced by the Jefferson County Attorney's Office, decreases the revenue requirement LG&E and KU pushed for by nearly \$60 million.

LG&E asked for a rate increase that would have amounted to a monthly bill increase of around 11.8% for electricity and 9.4% for gas. Under the terms of the settlement, electric customers would see a 7% increase and gas customers, a 6.4% increase.

The deal also removes a \$6 increase to monthly basic service charges and includes a

four-year "stay out" provision that prevents another rate increase from being implemented before July 1, 2025.

The deal is pending Public Service Commission approval.

More: [Louisville Courier Journal](#)

MICHIGAN

State Facilities to Run on Renewables by 2025



Gov. **Gretchen Whitmer** last week said state office buildings and other facilities will run on renewable energy by 2025.

Although the government's energy use at offices, prisons, labs and

other facilities is a tiny fraction of the state's overall energy footprint, advocates say Michigan's buying power will help utilities expand their renewable generation.

Whitmer has vowed to make the state carbon-neutral by 2050.

More: [Bridge Michigan](#)

MINNESOTA

Hennepin County Board Approves Latest Climate Action Plan

The Hennepin County Board last week

approved the latest version of an expansive climate action plan that contains more than 200 strategies to reduce greenhouse gas emissions across the county.

Some of the changes include expanding on the strategies for protecting natural resources, using green infrastructure, planting and maintaining trees, increasing carbon sequestration and adding strategies to reduce vehicle miles traveled.

The board will take a final vote May 5.

More: [Star Tribune](#)

Supreme Court Says Environmental Review Not Needed for Wisc. Plant

The Supreme Court last week overturned an appellate ruling that would have required further environmental study on Minnesota Power's plans to build a \$700 million natural gas plant in Superior, Wisc.

The utility received approval from the Public Utilities Commission in 2018 to draw power from the proposed 525-MW plant. In 2019, the Court of Appeals ordered the PUC to study whether the project "may have the potential for significant environmental effects" and to conduct a formal environmental review if so. However, the Supreme Court reversed that decision, writing that the commission "is not required to conduct review under the Minnesota Environmental Protection Act ... before approving affiliated-interest agreements that govern construction and operation of a Wisconsin power plant by a Minnesota utility."

The Appeals Court will get a chance to address whether the commission's decision to approve the utility's stake in the project "was supported by substantial evidence," the Supreme Court ruled.

More: [Star Tribune](#)

MONTANA

House Energy Committee Kills Colstrip Bill over Consumer Concerns

The House Energy Committee last week voted to table Senate Bill 379, a bill that would have shielded NorthWestern Energy from future financial losses associated with rescuing the Colstrip Power Plant. The committee concluded that the bill did nothing to save the power plant and made unheard-of concessions to the utility.

NorthWestern's customers owe \$272.4 million, but Public Service Commission staff estimated that customer cost under SB 379 would be \$483 million, spread over the next

21 years. Normally the PSC decides how much customers are billed for a power plant, however the bill would have stripped the PSC from setting the price.

House lawmakers could revive the bill by voting it out of committee with a majority floor vote.

More: [Billings Gazette](#)

NorthWestern Energy Building Natural Gas Plant in Laurel



NorthWestern Energy last week said it intends to build a \$250 million, 175-

MW natural gas power plant in Laurel as part of its plan to add 325 MW of dispatchable power to its portfolio.

The utility also revealed plans for a 50-MW battery storage project and a five-year agreement to buy 100 MW of hydropower.

The plant is expected to be operational by Jan. 3, 2024. The battery storage project is expected to come online in late 2023.

More: [Billings Gazette](#)

OHIO

Warren Pledges to Reduce Emissions 30% by 2030



Warren Mayor **Doug Franklin** last week pledged to reduce the city's carbon emissions by 30% by 2030, based on 2010 levels. Franklin did not outline specific ways the city will achieve the reductions but said

he is open to suggestions.

The town becomes the 12th to join Power A Clean Future Ohio, a nonpartisan coalition dedicated to working with local communities to develop clean energy solutions.

More: [Tribune Chronicle](#)

SOUTH CAROLINA

Gov. Nominates Former US Attorney to Serve as Santee Cooper Chairman

Gov. Henry McMaster last week nominated Peter McCoy Jr. to serve as the next chairman of Santee Cooper's Board of Directors. McCoy is a former U.S. attorney and former chairman of the House Judiciary Committee.

"I am confident that he is the right man to

protect our state's ratepayers and taxpayers, to bring much-needed transparency and accountability to the board of directors, and to lead Santee Cooper fairly and honestly while the General Assembly determines its fate," McMaster said.

More: [WCSC](#)

WASHINGTON

Tacoma Bans Fossil Fuel Use in New City Buildings

The Tacoma City Council last week unanimously passed a resolution requiring that new city-owned buildings and buildings undergoing major renovations use low-carbon fuels and prohibiting the use of natural gas and other fossil fuels.

The resolution also directs City Manager Elizabeth Pauli to spend upward of \$130,000 to conduct studies and report her findings by Jan. 1, 2023. The studies would focus on taking inventory of all city-owned facilities that use fossil fuels and evaluate what it would take to retrofit them to low-carbon sources. Studies would also look at retrofitting each city-owned parking facility and building with EV charging stations and assess the impact of requiring non-fossil fuel sourced heating, lighting and power in new commercial and residential development.

The new policy will become effective Jan. 1, 2022.

More: [The News Tribune](#)

WISCONSIN

PSC OKs Alliant's Plan to Spend on Solar

The Public Service Commission last week unanimously approved Alliant Energy's proposal to spend nearly \$1 billion on new solar plants as part of the utility's plans to phase out coal-fired generators.

The PSC authorized Alliant to purchase six solar farms with a combined capacity of 675 MW. The six plants are the first phase of the utility's plan to add nearly 1,100 MW of solar capacity by 2024.

Ratepayers will be responsible for \$585 million of the \$925 million cost — the estimated fair market value minus contributions from investors seeking to leverage federal tax credits — along with a 10% profit for company shareholders.

More: [Wisconsin State Journal](#)