RTO Insider

Your Eyes and Ears on the Organized Electric Markets

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ISSN 2377-8016 : Volume 2019/Issue 3 January 15, 2019

PG&E Says It Will File Bankruptcy, as CEO Steps Down

By Hudson Sangree

PG&E Corp. and its subsidiary Pacific Gas and Electric will file for federal bankruptcy protection by Jan. 29, the companies announced Monday, capping a tumultuous week in which PG&E's stock price plummeted and its credit rating was downgraded to junk status by two major ratings firm.

A day earlier, PG&E said CEO Geisha Williams would be stepping down and leaving the company. Her tenure with the company has coincided with major disasters, including the 2010 San Bruno gas line explosion as a senior executive, and the 2017 wine country fires and 2018 Camp Fire, the deadliest in state history.

Together, those three events killed 104 people, destroyed 28,000 structures and burned approximately 400,000 acres. PG&E was found criminally liable for the San Bruno explosion, which wiped out a suburban San Francisco neighborhood. The Tubbs Fire, which burned down the northern part of Santa Rosa, Calif., in October 2017 and the Camp Fire, which leveled the town of Paradise in November 2018, remain under investigation, though PG&E equipment is a suspected cause of both.

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McNamee Declines to Commit to Resilience Recusal

By Michael Brooks

FERC Commissioner Bernard McNamee last week informed Senate Democrats that ethics advisers told him he was not required to recuse himself from the commission's ongoing inquiry into RTO/ISO grid resilience (AD18-7).

In a *letter* to Sen. Catherine Cortez Masto (D-Nev.) dated Jan. 7, McNamee attached a Jan. 2 memo to him written by Charles Beamon, FERC associate general counsel. In the memo, Beamon described his Dec. 12 meeting with McNamee, saying he advised the commissioner that he did "not view your prior position and statements as demonstrative of an unalterably closed mind as to" the proceeding.

Beamon, however, cautioned that "we must exercise continued oversight to ensure that

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Mass. Looks to Double Down on OSW, Clean Goals

By Michael Kuser

BOSTON — Massachusetts is seeking to broaden its already ambitious goals for procuring clean energy and reducing emissions, state officials said last week.

Topping the agenda: The state wants to solicit an additional 1,600 MW of offshore wind energy even as it is barely halfway through a procurement process for the same volume as authorized by 2016 legislation.

"We're launching an offshore wind study to look at ... whether we can get an additional 1,600 MW," Massachusetts Department of Energy Resources Commissioner Judith Judson said Wednesday at a meeting of the Environmental Business Council of New England.

Massachusetts last May awarded Vineyard Wind an 800-MW offshore wind contract that runs 20 years and has two 400-MW tranches.

The Environmental Business Council of New England sponsored a briefing by DOER officials at the law office of Prince Lobel in Boston on Jan. 9. | © *RTO Insider*

The first tranche starts at $74/MWh and the second at $65/MWh, with the prices increasing by 2.5% per year. Partially redacted contract summaries from the state's Department of Public Utilities show an average nominal price of $64.97/MWh in 2017 dollars.

"We're excited to be jump-starting the offshore wind industry," Judson said. "Because of the way we set that up, with a long-term, revenue-fixed contract ... we were able to get that

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2019 Annual Subscription Rates:

Plan	Price
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In this week's issue

COUNTERFLOW
By Steve Huntoon

Electric Cars: Once More With Feeling

By Steve Huntoon

Two years ago I wrote a column: "Electric Cars: Three Ugly Facts."[1]

The column showed that electric cars are:

- Uneconomic relative to gasoline cars;
- Contribute more to global warming than gasoline cars; and
- Cause more death and disability than gasoline cars.

All still true today. I included a photo of a 1922 electric car (reprised here) to make the point that electric cars died about a hundred years ago, and they ain't coming back any time soon (except as niche Veblen goods like Tesla).[2]

I sent my column to *The Wall Street Journal* car columnist Dan Neil, who even then was an electric car devotee. No acknowledgement or response. Not that I expected one.

The Band Plays On

It's timely to reprise this subject because Neil just wrote another fawning piece for electric cars where he claims — *without any support whatsoever* — that a gasoline car is more expensive than an electric car over a 10-year ownership horizon.[3] And that within "the reasonable service life of any vehicle I buy today," the demand for gasoline cars will be zero. And he trashes the amazing technological improvements of gasoline cars as feeling "junky and compromising." (I suppose every iPhone enhancement could get such a dissing.)

1922 Detroit Model 90 | *Detroit Electric*

Irony abounds here because the very next day the *WSJ* itself ran an editorial arguing that electric cars are very expensive, and the electric car tax credit subsidy is very regressive.[4] And that electric cars lose money for their makers and are being made only because of federal and state mandates.

General Motors loses $9,000 on every Chevrolet Bolt. When you lose $9,000 on every electric car, you can't make it up in volume, especially not on gasoline cars that Neil claims won't exist anymore.

Paris Agreement

Neil writes that after the Paris climate talks, "most nations of the world have put the IC [internal combustion] vehicle under a death sentence." This is profoundly false. A mere handful of nations have adopted future — very future — limitations on gasoline cars, and most of those are purely aspirational.[5]

The reality is this: No nation is going to commit economic *harakiri* by mandating uneconomic cars for its citizens. Well, except maybe the nation of California.

Pièce de Résistance

Now the *pièce de résistance*. Not about electric cars, but electric trucks. Neil extolls a future pickup truck from a company called Rivian that supposedly in two years will be producing an electric pickup with 400-plus miles of range, that will make the gasoline pickup a financial albatross, and that will provide "a wading depth of 3 feet" with which you can go "through the river to grandmother's house."

OMG. For starters, Rivian is a company with demonstrated success only in selling investors. Its Wikipedia listing is enlightening. [6] Multiple name changes, initial product to be a high MPG (gasoline) car, then autonomous electric vehicles, and now electric pickups.

The pickup per Rivian's promotion would provide 400 miles of range *at the $100,000 price range*.[7] In the base model, providing 230 (not

Rivian R1T and Ford F-150 | *Richard Truesdell (left) and Jesus David Piña*

COUNTERFLOW

By Steve Huntoon

400) miles of range, the promoted base price is $69,000.

Here's a true-false question for those of you playing the electric vehicle game at home.

The base price of the base Rivian is $30,000 more than the price of a similarly configured Ford F-150:

- True.
- False.

The correct answer is True. The base Rivian, with 230 miles of range and a base price of $69,000, is $30,000 more than the price of a similarly configured Ford F-150 (same truck bed, four doors, 4x4) of $39,050.

Did I mention that the truck bed length of the Rivian is said to be 55 inches, while the standard truck bed of the F-150 is 78 inches? Last time I checked, pickup owners cared about how much stuff their pickup could carry.

Now, as for the financial albatross assertion about gasoline pickups, it is true that electricity generally costs less on an MPG-equivalent basis than gasoline. But let's do a little math.

The Ford F-150 gets 20 MPG. The average annual miles for a pickup is 12,000 miles.[8] At the current annual average cost of gas, that's $1,350 for gas per year (12,000 miles divided by 20 MPG times $2.25/gallon).

Neil talks about a 10-year ownership horizon of a purchase. So that's $1,350/year for gas times 10 years equals $13,500. Let's see. That's $13,500 for gas plus the price of the similar Ford F-150 of $39,050 for a total of $52,550.

Compare the F-150 price plus gasoline of $52,550 with the base price of the range-limited Rivian of $69,000, and assume that electricity for the Rivian is free.[9]

Any questions on the economics — or practicality? Which — just guessing here — matter big time to pickup buyers.

Finally, there's Neil's gushing about a future Rivian's 3-foot wading depth in rivers. Here's the term for anyone "wading," aka "floating,"[10] in 3 feet of river water: Foolish. Very foolish. ■

[1] *http://www.energy-counsel.com/docs/Electric-Cars-Three-Ugly-Facts-2017-02-14-RTO-Insider-Individual-Column.pdf*.

[2] Of course there could be a breakthrough in battery technology/cost, but nothing is on the near-term horizon. *https://www.bloomberg.com/news/articles/2019-01-06/before-the-electric-car-takes-over-someone-needs-to-reinvent-the-battery*.

[3] *https://www.wsj.com/articles/think-electric-vehicles-are-great-now-just-wait-11545838139*.

[4] *https://www.wsj.com/articles/the-electric-kool-aid-subsidy-test-11546201813*.

[5] *https://qz.com/1341155/nine-countries-say-they-will-ban-internal-combustion-engines-none-have-a-law-to-do-so/*.

[6] *https://en.wikipedia.org/wiki/Rivian*.

[7] *https://www.theverge.com/2018/11/26/18111782/rivian-r1t-electric-pickup-price-specs-la-auto-show-2018*.

[8] *https://afdc.energy.gov/data/10309*.

[9] BTW, on top of the regressive income tax subsidy, electric vehicles enjoy tax avoidance from not contributing toward our interstate highway system through the gas tax. Another subsidy.

[10] *https://weather.com/safety/floods/news/flash-flooding-vehicle-danger-20140717*.

FERC & Federal News

EPSA Asks Supreme Court to Review ZEC Rulings

By Michael Kuser

Exelon's Byron Generating Station's two nuclear reactors in Illinois produce more than 2,300 MW of electricity.

Several power producers joined the Electric Power Supply Association last week in petitioning the U.S. Supreme Court to review appellate court rulings upholding the New York and Illinois zero-emission credit programs.

Last September, both the 2nd and 7th U.S. Circuit Courts of Appeals rejected claims by EPSA and others that New York's and Illinois' ZECs, respectively, intrude on FERC jurisdiction. (See *Appeals Court Upholds NY Nuclear Subsidies* and *7th Circuit Upholds Ill. ZEC Program*.)

EPSA on Jan. 7 petitioned the Supreme Court for writs of certiorari to review both decisions. The group was joined on the 2nd Circuit *petition* by NRG Energy, with the New York Public Service Commission and Exelon — and its three New York nuclear plants — named as defendants. Calpine joined the 7th Circuit *petition* in the case against the Illinois Power Agency, the Illinois Commerce Commission and Exelon.

Enough Percolation

The New York PSC created the ZEC program in August 2016 as part of its Clean Energy Standard, which set a goal of reducing greenhouse gas emissions by 40% by 2030.

The PSC said it designed the program to avoid the issues behind the Supreme Court's April 2016 ruling in *Hughes v. Talen*, which voided Maryland regulators' contract with a natural gas plant as an intrusion into federal jurisdiction over wholesale power markets. (See *NY Attempts to Thread Legal Needle with Clean Energy Standard, Nuke Incentives*.)

The 2nd Circuit said that ZECs, like renewable energy credits, are certifications of an energy attribute separate from the purchase or sale of wholesale energy. Although the ZEC program "exerts downward pressure on wholesale electricity rates, that incidental effect is insufficient to state a claim for field pre-emption under the" Federal Power Act.

The court noted that the PSC avoided the defects of the Maryland contract for differences, which required the generator to participate in PJM's capacity market.

But EPSA attacked ZECs from a different angle in its petitions.

"The question presented is whether the FPA pre-empts only state subsidies that explicitly require a wholesale generator to sell its output in FERC-approved auctions, or whether the FPA also pre-empts state subsidies that lack such an express requirement but that, by design, subsidize only generators that sell their entire output via such auctions, thereby achieving the same effect," both petitions said.

"This is not a situation in which further percolation in the courts of appeals is warranted. Indeed, delay risks long-term distortion of the energy markets," the petitioners said. "The programs already in place are causing multibillion-dollar distortions and skewing decisions about long-term investment in energy generation."

In addition, the petition on the Illinois ruling said the 7th Circuit's "decision also rests on an erroneous understanding of the structure and operation of the Illinois ZEC program," and that while "these factual and procedural errors were addressed in a rehearing petition, the court took no corrective action."

Old Wine in New Bottles

Ari Peskoe, director of the Electricity Law Initiative at Harvard Law School, said, "These arguments about the text of the FPA and the court's 2016 Hughes decision largely repeat the generators' briefs filed at the 2nd and 7th Circuits. In rejecting these arguments, the 2nd Circuit panel found it 'telling that [the generators] cannot persuasively explain why FERC's holding [disclaiming jurisdiction over RECs] does not apply equally to ZECs.'"

Peskoe pointed out that amicus briefs filed at the appellate courts explain that "a decision endorsing petitioners' sweeping view of FERC's authority over all payments received by generators would threaten existing renewable energy programs and deny FERC the opportunity to harmonize its market regulation with state programs."

The 7th Circuit's *opinion* cited the Hughes ruling, in which the Supreme Court said it did not intend "to foreclose [states] from encouraging production of new or clean generation through measures 'untethered to a generator's wholesale market participation.'"

"And that's what Illinois has done," the 7th Circuit said. "To receive a credit, a firm must generate power, but how it sells that power is up to it. It can sell the power in an interstate auction but need not do so. It may choose instead to sell power through bilateral contracts with users (such as industrial plants) or local distribution companies that transmit the power to residences."

EPSA had contended that Illinois' ZEC program infringed on FERC's jurisdiction by indirectly regulating interstate energy markets by using average auction prices as a component in a formula that affects the cost of the ZECs. But the 7th Circuit found the value of ZECs does not depend on the generators' auction offers. ■

FERC & Federal News

McNamee Declines to Commit to Resilience Recusal

Continued from page 1

Docket No. AD18-7 does not develop in such a way as to replicate or closely resemble" the Energy Department's Notice of Proposed Rulemaking for FERC to order RTOs and ISOs to compensate the full operating costs of generators with 90 days of on-site fuel (RM18-1).

McNamee helped draft the NOPR, unanimously rejected by FERC, as the department's deputy general counsel for energy policy. In response to Democrats at his Senate Energy and Natural Resources Committee confirmation hearing in November, McNamee said he "clearly" would have to recuse himself from the NOPR docket, which Beamon reiterated in his memo. (See *Democrats Urge McNamee's Recusal from Resilience Docket*.)

But Beamon said that although the dockets are related, "I advised you that I do not view the relationship as requiring your recusal." He said he also emphasized the dockets were different proceedings and noted that the resilience docket "is an administrative inquiry in which the commission received over 200 comments suggesting various outcomes."

After he was confirmed 50-49 in early December, 17 Senate Democrats wrote to McNamee on Dec. 12 — coincidentally the same day he met with Beamon — requesting he update them on what guidance he received. Along with his work on the NOPR, they also questioned his impartiality based on a leaked video of a speech he gave while working for the Texas Public Policy Forum in June. (See *Senate Confirms McNamee to FERC*.)

FERC Chief of Staff Anthony Pugliese, left, and Bernard McNamee, center, head of DOE's Office of Policy, made the case for coal and nuclear price supports at a breakfast meeting of the Consumer Energy Alliance on the sidelines of the NARUC Annual Meeting in Baltimore in November 2017. Michael Whatley, right, CEA's executive vice president, moderated. | © *RTO Insider*

In the speech, McNamee criticized environmental groups and renewable energy resources, describing the efforts of his group to change public opinion on fossil fuels as a "constant battle between liberty and tyranny."

Beamon's memo quoted case law saying that parties cannot challenge the presumption of an agency official's impartiality "by merely showing that an official has 'taken a public position, or has expressed strong views, or holds an underlying philosophy with respect to an issue in dispute.'"

As an example, Beamon cited former Commissioner Philip Moeller's comments in 2011 on a bill in New Jersey, which he said would "crater the capacity market" in PJM. The Maryland Public Service Commission had cited these comments in its request for rehearing of FERC's acceptance of the RTO's revisions to its minimum offer price rule (MOPR) (ER11-2875).

The court unanimously decided that Moeller's comments "did not show that he 'had made up his mind regarding two as-yet-to-be filed proceedings concerning a related, but very separate matter — the specific, regionwide operation of PJM's MOPR,'" Beamon said.

Beamon concluded his memo by saying he "advised you to seek my guidance on any matter related to your past statements, positions, work or any other concerns that you may have." ■

CAISO/WECC NEWS

PG&E's Credit Woes Spread, Worrying CAISO Members

By Hudson Sangree

Concern about the ripple effects of Pacific Gas and Electric's financial meltdown had already spread last week as CAISO addressed worries about the utility's potential to default on its payments to the ISO, and a solar farm owned by Warren Buffett's Berkshire Hathaway saw its credit rating cut to junk status because of its dependence on PG&E.

Those worries will grow after PG&E announced Monday it would file for Chapter 11 bankruptcy protection by Jan. 29 because it faces $30 billion in liability for the catastrophic wildfires of 2017 and 2018. (See related story, *PG&E Says It Will File Bankruptcy, as CEO Steps Down*.)

On Friday, CAISO issued a market notice aimed at easing concerns about how PG&E's problems could affect the ISO and its participants.

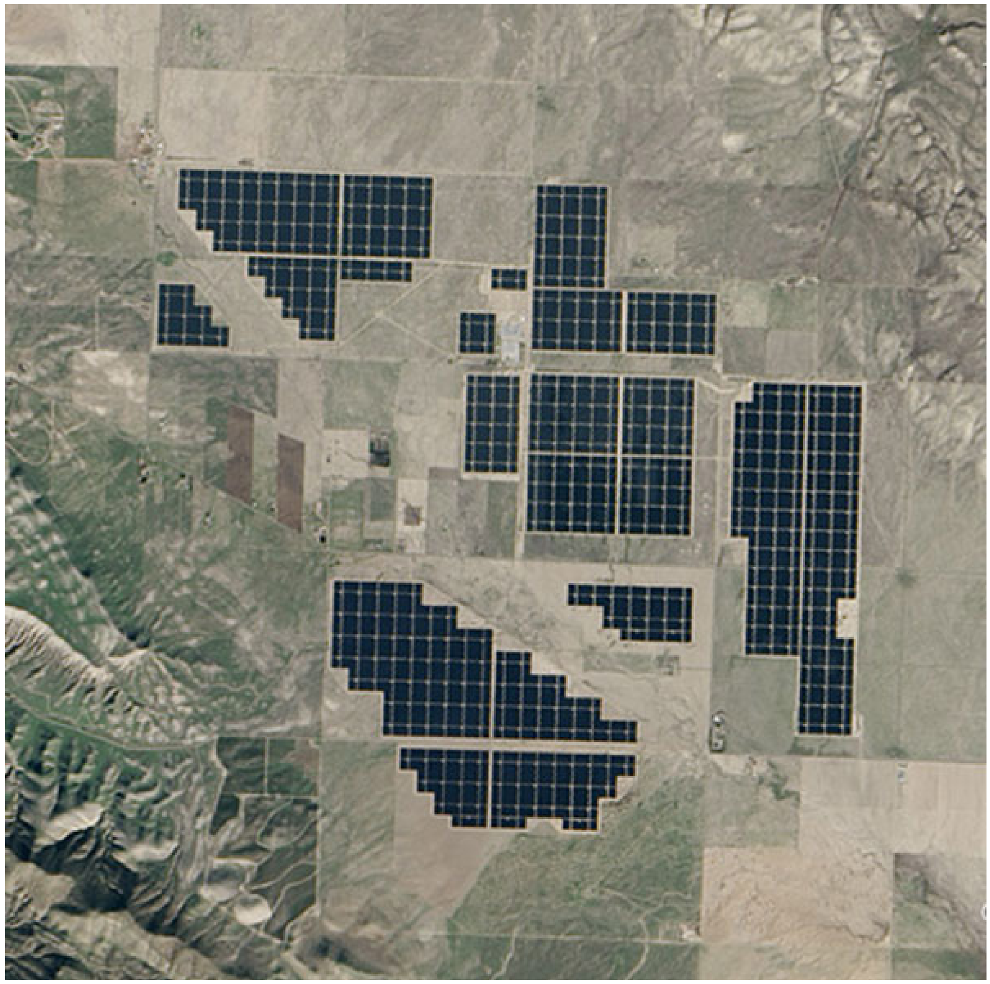
"The California ISO has received inquiries relating to the financial status of Pacific Gas & Electric Co. in light of recent media reports," the notice said. "The ISO wants to assure market participants that PG&E has posted collateral with the ISO to cover its outstanding and upcoming obligations."

Should PG&E default, however, the ISO's other members would have to pick up the tab. CAISO *rules* require each market participant to cover default losses "in proportion to the benefits it receives from its activity" in the market. When GreenHat Energy spectacularly defaulted in June in PJM's financial transmission rights market, other members were angry that they had to cover tens of millions of dollars in payments. (See *Greenhat FTR Default a 'Pig's Ear' for PJM Members*.)

GreenHat was a relatively small player in PJM, whereas PG&E, California's largest utility, is a huge part of CAISO. The total volume of energy delivered in CAISO in 2017 was 228,191 GWh, according to the ISO's annual Market Issues and Performance Report. PG&E's total deliveries that year were 82,226 GWh, the utility said in its *Annual Report to Shareholders*.

Bankruptcy Imminent

The question of PG&E's default isn't academic. The company's circumstances have been quickly worsening, raising questions about its ability to continue making ISO payments.



The 550-MW Topaz Solar Farms in central California, one of the largest photovoltaic power plants in the world, has been caught up in PG&E's financial meltdown. | *NASA Earth Observatory*

Hours before Monday's bankruptcy announcement, PG&E said CEO Geisha Williams was stepping down amid the growing turmoil.

Both Moody's Investors Service and S&P Global Ratings cut PG&E's credit rating to "junk status" last week, citing the utility's financial exposure for two years of massive, deadly wildfires along with the waning will of politicians to bail out the state's largest utility. (See *PG&E Stock Plunges, Credit Downgraded to 'Junk' Status*.)

"The downgrade reflected our assessment of a weakening of the company's governance, the souring political environment that we expect will lead to a weakening of the regulatory construct, what we see as the company's limited capital market access, and the possibility of a voluntary bankruptcy filing given the immense pressures and uncertainties still facing the company," S&P said in an update posted on its website Friday.

As of Monday afternoon, PG&E had lost about $32 billion, or nearly 90% of its market value, over 15 months starting in October 2017, when 21 major fires swept Northern California's famed wine country. Those fires killed 44 people and destroyed thousands of homes, including a substantial part of the city of Santa Rosa.

State fire investigators blamed PG&E for at least 17 of those blazes, and its stock price sunk from more than $70/share to about $38/share. For months, the utility's stock price hovered in the range of $40 to $50/share, then the Camp Fire struck Nov. 8. The deadliest fire in state history killed 86 people and wiped out the town of Paradise in the Sierra Nevada foothills of Butte County.

PG&E's equipment quickly fell under suspicion after the company reported to the Public Utilities Commission that it had experienced

CAISO/WECC News

a problem with a transmission line, and that employees saw flames near the Camp Fire's point of origin on the morning it started.

The company saw its stock price drop to less than $18/share last week as S&P downgraded its credit rating from investment grade to junk status.

News reports, quoting unnamed sources, suggested the utility might be getting ready to file for bankruptcy — or to put its downtown San Francisco headquarters on the market or sell off its gas division.

By Monday afternoon, PG&E shares were selling for about $8 on the New York Stock Exchange.

'Negative Implications'

The uneasiness about PG&E's future has started to spread to companies with which it does business

On Friday, S&P slashed the credit rating of the 550-MW Topaz Solar Farms in San Luis Obispo County to junk, citing its reliance on PG&E, with which it has a 25-year sales contract. Topaz is owned by BHE Renewables, a subsidiary of Buffet's Berkshire Hathaway Energy. The solar farm was completed at a cost of $2.4 billion in 2015.

"Topaz Solar Farms receives all of its revenue from PG&E under a long-term power purchase and sale agreement," S&P said. "Our rating on the solar project is currently capped by our view of the credit quality of PG&E, its utility offtaker."

S&P put Topaz on its credit watchlist with "negative implications."

"The CreditWatch negative listing reflects the increasing risk that we will downgrade PG&E by one or more notches over the next few months. If we lower our ratings on PG&E again, it could lead us to take an equivalent action on our ratings on Topaz Solar Farms.

"If PG&E files for Chapter 11, this could, subject to it being a material adverse effect, trigger a cross default under Topaz Solar's financing documents unless the power contract is replaced within 90 days of the bankruptcy event," S&P added.

In a separate post on its website Friday, S&P explained why it had downgraded PG&E's credit rating from BBB- to B Jan. 7.

"A number of events, over several weeks, contributed to our ... multinotch downgrade," it said.

Immediately after the Camp Fire, it appeared that state lawmakers and regulators would try to keep PG&E afloat to protect ratepayers and to achieve the state's ambitious renewable portfolio standards, S&P said. A new law, SB 100, requires the state to obtain 60% of its energy from renewable sources by 2030.

But public anger intensified, with protests at PUC hearings and PG&E headquarters. That anger has undermined the will of state regulators and politicians to protect PG&E, S&P said.

An allegation by the PUC in December that PG&E had falsified natural gas safety records made things worse. Politicians who had supported the utility expressed distrust.

On Jan. 4, PG&E issued a press release saying it was planning to shuffle its board of directors and reviewing "structural options," including in its operations, finances and management. Speculation quickly followed that PG&E might file for bankruptcy.

"It was the totality of these events that led to S&P Global Ratings' downgrade of PG&E into speculative grade," the credit rating firm said. By Monday afternoon, PG&E shares were selling for about $8 on the New York Stock Exchange. Shares dropped to $6 Tuesday morning before rebounding slightly to $6.50 at 10:30 a.m, ET. ■

PG&E's stock price plummeted after November's Camp Fire and continued plunging this week amid talk of the company declaring bankruptcy and selling off its gas division. | *Google*

Judge, Gov., CPUC and Protesters Weigh in on PG&E Mess

By Hudson Sangree

Protesters chant, with some wearing masks, at Thursday's PUC meeting in San Francisco. | *CPUC*

The California Public Utilities Commission began the process of implementing wildfire cost recovery provisions Thursday, as protesters argued against any effort to bailout Pacific Gas and Electric for the deadly wildfires of 2017 and 2018.

The day before, a federal judge proposed ordering PG&E to reinspect its entire grid before the start of the 2019 fire season and fix any problems it finds as a new condition of its probation in the San Bruno gas line explosion.

And earlier this week, California's new governor, Gavin Newsom, said he had been talking with PG&E executives to address the utility's dire financial situation.

The moves are the latest developments in the quickly evolving PG&E situation in the wake of November's Camp Fire, which killed 86 people. The utility's possible culpability for that blaze and other massive wildfires has raised the specter of bankruptcy, caused PG&E's stock price to plummet and led to speculation about whether the company might sell major assets, including its gas division. (See *PG&E's Troubles Mount After Camp Fire* and *PG&E Stock Plunges, Credit Downgraded to 'Junk' Status*.)

Dealing with PG&E's safety problems is "like repairing a jetliner while it's in flight," CPUC President Michael Picker said in a December *news release*. "Crashing a plane to make it safer isn't good for the passengers."

In its meeting Thursday, the CPUC unanimously approved an *order instituting rulemaking* to begin implementing the provisions of last year's landmark wildfire bill, SB 901, to allow for cost recovery by electric utilities. (See *California Wildfire Bill Goes to Governor*.)

The new law "describes how the commission will review applications by electrical corporations that request recovery of costs and expenses from wildfires in 2017 … and requires the commission to 'determine the maximum amount the corporation can pay without harming ratepayers or materially impacting its ability to provide adequate and safe service,'" the commission said.

"In undertaking the adoption of criteria and a methodology to determine the maximum amount the corporation can pay, the commission is mindful of both the finite resources of ratepayers in California and the importance of maintaining financially viable utilities to provide safe and reliable service," it said.

The order laid out a series of questions to help determine the criteria and methodology the PUC will use to evaluate applications by utilities for cost recovery, and established a schedule for the proceeding, with opening comments due Feb. 11.

Identify and Fix

Protesters with the Democratic Socialists of America were among those who argued against a bailout for PG&E on Thursday. | *CPUC*

At least a dozen protesters occupied the PUC hearing room in San Francisco on Thursday, chanting and speaking beyond the one-minute time limit Picker allowed. Some continued over the president's repeated objections.

"Ma'am, can you finish it up?" Picker said to one public speaker as she shouted at him from the lectern. "You're repeating yourself."

The speakers, including members of the Democratic Socialists of America's San Francisco chapter, argued that the state should not provide cost recovery to utilities responsible for wildfire deaths.

"You need to be in jail. You need to stop getting money from the public," one speaker said regarding PG&E.

Another speaker read aloud the names of dozens of fire victims.

On Wednesday, U.S. District Judge William Alsup in San Francisco said that unless he was convinced otherwise, he would impose new probation conditions on PG&E in the 2010 San Bruno gas line explosion case, which killed eight people and resulted in the utility being convicted of six felonies for knowingly violating federal safety rules and obstructing a federal investigation.

Those new conditions would include requiring the utility to reinspect its entire grid in the coming months and to remove any trees or branches that could contact power lines. In addition, he said PG&E would have to "identify and fix all conductors that might swing together and arc due to slack and/or other circumstances under high-wind conditions." The utility "shall identify and fix damaged or weakened poles, transformers, fuses and other connectors; and shall identify and fix any other condition anywhere in its grid similar to any condition that contributed to any previous wildfires," Alsup wrote.

"These conditions of probation are intended to reduce to zero the number of wildfires caused by PG&E in the 2019 wildfire season. This will likely mean having to interrupt service during high-wind events (and possibly at other times), but that inconvenience, irritating as it will be, will pale by comparison to the death and destruction that otherwise might result from PG&E-inflicted wildfires," the judge wrote.

He gave the parties until Jan. 23 to show why he shouldn't impose the new conditions and scheduled a hearing for Jan. 30. ■

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PG&E Says It Will File Bankruptcy, as CEO Steps Down

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PG&E, founded 114 years ago in San Francisco, announced it was seeking bankruptcy protection this week as it faces $30 billion in liability for deadly wildfires in 2017 and 2018.

In a U.S. Securities and Exchange Commission *filing* Monday, PG&E said it faces $30 billion in liability for the last two fire seasons, not including punitive damages, fines or penalties, which could add up to billions more. As of Friday, 750 lawsuits had been filed against PG&E for the Camp Fire and the wine country fires on behalf of a total of 5,600 plaintiffs, the company said. Eleven of the lawsuits are seeking class-action status, it said.

PG&E said its liability insurance and liquid assets would cover only a small fraction of those claims, and that bankruptcy was its only recourse.

"Following a comprehensive review with the assistance of our outside advisers, the PG&E board and management team have determined that initiating a Chapter 11 reorganization for both the utility and PG&E Corp. represents the only viable option to address the company's responsibilities to its stakeholders," PG&E Chairman Richard C. Kelly said in a *news release*.

A recent state law requires the company to give a 15-day advance notice of its intent to file for bankruptcy.

Ensuring Operations

PG&E said it expects to continue to be able to provide uninterrupted electric and gas service to its 16 million customers across 70,000 square miles of Northern and Central California. PG&E's service territory stretches from near the Oregon border in the north to Santa Barbara County in the south, and from the coast to the Sierra Nevada mountains.

The company told the SEC, however, that it does not plan to pay the $21.6 million in interest due today on its outstanding senior notes, although it had 30 days to make the interest payment before triggering a default.

It said it knows that parties it does business with will worry about getting paid too, but it expects to meet its obligations. (See related story, *PG&E Credit Woes Spread, Worrying CAISO Members*.)

"PG&E expects that the decision to seek relief under Chapter 11 will raise concerns among its constituencies, including customers, vendors, suppliers and employees, and may lead to a contraction in trade credit and the departure of key employees," it said. "PG&E has taken steps, however, to mitigate the impact of these potential developments."

That includes seeking debtor-in-possession (DIP) financing available to companies in bankruptcy.

"PG&E expects to have approximately $5.5 billion of committed DIP financing at the time it files for relief under Chapter 11 on or about Jan. 29, 2019, and has received highly confident letters from a number of major banks," the company wrote. "The DIP financing will provide PG&E with sufficient liquidity to fund its ongoing operations, including its ability to provide safe service to customers."

California's new governor, Gavin Newsom, issued a *press release* Monday saying he'd been monitoring the situation closely.

"When I took office one week ago today, I immediately instructed my team to meet with the California Public Utilities Commission, CAISO, PG&E and labor unions representing the workers who work for PG&E," Newsom said. "My staff and I have been in constant contact throughout the week and over the weekend with these stakeholders and regulators. Everyone's immediate focus is, rightfully, on ensuring Californians have continuous, reliable and safe electric and gas service.

"While PG&E announced its intent to file bankruptcy today, the company should continue to honor promises made to energy suppliers and to our community," he said. "Throughout the months ahead, I will be working with the legislature and all stakeholders on a solution that ensures consumers have access to safe, affordable and reliable service, fire victims are treated fairly, and California can continue to make progress toward our climate goals."

'Very Short Runway'

Some said it isn't too late for California lawmakers to head off bankruptcy.

ClearView Energy Partners, a research firm based in D.C., said the State Legislature could pass a bill that extends provisions of last year's Senate Bill 901. That measure allows the CPUC to apply a financial stress test for 2017 wildfire liability to determine how much a utility can afford to pay without harming its customers or destroying its business.

Lawmakers could extend that provision to cover 2018 fires, giving PG&E another route to remain solvent, ClearView said in an email to its clients.

"The 15-day notice offers a very short runway for lawmakers to act before Chapter 11 proceedings could begin," the firm said. "We have observed lawmakers in California and other states move quickly when faced with an immediate concern. Still, the high degree of controversy and public outcry stemming from wildfire damages and perceived blame assigned to PG&E likely creates headwinds in the legislative process. Each day that passes without a legislative proposal could diminish the prospects for a legislative 'fix.'"

Even after Jan. 29, it may be possible to stop the bankruptcy proceedings, ClearView said.

"We are not bankruptcy experts, but our state

CAISO/WECC News

sources indicate that the initial steps in the Chapter 11 process are reversible. In other words, if state lawmakers do enact a law after January to change liability risk from wildfires that occurred last calendar year, PG&E could halt the proceeding. Still, we believe lawmakers need to take some action by the end of the month."

SB 901 was a compromise measure put together hastily at the end of last year's legislative session. (See *California Wildfire Bill Goes to Governor*.) Earlier, then-Gov. Jerry Brown called for lawmakers to overturn state court precedent that holds utilities strictly liable for all wildfire damage caused by their equipment, regardless of negligence. He was worried that PG&E might declare bankruptcy after the 2017 fires, undermining its support of clean energy and Brown's ambitious goals related to climate change.

Former PG&E CEO Geisha Williams. | *PG&E*

He may have had a point. Last week one of the nation's largest solar arrays, the Topaz Solar Farm in Central California, had its credit rating downgraded to junk status because it had signed a 25-year power purchase agreement with PG&E. S&P Global Ratings said Topaz, owned by Warren Buffett's Berkshire Hathaway Energy, could be harmed by PG&E's inability to pay.

On Monday, the Natural Resources Defense Council said PG&E's bankruptcy could spell bad news for California's goals, enshrined in last year's SB 100, of relying on 60% renewable energy by 2030 and achieving zero-carbon status by 2045.

"As NRDC warned months ago, potential adverse consequences include a loss of state oversight and damage to significant clean energy programs critical to reaching California's climate goals," including PG&E's planned investments in electric vehicle infrastructure, NRDC said in a news release. "At risk could be billions of dollars of funding for PG&E's nation-leading clean energy initiatives, which are designed to help fight the effects of climate change like these tragic wildfires."

The legislature reconvened Jan. 7. Lawmakers, some of whom have backed away from supporting PG&E, have yet to offer any bills that could help the utility. ■

ERCOT News

ERCOT Briefs

PUC Asks Legislators for Clarity on Battery Storage Ownership

As part of its 2019 Scope of Competition in Electric Markets *report* to the Texas Legislature, the Public Utility Commission is asking legislators to help provide clarity on whether transmission and distribution utilities (TDUs) can own and operate energy storage devices (Project *48017*).

The PUC said that the ownership and deployment of electricity from battery storage devices "has emerged as an issue that would benefit from legislative clarity."

PUC Chair DeAnn Walker | © *RTO Insider*

"I don't want the state to get behind on the development of batteries into our system," Commission Chair DeAnn Walker said during an open meeting last month.

The PUC opened a rulemaking on the issue (*48023*) in January 2018, shortly after it rejected AEP Texas' request to connect two battery storage facilities in West Texas to the ERCOT grid. (See "PUC Opens Rulemaking on Distributed Battery Storage," *LP&L Finalizing Agreements in ERCOT Move*.)

The commission has received 63 responses to its request for comments. The TDUs argued the state's Public Utilities Regulatory Act permits their ownership or operation of energy storage devices as long as the TDUs don't sell electricity or participate in the market for electricity (except as a customer). The generators asserted that PURA requires an owner or operator of storage facilities or equipment to register as a power generating company, and that a TDU can't legally be a utility and a generator.

"One side says PURA is clear, that TDUs can't own [battery storage]. The other side said PURA is clear, that TDUs can own it," Walker said during the December open meeting. "I think that speaks to whether PURA is clear."

The commission appears to be just as divided. Walker found herself siding with some of AEP's arguments last January, while Commissioner Arthur D'Andrea expressed his concerns over regulated utilities "playing in [the generators'] space."

Texas State Capitol

The PUC is scheduled to take up the rulemaking during its Jan. 17 open meeting.

The commission's *report* was filed with the 86th Legislature on Monday. The Legislature went into its biennial session Jan. 8 and will finish May 27.

In the report, the commission recommends that the threshold for reviewing mergers and acquisitions of power generation companies be changed from 1% to 10% of installed generation capacity in ERCOT. It doesn't recommend changing the 20% ownership limit of installed generation capacity.

Other recommendations include:

- Requiring retail electric brokers to register with the PUC in a manner similar to retail electric aggregators;
- Establishing a collaborative cybersecurity outreach program with utilities; and
- Considering a person in default if they don't respond to a commission's notice of violation within 20 days.

Energy Consumption Exceeds Expectations

The ERCOT market consumed more than 376 million MWh of power in 2018, a 5.3% increase over the year before, according to the grid operator's year-end Demand and Energy *report*.

The final total of 376,357,477 MWh was almost 5 million above the forecast of 370,619,525.

Combined cycle gas units accounted for 38.19% of the energy consumed, with coal-fired generation at 24.78%, wind at 18.55% and nuclear at 10.93%.

ERCOT's energy use was a dramatic increase from the previous two years, a sign of the state's booming economy. The market consumed 357,408,316 MWh in 2017 and 351,559,301 MWh in 2016.

Texas added 365,000 jobs in the 12 months that ended in November, and its 3.7% unemployment rate is the lowest on record, according to the Labor Department. ■

— Tom Kleckner

ISO-NE News

Mass. Looks to Double Down on OSW, Clean Goals

Continued from page 1

Left to right: DOER division directors Michael Judge, Eric Friedman and Nick Connors. | © *RTO Insider*

at a price that no one believed was possible. I know when we opened the bids, we were like, 'Whoa'; we were surprised. I think everyone was surprised."

John Rogers, an energy analyst with the Union of Concerned Scientists, wrote in a September blog post that the "price wasn't just impressive; it caught us really off-guard. I had been expecting a price about twice as high."

Judith Judson | © *RTO Insider*

"We're still in the midst of procuring our first 1,600 MW, and we will be issuing our next solicitation for offshore wind in the near term as well," Judson said.

The young industry came of age in December, when the eighth federal lease auction brought in $405 million for three wind energy sites offshore Massachusetts — about six times the revenue from all previous auctions combined. (See *Mass. Offshore Lease Auction Nets Record $405 Million*.)

Regional Benefits

Judson outlined what the DOER has done in the four years since Gov. Charlie Baker was first elected (he won a second term in November) and said the state is a national leader in energy efficiency and solar energy.

In November, the state launched the Solar Massachusetts Renewable Target (SMART) program, which provides incentives for projects on brownfields, landfills, parking lots and rooftops. The DOER is now in the final steps of developing its next three-year plan to submit to the DPU, she said.

She also pointed out the state's utilities have contracted with the proposed New England Clean Energy Connect project designed to bring Canadian hydro energy to Massachusetts through Maine.

"One thing I'll note about that, at about 5.9 cents[/kWh], if you look at that in total [compared] to what we pay for energy, capacity and ancillary services as well as renewable energy attributes, it's a very cost-effective price; in fact [it's] lowering bills," Judson said. "But it doesn't just lower bills in Massachusetts. When that project comes into the regional wholesale market, it provides those cost savings to every consumer in New England."

The Maine Public Utilities Commission is holding hearings this month (Docket No. 2017-00232) on a certificate of public convenience and necessity for NECEC, a project of Avangrid subsidiary Central Maine Power and Hydro-Quebec. The project has drawn opposition from environmentalists, fossil fuel generators and renewable energy advocates who want more local solutions that don't rely on hydro. (See *Maine PUC Move Poses Hurdle for NECEC*.)

Clean Peak and Leading by Example

Michael Judge | © *RTO Insider*

DOER division directors briefed meeting participants on their activities. Michael Judge, head of renewable and alternative energy, explained the state's new Clean Peak Minimum Standard, which was recently set to zero for 2019 while the agency works out the details of the program. (See *Mass. Inaugurates Clean Peak Standard*.)

"This is a big piece of legislation that was passed as part of last year's energy bill [H4857] and sets a portfolio standard for resources that can deliver clean energy during peak periods," Judge said. "The RPS doesn't actually focus the delivery of that renewable energy to align with peak periods when you have the highest cost and the highest emissions on the grid."

Judge referred to the solar "duck curve," which demonstrates how output from solar resources tends to be highest at mid-day during periods of modest demand.

"Trying to shift that generation so that it's actually addressing the peaks to flatten the load, that's one of the big objectives, but also addressing seasonal peak issues," Judge said. He said DOER will develop the clean peak regulations over 2019, and that there will be a higher standard in 2020.

The state Comprehensive Energy Plan (*CEP*) published last month says increased electrification in the transportation and thermal sectors may increase electric load — and peak load, depending on the timing of energy use, especially the charging of energy storage and electric vehicles.

Nick Connors | © *RTO Insider*

DOER Director of Green Communities Nick Connors said the state has granted more than $100 million in the 10 years of the program to support towns in such things as speeding up their permitting process.

Continued on page 15

ISO-NE News

ISO-NE, NEPOOL Answer Generators on FCM Test Price

By Michael Kuser

ISO-NE control room | *ISO-NE*

ISO-NE on Wednesday urged FERC to reject a *protest* filed by the New England Power Generators Association over the RTO's proposed "test price" mechanism to be applied to resources seeking to retire capacity through the RTO's substitution auction (*ER19-444*).

The complaint stems from the Nov. 30 joint *filing* by ISO-NE and the New England Power Pool proposing several Tariff changes to help implement the RTO's Competitive Auctions with Sponsored Policy Resources (CASPR). FERC approved the RTO's two-stage capacity auction designed to accommodate state renewable energy procurements last March. (See *Split FERC Approves ISO-NE CASPR Plan*.)

As part of the proposed changes, ISO-NE is seeking to introduce the concept of a test price that approximates a resource's competitive price to acquire a capacity supply obligation.

"Without some mechanism to assure competitive bidding, stakeholders worried that a participant would have incentive to reduce its primary auction delist bid below competitive levels in order to clear the primary auction and, as a result, qualify for 'severance' payments in the substitution auction," NEPOOL explained in a separate *answer* to NEPGA's protest filed Jan 7.

The test price would "serve as a screen for competitive behavior in the primary auction to determine whether an existing capacity resource's demand bid can enter the CASPR substitution auction," according to the RTO. It is intended "to thwart uneconomic bidding behavior in the primary auction of the Forward Capacity Market that, if unchecked, could reduce the primary auction clearing price below its competitively based level."

ISO-NE noted that its Tariff currently requires its Internal Market Monitor to make two annual filings with FERC showing various inputs for the Forward Capacity Auction slated for the following year. One of those filings, submitted each July, covers retirement delist bids from participants that intend to retire a resource.

"Since the CASPR test price is an auction input that is established as part of the IMM's review of retirement bids (and uses largely the same formula specified in the current Tariff for calculating retirement delist bids), the CASPR-related changes contemplate the filing of the test price values as part of the July filing of the retirement bids," the RTO explained.

While NEPGA does not oppose the filing of the test prices, it does contend that the IMM should be required to file participant-submitted test price values — not the values determined by the IMM.

NEPGA argued that prioritizing the IMM's values would usurp a market participant's sole right under the Federal Power Act to file a retirement delist bid as its rate for acceptance by the commission and that "the test price likewise is a rate, term or condition" of the participation in the FCA.

ISO-NE countered that NEPGA's argument is an "abbreviated repeat" of arguments the organization made in a protest of the previous Tariff revisions related to market rules for retirement of resources.

"In that proceeding, NEPGA argued that the proposed Tariff changes denied market participants their Section 205 filing rights to seek a determination of their own rates by requiring the IMM to file, in the July retirements filing, the IMM-determined delist bid price for a retiring resource, rather than the delist bid price submitted to the IMM by the market participant," ISO-NE said. "The commission squarely rejected NEPGA's contention."

The RTO said Section 205 rights are not at issue in the proceeding, "as the test price — like many other inputs into the auction — is not a rate, term or condition."

NEPOOL contended that instead of "unnecessarily" disrupting the stakeholder process, NEPGA should have "appropriately presented an amendment to the test price mechanism" at stakeholder meetings, in which case "NEPOOL may have supported an alternative approach that could have assuaged NEPGA's concern."

While it participated in the stakeholder meetings, neither NEPGA nor any other stakeholder suggested this alternative proposal, NEPOOL said. Stakeholders considered and debated the entire package of CASPR-related changes over last summer before a final vote at the Participants Committee in November, it said.

Resolving the Mystery

In the same filing, the RTO also answered NEPGA's Jan. 8 *motion* to lodge a Dec. 28 decision by the D.C. Circuit Court of Appeals (Exelon v. FERC, 17-1275) into the test price proceeding.

In the decision, the court remanded back to FERC its order accepting ISO-NE's retirement delist bid mechanism in the FCA, based on the commission's own explanation at oral argument that a market participant — and not ISO-NE or the Monitor — has the right to show that its filed rate is just and reasonable and will be entered into an auction regardless of the Monitor's proposed offer price. (See *FERC OKs Lower Delist Threshold in ISO-NE*.)

"We see no way to skirt the question Exelon tees up: Under ISO-NE's new Tariff rules, does a supplier's rate enter the auction so long as it convinces the commission that the rate is just

and reasonable, over contrary claims of the Market Monitor?" the court said.

It remanded the case to FERC "to resolve the mystery," saying the commission "should issue its clarification expeditiously, and in no event later than Feb. 1, 2019."

"NEPGA agrees with commission counsel that it is the market participant's right and obligation to make that showing, and as it explained in its limited protest in this proceeding, the law likewise applies to the test price market participants will be required to file for acceptance by the commission if the commission accepts the test price design in this proceeding," NEPGA said.

The RTO reiterated its contention that NEPGA's assertions are an "abbreviated" recycling of prior arguments rejected by FERC and that "NEPGA has made no attempt in its protest to explain why the same assertions do not similarly fail when aimed at the test price mechanism."

In addition, the RTO said the D.C. Circuit's remand "decides nothing regarding the issues in contention here regarding the test price" and that "at this stage, therefore, there is nothing of relevance to be gleaned from the D.C. Circuit's opinion." ■

Mass. Looks to Double Down on OSW, Clean Goals

Continued from page 13

Eric Friedman | © *RTO Insider*

Eric Friedman, head of the Leading by Example Office, said his team had "put a lot of effort into moving away from heavy fuel oil," with the use of about 18 million gallons avoided over the past decade and some 200 million kWh reductions in energy use. The state has 80 million square feet of building space, consumes more than 1 billion kWh and emits 1 million tons of greenhouse gases.

Even small steps add up, Friedman said. The state has moved to reduce mowing on its properties, as well as the use of gasoline-powered landscaping equipment, increasing pollinator habitat by letting the grass grow.

Storage and Energy Efficiency

Will Lauwers | © *RTO Insider*

Transportation's share in emissions has been going up as the power and building sectors improve, so electric vehicles are going to be at the center of change in the next few years, said Will Lauwers, DOER director of emerging technology.

"EVs move with people, so load, consumers and EVs are in the same location, and that's an opportunity for synergy," Lauwers said. "Energy storage and dispatchable load such as EVs will enable continued greening of the grid."

The state now has 380 MW of energy storage capacity, but storage interconnection is becoming increasingly more challenging, as it is not addressed in utility tariffs, Judge said.

"In many cases what ends up happening is a utility will say, 'Now you have 2 MW of storage here, you also have a 2-MW solar array, so you're 4 MW; you can put 4 MW on our system,' which is not necessarily how the system is designed to operate," Judge said.

Maggie McCarey | © *RTO Insider*

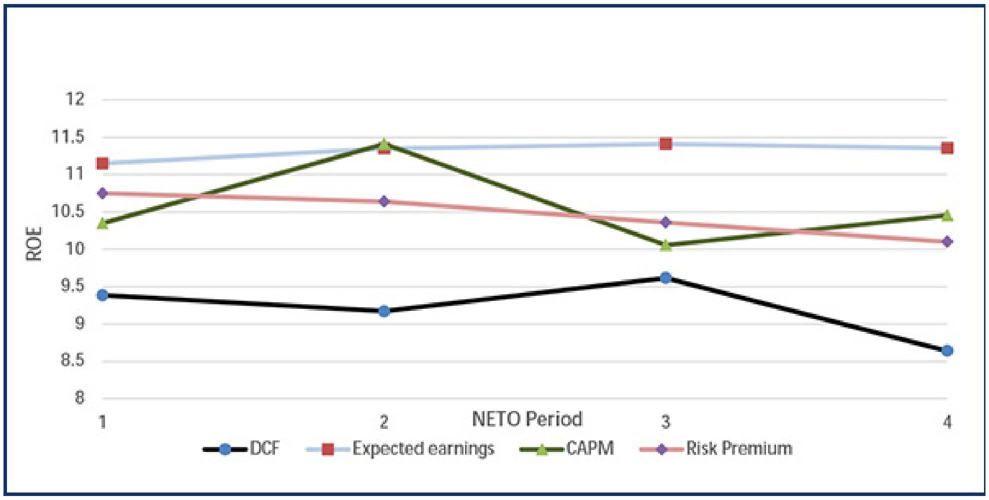
Director of Energy Efficiency Maggie McCarey said her office is focusing on developing and implementing the next three-year strategic plan for 2019 to 2021.

The expiring strategic plan — in effect through this month until the DPU approves the new one — had the highest EE goals in the country, while the new one is expected to deliver approximately $8 billion in savings to consumers, McCarey said. ■

ISO-NE News

FERC Discloses Data Behind New England ROE Order

By Michael Kuser



FERC's new ROE formula gives equal weight to four models. | *FERC*

FERC last week disclosed data underlying its new formula for setting return on equity rates for New England transmission owners (NETOs) and explained how the data influenced the ROE methodology outlined in an October briefing order.

But the commission's Jan. 7 order also noted it had not yet made any final determinations, and it referred complainants to the paper hearing on the issue (*EL11-66-001*, et al.).

The release of information came in response to a Nov. 16 *motion* for expedited disclosure by a coalition consisting of the Connecticut Public Utilities Regulatory Authority and several New England power cooperatives. The group sought the data and analyses underlying two graphs the commission referenced in its decision to no longer rely solely on the discounted cash flow (DCF) model, instead giving equal weight to results from the DCF and three other techniques: the capital asset pricing model (CAPM), expected earnings model and risk premium model. (See *FERC Changing ROE Rules; Higher Rates Likely*.)

The PURA, Eastern Massachusetts Consumer-Owned Systems, Massachusetts Municipal Wholesale Electric Co. and New Hampshire Electric Cooperative asked the commission to "identify and, where not already in the record in these four proceedings, release the sources, data sets and analyses underlying Figure 2 and Figure 3 in its Oct. 16 order."

FERC's new policy came in its long-awaited response to the D.C. Circuit Court of Appeals' April 2017 ruling vacating the commission's 2014 order on the NETOs' ROE rates. (See *Court Rejects FERC ROE Order for New England*.)

Data Details

Figure 2, "ROE Results from ROE Models," shows results from the four models over the four test periods at issue in the proceeding. FERC said that in calculating the expected earnings midpoint for Period 2, it had excluded ITC Holdings and Wisconsin Energy from the proxy group "as high-end outliers because their ROEs were more than 150% of the proxy group median for the NETOs," which was 10.225%.

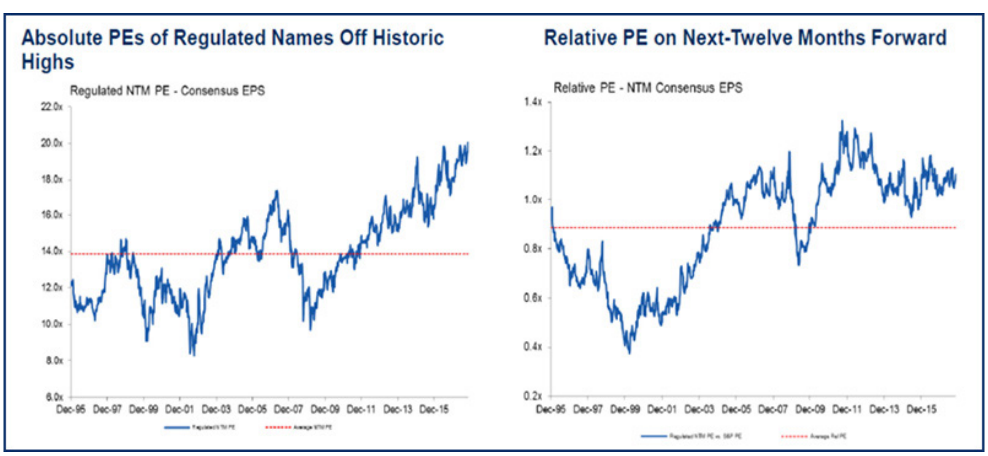
ITC was similarly excluded from the proxy group for Period 3, as was CenterPoint Energy for Period 4. The commission listed all other data effects as "none," except for its CAPM ROE midpoint, which had been rounded up in Figure 2 to 10.46% from 10.45%, as its exact midpoint is 10.455%.

The complainants said that "Figure 3, which is titled 'Regulated Utilities PE Chart,' appears to be excerpted from a report generated by Evercore ISI, an investment banking advisory firm. This report is not in the record for these proceedings and appears from our research to be proprietary and not publicly available."

The commission responded that Evercore ISI produced Figure 3 and that it "does not have access to the data or analyses that were used to produce that chart and therefore cannot provide that information. The briefing order relied on Figure 3 only for the limited purpose of showing that there had been a substantial increase in utilities' price-to-earnings ratio during the period [of] October 2012 to December 2017."

Figure 3 was part of the briefing order's explanation of why, during that period, "utility stock prices appeared to have performed in a manner inconsistent with the underlying premise of the DCF model that an investment in common stock is worth the value of the infinite stream of dividends discounted at a market rate commensurate with the investment's risk," the commission said.

Moreover, the commission said it did not rely on Figure 3 for any final determination on the use of the DCF model to determine utility ROEs. ■



Regulated utilities' price/earnings ratios | *Evercore*

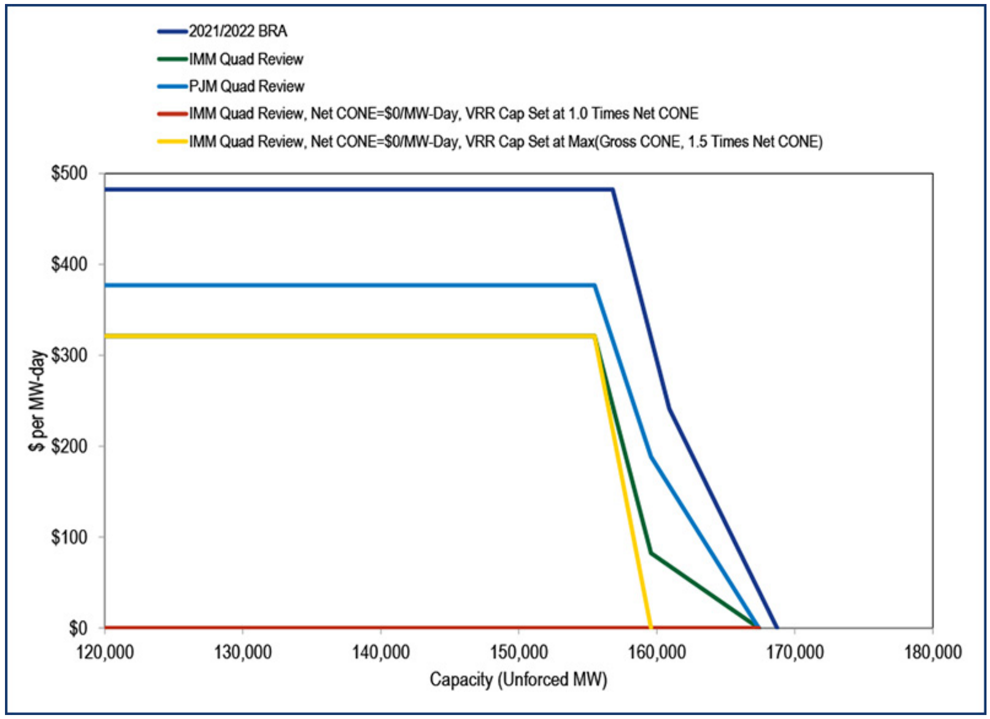
PJM News

Monitor Sees Problems with PJM Reserve Pricing Plan

By Michael Brooks and Rich Heidorn Jr.

Joe Bowring, IMM | *© RTO Insider*

VALLEY FORGE, Pa. — PJM's proposed revisions to how it prices reserves in its energy market necessitates changes in the RTO's capacity market to prevent substantial overpayment by customers for electricity and the exercise of market power by generators, Independent Market Monitor Joe Bowring said Friday.



RTO VRR curve comparison | *Monitoring Analytics*

Without a true-up, PJM's package of changes, being developed under a Jan. 31 deadline imposed by the RTO's Board of Managers, would result in the overpayment of at least $6 billion to generators over four years after its implementation, Bowring told the Energy Price Formation Senior Task Force, as well as significantly higher overpayment after that without specific market design changes in the capacity market.

"PJM's apparent goal is to shift revenue from the capacity market to the energy and reserve markets," Bowring said in a *presentation*. If so, he said, "there must be a clear and verifiable mechanism to ensure that the shift occurs effectively, equitably and efficiently."

The RTO has proposed raising the maximum price in the operating reserve demand curve (ORDC), used to set prices for reserve products, from $850 to $2,000. The proposed ORDC would raise both energy and reserve prices significantly. PJM would also use the same ORDC in the day-ahead and real-time markets for reserves, introducing the ability to procure primary reserves in the day-ahead and secondary reserves in the real-time. (See *Section 206 Filing on PJM Reserve Pricing Likely*.)

Bowring said increased energy market revenues won't result in lower capacity prices without changes to the variable resource requirement (VRR) demand curve. The curve is based on the net cost of new entry (CONE), which considers all generator revenues from energy and ancillary services markets.

The Monitor proposed setting net CONE as the maximum price on the curve. As a result, Bowring said, capacity prices could be $0 under some circumstances when energy market revenues are high.

"You can't have it both ways," Bowring said. "If you shift this high level of revenue from the capacity market to the energy market, you're effectively eliminating the capacity market."

The Monitor first raised its concerns at the task force's previous meeting Jan. 4, but Friday's meeting marked the first time it made explicit its proposals for why the VRR curve needs to change in response to PJM's proposal.

Capacity markets serve the same function as scarcity pricing, he said: to provide enough revenue to ensure there is adequate supply to meet demand. "I'm not arguing that we should get rid of the capacity market, but if PJM's changes to increase energy and reserve prices are implemented, we have to make sure people are not paying twice for the same product."

Bowring said PJM's logic for the package of revisions "escapes me." But, he said, if that was what the RTO wanted to do, his concerns would need to be addressed to prevent overpayments.

"I am not sure why PJM believes that there is urgency to this," Bowring said in an email. "It is not a simple matter, and PJM's approach has not been adopted by other RTO/ISOs."

Bowring also said an increased reliance on the energy market will reduce PJM's ability to "pick the reserve margin quite so precisely."

"It's the same lesson ERCOT learned," he said of the Texas grid operator, which does not have a capacity market.

'Radical Change'

Adam Keech, PJM | *© RTO Insider*

Adam Keech, PJM executive director of market operations, did not directly dispute Bowring's arguments. But he did take exception to the idea that the RTO was trying to eliminate the capacity market. "The goal [of PJM's proposal] is not to shift revenue," he said at the meeting. "The goal is to price energy and reserves correctly."

Keech told *RTO Insider* after the meeting that PJM was waiting for information from the Monitor, "because we have thought about it and not been able to identify what the issues are that they see."

Bowring said that PJM has explicitly ignored the potential revenue impact on the capacity market during the transition period. "In other

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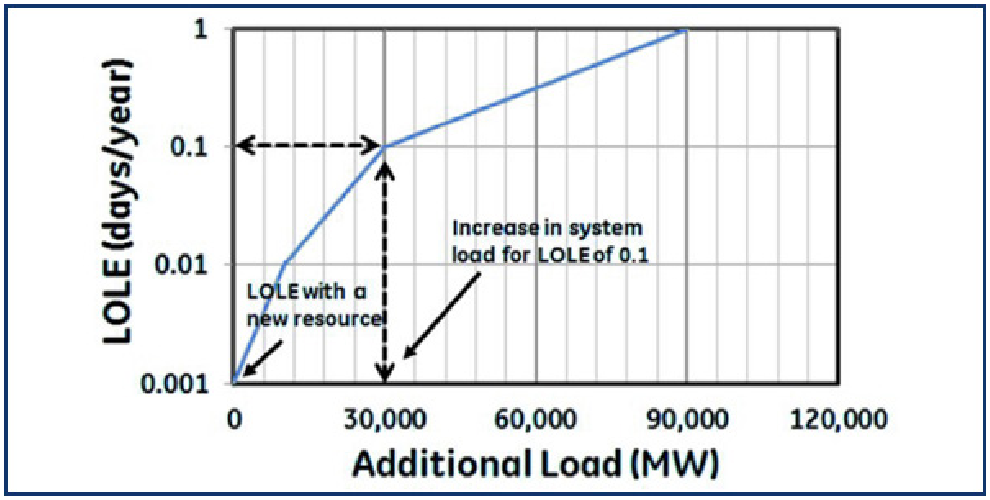
PJM News

PJM PC/TEAC Briefs



Effective load carrying capability is a measure of the additional load that a group of generators can supply without a reduction in reliability. | *PJM Renewable Integration Study (2014), General Electric*

PJM Ponders Rules for Offshore Wind Transmission

VALLEY FORGE, Pa. — PJM is considering changing interconnection rules to accommodate transmission serving offshore wind generation.

Current rules allow merchant transmission developers to obtain transmission injection and withdrawal rights for DC facilities or controllable AC facilities connected to a control area outside the RTO.

Sue Glatz, PJM | © *RTO Insider*

PJM's Sue Glatz presented the Planning Committee a ***problem statement*** to consider allowing merchant transmission developers to request capacity interconnection rights, or equivalents, for non-controllable AC transmission facilities.

Glatz said transmission developers have expressed interest in building AC transmission to accommodate future generation interconnection requests. The developers want to acquire capacity interconnection rights so PJM can identify the necessary network upgrades, she said.

The key difference is that the developers want to build transmission before the generation is sited. Without generation at the other end of the line, PJM cannot perform stability or short-circuit analyses, Glatz said.

PJM hopes to develop a FERC filing on Phase 1 of the initiative — focusing on rules for a single offshore generator lead line — by July.

Phase 2 will consider networked offshore transmission for connecting multiple wind sites. A FERC filing is targeted for September 2020. "We view this as much further down the road," Glatz said.

John Brodbeck of EDP Renewables N.A. asked PJM to offer education on what open-access rights generators will have to the lines.

Theodore Paradise, Anbaric | © *RTO Insider*

Theodore Paradise, ISO-NE's former assistant general counsel for operations and planning, who has joined transmission developer Anbaric as special counsel, asked for a discussion on how HVDC facilities are modeled in PJM.

The committee will be asked to approve the problem statement at its next meeting.

PJM Seeks Fix on Queue Filing Errors

PJM is proposing a one-sentence rule change to help developers avoid being removed from interconnection queues because of minor errors or omissions.

Interconnection customers are generally granted up to 10 business days to resolve deficiencies found by the RTO. But under changes initiated in 2016, requesters must clear all deficiencies by the last day.

The changes were intended to dissuade developers from late submissions. But PJM said requests are not being submitted any earlier and the changes were undermined by FERC rulings reinstating applicants removed for minor errors.

PJM's Susan McGill presented the PC a proposed ***problem statement*** to ensure that all applicants have up to 10 business days to correct deficiencies, whether they enter on Day 1 or the last day of the six-month queue.

"We can't have another queue where people get bumped out … they go to FERC and get waivers [to return]. It's very disruptive," Vice President of Planning Steve Herling said.

Since the AA1 queue opened in May 2014, 50 to 60% of interconnection requests were submitted in the last month of the queue.

Prior to the 2016 changes, which resulted from the Earlier Queue Submission Task Force, about 18% of projects submitted in the last month of the queue were withdrawn for deficiencies. After the EQSTF changes, that withdrawal rate increased to 24%.

PJM is proposing to give all projects 10 days to address problems by removing the following sentence from the Tariff: "Any queue position for which an interconnection customer has not cleared the deficiencies before the close of the relevant new services queue shall be deemed to be terminated and withdrawn, even if the deficiency response period for such queue position does not expire until after the close of the relevant new services queue."

"We're not looking for reasons to get rid of you," McGill explained.

PJM's Dave Anders said Manual 34 allows the first discussion of a problem statement to include a proposed solution if the committee chair determines "the problem presented is sufficiently simple."

Herling said, "We do have more changes we think need to be made [to interconnection queue rules]. But that will require a more robust conversation."

PJM Pondering Wind Capacity Measures

Wind generators could see lower capacity credits under rule changes being considered by the RTO.

PJM's Tom Falin presented the PC with the

PJM News

Tom Falin, PJM | © *RTO Insider*

updated *results* of the RTO's analysis of wind and solar resources' effective load carrying capability (ELCC) — a measure of the additional load that a group of generators can supply without a reduction in reliability.

The new results use the 2018 reserve requirement study (RRS) capacity model, which shows nameplate capacities for 2022/23 of 14,620 MW of wind and 5,290 MW of solar.

PJM found the average wind ELCC between delivery year 2009/10 and 2017/18 was 11.5%. That suggests the RTO's current practice of using wind's average capacity factor of 17.1% overstates wind's value, Falin said. The median capacity factor over that period was 8%.

"We feel [the median is] a much, much better indicator of the reliability value" of the resources than the average, Falin said.

PJM found the average solar ELCC since 2012/13 is 42.3%, close to the average capacity factor of 42.1% and median capacity factor of 40.9%.

Falin posed two questions to stakeholders: Should PJM continue with its original proposal to change the intermittent resource capacity credit calculation from an average value to a median value? Or should it base the calculation on the ELCC methodology?

He said the advantage of changing from average to median capacity factor is "it's much less of a black box" than ELCC.

Although the figures represent ELCC values RTO-wide, PJM said the ELCC must be allocated to individual generating units based on individual unit performance.

PJM calculates capacity credits for existing wind resources by multiplying the ELCC by the total nameplate. The RTO has three options for prorating the total capacity credit for existing units:

- The average output of an individual unit during a specified number of daily peak hours in each year for which the unit was in-service;
- The average output of an individual unit during the daily peak hours in which the loss-of-load expectation (LOLE) is non-zero in each year for which the unit was in-service; or
- The average output of an individual unit during hours ending 3, 4, 5 and 6 p.m. during the summer season in each year for which the unit was in service.

Falin said the second option could involve as few as three hours or as many as 12 per year. The last option — PJM's current method — has the advantage of being based on a lot of data, making it more stable than the other choices. But Falin said it also includes many hours with no LOLE risk.

For new resources, the credit can be calculated by:

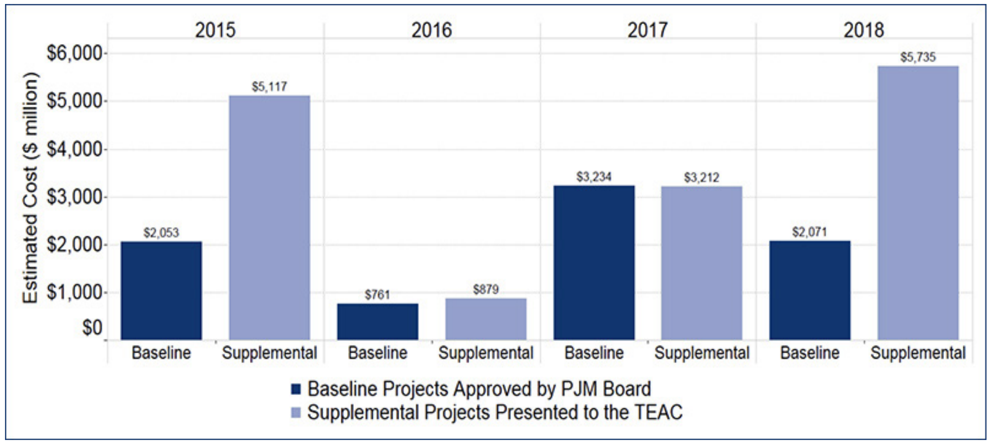
- multiplying the systemwide ELCC by the nameplate of the new unit (as MISO does);
- multiplying an estimated zonal ELCC by the nameplate of the new unit; or
- multiplying an estimated unit-type ELCC by the nameplate of the new unit.

RTO-wide ELCC values will be updated each year as part of the installed reserve margin study.

New units will continue to have the option to provide data justifying capacity credits greater than the ELCC value. As under current rules, new units' actual performance will be rolled in over a three-year period.

PJM wants to develop manual language and request MRC endorsement by the April meeting so that unforced capacity (UCAP) values for wind and solar can be posted by May 1 for use in the 2022/23 Base Residual Auction in August.

The changes would be effective June 1, 2022; thus, they would not affect UCAP values from prior auctions.



Transmission owners' supplemental projects have outpaced baseline projects in all but one year since 2015, totaling almost $15 billion. Baseline projects totaled only $8.1 billion over the same period. | *PJM*

Transmission Expansion Advisory Committee

Dominion Plans $7.5M Substation Project

Dominion Energy *plans* to spend $7.5 million on a new substation to accommodate a new data center campus in Fauquier County, Va., with a total load of more than 100 MW.

The company will interconnect a new Lucky Hill substation between the Remington and Gordonsville substations on line #2199, a 230-kV circuit.

The requested in-service date is Sept. 15, 2020.

Supplemental Projects More than Double Baseline Additions in 2018

Aaron Berner, PJM | © *RTO Insider*

Transmission owners proposed $5.7 billion in supplemental projects in 2018, more than double the $2.071 billion in baseline projects included in the 2018 Regional Transmission Expansion Plan, PJM's Aaron Berner *told* Transmission Expansion Advisory Committee members Thursday.

Most of the supplemental projects were presented by American Electric Power ($2.4 billion) and Public Service Electric and Gas ($1.46 billion).

More than half of the baseline projects were attributed to aging infrastructure.

PJM News

Reliability Window Likely in June

In an update on the *assumptions* for the 2019 RTEP, Berner said the RTO expects to open a reliability window for proposals in June.

The 2010 RTEP will include 27 locational deliverability areas and Ohio Valley Electric Corp. FERC approved OVEC's integration into PJM last February.

Generation with executed facilities study agreements (FSAs) will be modeled offline along with associated network upgrades, which will be analyzed separately. Berner said PJM could "turn on" FSA generation and their upgrades if there are many generation retirements but said the RTO does not expect to do so.

Travis Stewart of Gabel Associates said the American Wind Energy Association would like PJM to analyze the consumer benefits of states sharing the costs of transmission to accommodate their renewable portfolio standards. Stewart said AWEA wants more information on projects that could relieve congestion and allow PJM to access higher quality wind in the Midwest. The group may request PJM consider an RPS build-out as an RTEP future, he said.

PJM to Sunset Regional Planning Process Task Force

PJM notified stakeholders Friday that it plans to sunset the Regional Planning Process Task Force on Feb. 1 unless it receives objections from stakeholders within the task force, PC or the Markets and Reliability Committee.

The MRC voted in April 2015 to place the task force on hiatus in case it needed to be reconvened to address FERC Order 1000 or other issues. (See "Regional Planning Process Senior Task Force Placed on Hiatus," *PJM Markets and Reliability Committee & Members Committee Briefs*.)

Any comments should be sent to *Susan.Snyder@PJM.com*. ■

— Rich Heidorn Jr.

Monitor Sees Problems with PJM Reserve Pricing Plan

Continued from page 17

words, PJM is proposing that customers pay twice for the same product during the transition period."

Catherine Tyler and Joe Bowring, IMM. | © *RTO Insider*

The RTO proposes to use simulations to estimate the increase in energy revenue in defining the VRR curve in the capacity market auctions after the transition period. "PJM clearly has thought about the issues," he said, "but they have a very different proposal than the IMM's proposal."

Stakeholder reaction to Bowring's presentation was mixed. Brock Ondayko of American Electric Power said that, without further modifications to the VRR curve, he expected capacity to clear at lower prices under the proposed rules because of the increased energy and reserve revenues. Bowring's predictions "just seem counterintuitive," he said.

But consultants James Wilson and Roy Shanker, and Susan Bruce, attorney for the PJM Industrial Customers Coalition, agreed the IMM had identified a problem that needed to be addressed.

With the PJM board's deadline looming, however, it may not matter.

"We're in an interesting spot, both from a timing and scope perspective," said Dave Anders, PJM director of stakeholder affairs and chair of the task force, explaining that the capacity market curve is out of scope under the issue charge the Markets and Reliability Committee approved. The MRC's next meeting is Jan. 24, when the committee is expected to vote on PJM's proposal.

Anders said stakeholders offering alternatives to PJM's proposals should include any measures to address the capacity curve issue as an addendum, not as part of the packages to be voted on by task force members Jan. 17. "I don't want to use the process to ignore what may be a significant issue," he said.

Bowring said PJM would be foolish to ignore the impact of such a "radical change" to the energy market on the capacity market. "It *is* going to be part of the scope in front of FERC," he said.

Transparency Proposal

Wilson, a consultant to consumer advocates in New Jersey, Pennsylvania, Maryland, Delaware and D.C., ended the session with a brief *presentation* in which he said PJM should make public appeals for conservation when administrative shortage prices reach a threshold so that customers know they are facing high prices and have an opportunity to reduce their consumption. He said the trigger could be the shortage price component hitting $300/MWh.

"It shouldn't be just a quiet little press release on the PJM website," Wilson said. "It ought to be on the nightly news."

PJM's current rules call for such appeals only when reliability is at risk. ■

PJM News

Munis Wary of PJM Rules on Non-retail BTM Generation

By Rich Heidorn Jr.

Steve Lieberman, American Municipal Power | © *RTO Insider*

VALLEY FORGE, Pa. — A PJM proposal to revise the rules on non-retail behind-the-meter generation (NRBTMG) was met with suspicion from municipal utilities and cooperatives at last week's Operating Committee meeting.

PJM introduced a proposed ***problem statement***, saying current rules are inconsistent with Capacity Performance requirements and that the lack of reserves for this growing class of resources could present reliability problems.

NRBTMG refers to resources used by municipal electric systems, electric cooperatives or electric distribution companies to serve load. They do not participate as supply resources in PJM markets but can be netted against their wholesale load to reduce transmission, capacity, ancillary services and administrative fee charges.

PJM's rules on such resources resulted from a 2005 settlement agreement (***EL05-127***), before development of the RTO's capacity market and CP constructs. NRBTMG resources can be called upon during the first 10 maximum generation emergencies annually, while CP resources are required to perform during all performance assessment intervals. BTM operators that fail to perform face reduced netting benefits.

"The right to call upon NRBTMG during an emergency was established to address a concern that if too much generation is designated as NRBTMG and allowed to net against load, system reliability would be compromised since PJM would not be carrying reserves for a large amount of load associated with NRBTMG," the RTO said.

However, NRBTMG is not specifically addressed in PJM's Emergency Procedures Manual (M-13), making it unclear whether such resources would be requested to operate during any emergency.

NRBTMG resources are expected to run at full output. "'Full output' was considered a reasonable expectation of performance at the time of the NRBTMG business rule development, when more traditional types of NRBTMG existed," PJM said. "With the increased development of renewable NRBTMG in the PJM region, the expected performance level of NRBTMG should be re-evaluated."

PJM identified about 400 MW of NRBTMG in an outreach in 2006, before East Kentucky Power Cooperative, Duke Energy and American Transmission Systems Inc. joined the RTO, PJM's Theresa Esterly said. The RTO hopes to get a current tally of such resources through current efforts to update its data on all distributed energy resources.

Theresa Esterly, PJM | © *RTO Insider*

Closing 'Loopholes'

Jim Benchek, FirstEnergy | © *RTO Insider*

Jim Benchek of FirstEnergy said his company will support the review, provided the scope of the issue is clarified, as a way to "cover up loopholes for avoiding performance requirements."

"Calpine has been pushing to look at this issue for a while," Calpine's David "Scarp" Scarpignato said. While CP resources are penalized for failing to perform, the operators of underperforming NRBTMG will "lean on the rest of the system and they're not going to face any kind of penalty," he said.

Scarp also said the review is timely because any rule changes could affect the business models of DERs.

A Solution in Search of a Problem?

But representatives of cooperatives and municipal utilities questioned the need for new rules. "We want to be able to continue to use them the way we've been using them," said Carl Johnson of the PJM Public Power Coalition.

"You have a solution and you're trying to find a problem," said Steve Lieberman of American Municipal Power. "It seems like you're trying to make an equivalency between NRBTMG and capacity resources receiving capacity payments."

Mike Cocco of Old Dominion Electric Cooperative agreed, saying ODEC would oppose extending CP rules to non-capacity resources. He said any PJM proposal affecting NRBTMG must be comparable to the netting rules for retail BTMG. Cocco suggested expanding the scope of the problem statement to include a review of existing netting rules for both vNRBTMG and retail BTMG.

Scarp also suggested the inquiry be broadened to include retail BTMG, saying performance failures by such resources "could give you the same reliability issues."

Lieberman said expanding the scope could make it impossible to complete the work in the 10-month ***time frame*** proposed by PJM. "I don't want to face another letter from the Board [of Managers]" setting a deadline for action, he said, referring to the board's recent ultimatum on reserve pricing changes. (See ***Section 206 Filing on PJM Reserve Pricing Likely***.)

Operating Committee Chair Dave Souder asked stakeholders to propose any changes to the problem statement before the OC's next meeting, when the RTO hopes to bring the inquiry to a vote. ■

PJM News

FERC OKs PJM Tx Constraint Penalty Factor Changes

By Robert Mullin

| © RTO Insider

FERC last week approved PJM Tariff changes designed to bring the RTO into compliance with Order 844 by improving market participants' insight into the use of transmission constraint penalty factors.

"The proposed revisions will provide transparency regarding PJM's transmission constraint penalty factor procedures and also produce more transparent and appropriate pricing and investment signals that correspond to an underlying transmission constraint," the commission said in its ruling (*ER19-323*).

Transmission constraint penalty factors are the values at which security-constrained economic dispatch (SCED) will relax the flow-based limit on a transmission line in order to relieve a constraint rather than redispatch a costly resource.

Issued last April, Order 844 said that a lack of transparency prevents market participants from understanding how the factors influence LMPs. (See ***FERC Orders RTOs to Shine Light on Uplift Data***.)

In its compliance *filing*, PJM explained that its current logic for relaxing constraints prevents the penalty factor from setting the marginal value of a transmission constraint, thereby understating the severity of the constraint and producing LMPs that fail to send appropriate price signals to inform generation and transmission investment decisions.

FERC approved PJM's proposal to remove the constraint relaxation logic from its market operations and allow the penalty factor to set the marginal value for a constraint when SCED "cannot produce a solution that manages the flow on a transmission constraint within the limits of the transmission constraint."

The commission also found PJM's Tariff revisions adequately describe how the penalty factor will be reflected in LMPs. The RTO had clarified that the marginal value for a constraint is used as an input for determining LMPs' congestion component.

PJM also explained it will allow the penalty factor to set the marginal value for a constraint in market-to-market transactions, although it retains the ability to use the constraint relaxation logic at the request of an adjacent RTO.

"PJM states that it expects to use constraint relaxation logic for market-to-market congestion management with Midcontinent Independent System Operator Inc. until the second quarter of 2019, when MISO will update its market clearing engine to allow transmission constraint penalty factors to set the marginal value of the transmission constraint in its markets," the commission noted.

PJM's default transmission constraint penalty factor will be $2,000/MWh for real-time transactions within its own boundaries and $1,000/MWh for M2M coordinated transmission constraints on its side of a seam.

FERC also approved PJM's plan to revise penalty factor values "to reflect persistent system operational or reliability needs, changes in the costs of resources available to relieve congestion, changes to operating practices for managing market-to-market coordinated constraints, and the unique attributes of certain transmission facilities."

The commission additionally accepted the RTO's proposal to post adjustments to penalty factor values "as soon as practicable" rather than setting a hard deadline, "in the event that an unforeseen circumstance arises that prevents modified values from being posted within such a deadline." In doing so, it dismissed the Independent Market Monitor's argument in favor of a deadline.

FERC also disagreed with the Monitor's contentions that PJM should not retain the ability to apply its constraint relaxation logic for M2M constraints, as well as its assertion that penalty factor values take into account other system constraints, include RTO-wide reserve penalty factors.

"Establishing the default transmission constraint penalty factor values based on historical evidence, as PJM proposes, ensures that the SCED application considers all physically available dispatch options and available units to resolve binding transmission constraints," the commission said.

The Tariff revisions take effect Feb. 1. ■

PJM News

PJM Market Implementation Committee Briefs

VALLEY FORGE, Pa. — It was one of the shortest Market Implementation Committee meetings in memory Wednesday as stakeholders clocked out in only two and a half hours following discussions of the must-offer exception process, FERC's energy storage order and PJM's indemnification rules on bilateral trades of financial transmission rights. (See related story, *Shell Energy Seeks to Avoid Liability in GreenHat Trades*.)

PJM May Split Rule Changes on Must-offer Exceptions

PJM may seek approval of widely supported changes to the must-offer exception process while having further discussions on revisions that lack consensus, RTO officials told the MIC.

The MIC approved a package of rule changes proposed by PJM by a 79% vote in November. In December, however, the Markets and Reliability Committee remanded two packages of rule changes back to the MIC at the request of Susan Bruce, attorney for the PJM Industrial Customer Coalition. Bruce said the delay had been requested by industrial gas producer Praxair. (See "Must-offer Exception Process Deferred," *PJM MRC Briefs: Dec. 20, 2018*.)

The process behind the rule changes was initiated by Exelon to investigate issues including the process for existing capacity resources with a must-offer requirement to become energy-only resources.

The changes with widest support would *allow* market participants to voluntarily remove a generator from its capacity resource status by making a request to PJM and the Independent Market Monitor. It would also permit participants to request exemptions from multiple auctions in a single exception request. It would allow such changes for new resources that cannot be completed by the start of the delivery year for which it cleared.

There is less consensus on a rule that would require generators to forfeit their capacity injection rights (CIRs) if they are repeatedly approved for CP must-offer exceptions and not offered in capacity auctions for three consecutive delivery years.

Monitor Joe Bowring said the proposed changes failed to strike the right balance.

Bowring said PJM should discourage generators from holding on to CIRs for a long period of time because "they can't make up their mind" about being a capacity resource.

"If someone has a clear plan, and they're following it, that's fine," Bowring said. "We think this [proposal] allows more than that."

Carl Johnson, representing the PJM Public Power Coalition, was also critical. "I'm struggling to find anything I like about any of this," he said. "This doesn't hang together to me as an effective set of rules."

Carl Johnson, PJM Public Power Colition | © RTO Insider

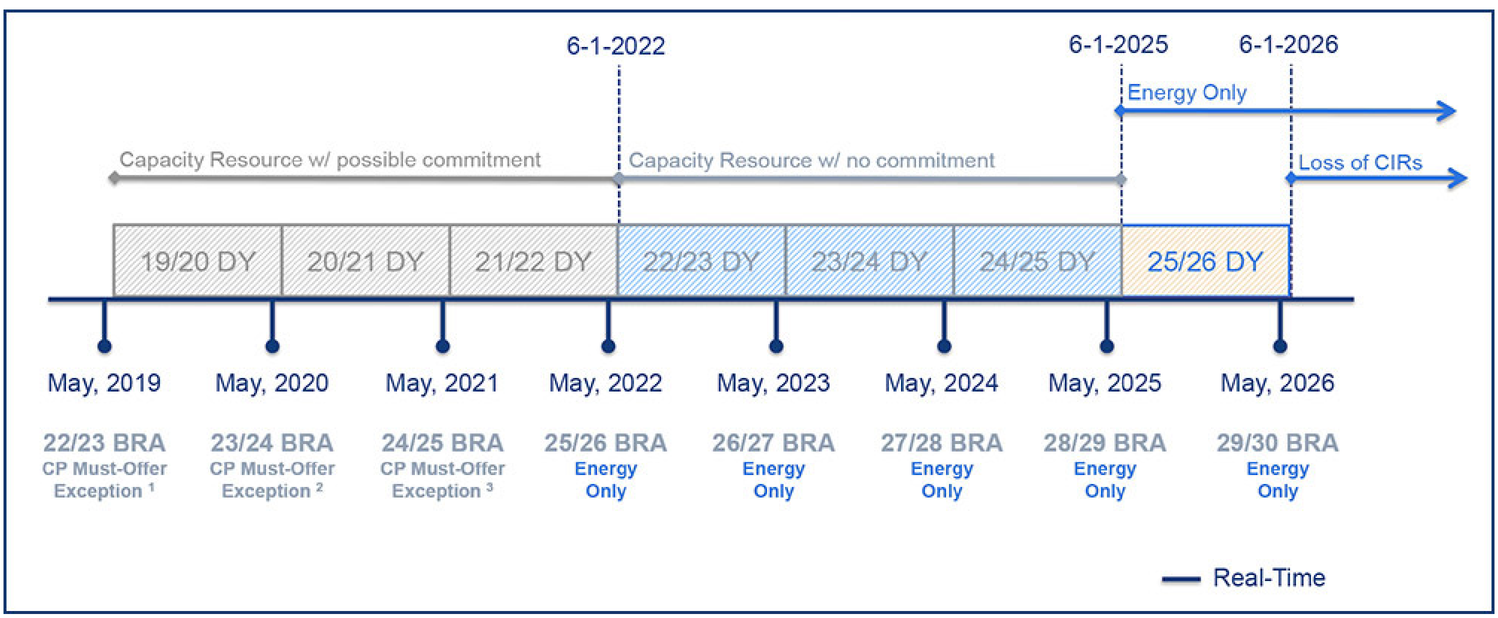
Sharon Midgley of Exelon asked PJM to move forward on the parts of the package with wide support, saying the only issue in dispute was over the RTO involuntarily seizing CIRs from generators after three years of successive must-offer exception requests.

But Marji Philips of Direct Energy said her company would not support a "quick fix" based on what has been proposed to date. "The process as proposed is a little bit loose yet," she said, adding that CIRs are "a very serious barrier to new entry."

A few stakeholders rekindled an earlier debate over whether CIRs are generators' "property rights."

Gary Greiner of Public Service Enterprise Group said stakeholders need PJM's opinion on the issue. "We've kind of danced on the periphery, but we've never come at it head on," he said.

Continued on page 25



PJM stakeholders are still debating a rule change that would require capacity resources to become energy-only after three consecutive years of exemptions from must-offer rules. | *PJM*

PJM News

PJM Operating Committee Briefs

The Right Metric on Frequency Response?

VALLEY FORGE, Pa. — During an Operating Committee presentation last Tuesday on changes to Manual 12, Carl Johnson of the PJM Public Power Coalition said he was "stunned" by reports of generators' poor performance in providing primary frequency response (PFR).

In October, PJM reported on an *analysis* of 454 generating units' responses to 13 events between December 2017 and April 2018. It found that 36% failed to respond or responded in the wrong direction, while only 42% provided 75% or more of the response required.

"It seems to me you would be having more problems than you are if performance was as poor as it appeared," Johnson said. "Are we measuring the right thing?"

Danielle Croop, PJM | © *RTO Insider*

Johnson's comments came as PJM's Danielle Croop gave a *first read* of an updated Manual 12 that includes a new section to describe how the RTO will measure PFR and respond to poor performers.

In 2012, NERC reported that only 30% of units online provide PFR — automatic adjustments that begin within seconds of detecting frequency variations — and only 10% of units online sustain it. FERC cited the data when it issued new PFR requirements in Order 842 last February.

The Markets and Reliability Committee agreed to continue monitoring units' PFR performance during 2019 after suspending the Primary Frequency Response Senior Task Force, which failed to come to consensus on any proposals to require existing units to provide the service. (See "PFR Task Force on Hiatus," *PJM MRC Briefs: Dec. 20, 2018*.)

The task force was put on hiatus after stakeholders soundly rejected PJM proposals to enforce PFR requirements beyond those in Order 842.

The order requires all newly interconnecting generation be capable of providing PFR. But the commission declined to order existing generators to retrofit their facilities to provide the service, saying it would be "prohibitively expensive" for some. (See *FERC Finalizes Frequency Response Requirement*.) PJM incorporated FERC's requirement into its interconnection service agreements in October.

Operating Committee Chair Dave Sauder and Secretary Dan Wallin lead the Jan. 8 meeting. | © *RTO Insider*

With some generators already providing sufficient frequency response, stakeholders said it was unnecessary to force all units to spend money to install the equipment needed to provide the service.

The manual changes detail calculations for high- and low-frequency events, explain when a resource will be evaluated for PFR and how the RTO will respond to resources that fail to perform. PJM will work with generation owners to identify whether the poor performance is because of telemetry, operating scenarios, generator hold points or malfunctioning governors.

Brock Ondayko of American Electric Power noted that FERC's order did not require scoring of PFR and said PJM had little stakeholder support for it. "To put forward parts of that concept [after the stakeholder rejection] is a bit interesting," he said.

The manual is scheduled to be brought to an OC endorsement vote at the Feb. 5 meeting.

Unit-specific Parameter Updates due Feb. 28

PJM reminded stakeholders that generating units unable to meet proxy parameters because of operating constraints must submit an adjustment request to *unitspecifcpls@pjm.com* by Feb. 28.

Unit-specific parameters will be applied to all Capacity Performance, base and fixed resource requirement resources effective June 1, the beginning of delivery year 2019/20.

Approved parameters remain in place unless PJM is notified of a change. Parameters approved and implemented in previous years do not have to be resubmitted.

Parameters *affected* include turn down ratio, minimum and maximum down time, maximum daily and weekly starts. Adjustment requests will be evaluated by April 15.

Cold Weather Generation Testing Continues to Shrink

PJM will *spend* only $162,000 to test the winter capabilities of 21 generators totaling 477 MW in 2018.

That's a fraction of what it spent when it launched the program following the 2014 polar vortex, when up to 22% of the RTO's generation was unable to operate.

PJM spent $4.9 million to test 168 units representing 9,900 MW before winter 2015. Last year, it paid $1.6 million to test 39 units (3,935 MW).

PJM's Ray Lee said the decline is a reflection of the transition to CP resources, which are not eligible for testing. All capacity resources will be required to meet CP requirements beginning with delivery year 2020/21.

Lee said it's unclear whether PJM will continue the program for energy-only generators in the future.

PJM News

Black Start Fuel Requirements

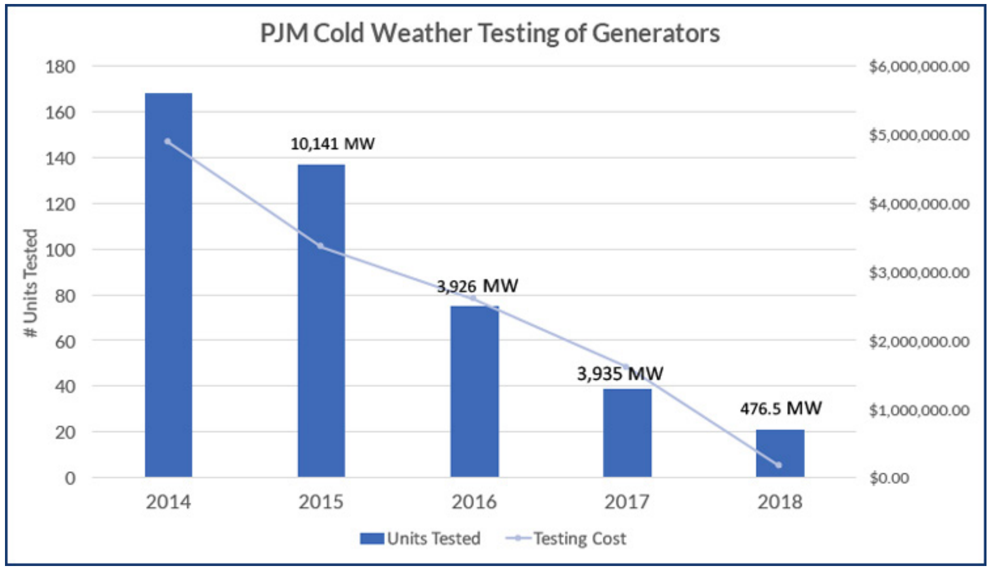
The OC held its first meeting last Tuesday on an initiative to develop fuel assurance requirements for black start units.

Members approved a *problem statement* creating the initiative in July, noting that only 50% of black start units were able to demonstrate fuel assurance through dual-fuel capability, on-site fuel storage or multiple gas pipeline connections.

Although fuel supply capabilities are among the criteria PJM uses in evaluating black start proposals, there is no fuel assurance requirement except that units have enough for 16 hours of run time.

The opening session featured a series of educational presentations by PJM *staff* and *Independent Market Monitor* Joe Bowring. The OC will return to the issue following its regular meeting Feb. 5. ■

— Rich Heidorn Jr.



PJM will spend only $162,000 to test the winter capabilities of 21 generators in 2018, a fraction of what it spent when it launched the program following the 2014 polar vortex. | *PJM*

PJM Market Implementation Committee Briefs

Continued from page 23

PJM's Pat Bruno said the RTO may split the issue so it can seek approval of its non-controversial elements. He said the RTO will conduct additional discussions with stakeholders before the next MIC.

Electric Storage Rules Require Manual Changes

PJM's Laura Walter gave stakeholders an *update* on the RTO's implementation of rules opening its markets to *electric storage*, saying as many as 15 manuals may require revisions.

Laura Walter, PJM | *© RTO Insider*

PJM made two filings to comply with FERC Order 841 on Dec. 3, one covering markets and operations (ER19-469) for which comments are due Feb. 7, and a second governing accounting (ER19-462), for which the comment period closed on Jan. 4. The RTO plans to implement the changes by Dec. 3.

Walter said stakeholders will be asked for feedback on energy storage cost offers at the February MIC meeting. Among the items to be discussed will be whether cost offers should be based on inventory cost (historical weighted average cost of stored energy available for discharge, adjusted for round-trip efficiency); opportunity costs (expected lost net revenue from operating in a given hour); or replacement cost (estimated future weighted average cost of charging energy over the next available operating period).

First drafts of manual revisions will be presented before July, Walter said. ■

—Rich Heidorn Jr.

PJM News

Shell Energy Seeks to Avoid Liability in GreenHat Trades

By Rich Heidorn Jr.

VALLEY FORGE, Pa. — Shell Energy N.A. came to the Market Implementation Committee on Wednesday to make its case against PJM's attempts to recover charges from financial transmission rights that the company purchased from failed GreenHat Energy.

After PJM sought more collateral from GreenHat as its losses mounted in April 2017, the company gave the RTO the rights to collect money it said Shell owed it for purchasing some of its FTR portfolio.

PJM was left emptyhanded when Shell said it had already paid GreenHat all it owed. (See *Doubling Down – with Other People's Money*.) But the RTO is hoping to recover some of GreenHat's losses through its indemnification rules on bilateral FTR trades.


Suzanne Daugherty, PJM | © *RTO Insider*

PJM Chief Financial Officer Suzanne Daugherty *presented* the RTO's interpretation of its indemnification rules to the MIC, saying PJM's Tariff requires secondary market buyers of FTRs to indemnify PJM and its members for "charges, not net charges" related to the position.

"That was purposeful, the way the wording was written," Daugherty said.

She said PJM believes the rule is clear. "Shell also thinks it's clear but disagrees with our interpretation," she said.


Matthew Picardi, Shell Energy | © *RTO Insider*

After Daugherty spoke, Shell's Matthew Picardi *outlined* his company's position, saying the indemnification provision does not apply to its transactions. In a Jan. 2 *filing* opposing PJM's Oct. 1 motion to withdraw proposed Tariff amendments related to its indemnification rules, Shell said that, "contrary to PJM's characterization," the company has never acknowledged it "sold" FTRs to GreenHat or otherwise triggered the Tariff's guarantee and indemnification provision.

Even if the provision does apply, Picardi said,

Date	Settlement for Original FTR Holder		Indemnification Settlement for Secondary Market Purchaser of FTR
6/1/18	$323.50		~~$323.50~~
6/2/18	$0.00		$0.00
6/3/18	$0.00		$0.00
6/4/18	$337.70		~~$337.70~~
6/5/18	$249.70		~~$249.70~~
6/6/18	$27.80		~~$27.80~~
6/7/18	$160.60		~~$160.60~~
6/8/18	$271.40		~~$271.40~~
6/9/18	$0.00		$0.00
6/10/18	$0.00		$0.00
6/11/18	$267.50		~~$267.50~~
6/12/18	$13.70		~~$13.70~~
6/13/18	$361.00		~~$361.00~~
6/14/18	$241.30		~~$241.30~~
6/15/18	$226.20		~~$226.20~~
6/16/18	$0.00		$0.00
6/17/18	$0.00		$0.00
6/18/18	$115.60		~~$115.60~~
6/19/18	$277.40		~~$277.40~~
6/20/18	$303.40		~~$303.40~~
6/21/18	$207.00		~~$207.00~~
6/22/18	($38.10)		($38.10)
6/23/18	$0.00		$0.00
6/24/18	$0.00		$0.00
6/25/18	($479.40)		($479.40)
6/26/18	($299.40)		($299.40)
6/27/18	($32.60)		($32.60)
6/28/18	($10.80)		($10.80)
6/29/18	($271.00)		($271.00)
6/30/18	$0.00		$0.00
Total	$2,252.50	Total Negative Credits	($1,131.30)
FTR Auction Charges	($393.50)	Auction charges for 6 negative days	($78.60)
Net	$1,859.00	Net	($1,209.90)

Shell Energy presented an example in which the original holder of an FTR would net a profit of $1,859 over one month if it remained the owner while a secondary market buyer of the FTR would owe PJM $1,210 because it was denied payments on days when the FTR was profitable. | *Shell Energy N.A.*

PJM News

PJM is misinterpreting it by requiring indemnifying parties to pay more than the defaulting party would have owed — a heads-I-win, tails-you-lose proposition.

"PJM believes that netting is not allowed," Picardi told the MIC. "We disagree with that."

He presented an example in which the original holder of an FTR would net a profit of $1,859 over one month if it remained owner while a secondary market buyer of the FTR would owe PJM $1,210 because it was denied profits on days when the FTR was in the black.

Shell made the same arguments to FERC in the docket opened by PJM, in which the RTO proposed Tariff changes that would allow indemnifying sellers to assume negatively valued FTR positions on which its indemnified buyer defaulted.

"Such a provision would provide the opportunity for the indemnifying seller to assume ownership of and manage its exposure to the negatively valued FTRs, regardless of the disposition process for the remaining FTR positions in the defaulting member's FTR portfolio," PJM said. "At the very least, electing this option would not put the seller in any worse position, since indemnifying sellers are already responsible for the charges associated with those bilateral FTR positions if the indemnified buyer does not pay such costs itself" (ER19-24).

"Such an assumption would allow the indemnifying seller the ability to manage its exposure from its indemnification, but it also protects PJM and its members because the indemnifying seller is assuming the volatility and of course providing the requisite credit," the RTO added.

After FERC staff issued a deficiency notice seeking more information on its indemnification procedures, however, PJM asked to withdraw its filing, saying "the proposal does not provide sufficient benefits to the PJM membership to justify PJM continuing to seek approval." (See "Bilateral FTR Retraction," *PJM MRC/MC Briefs: Dec. 6, 2018*.)

Although it opposed PJM's proposed Tariff change, Shell asked FERC not to end the docket, saying the withdrawal would prevent the commission from ruling on its dispute with the RTO over the existing indemnification rules.

"Members subject to a guarantee and indemnification claim by PJM should be able to assume all of the FTRs subject to the claim," Shell said. "Under PJM's proposed tariff amendment, only negatively valued FTRs subject to the claim could be assumed, which leaves the party with PJM's improper calculation of guarantee payments for any FTRs not assumed."

Shell said the commission should only close the docket if it simultaneously opens a Section 206 proceeding to determine whether PJM's interpretation is correct or unjust and unreasonable. "Allowing PJM to withdraw its Tariff amendment without initiating a Section 206 proceeding will leave PJM members with little choice but to file a complaint for relief," Shell said.

Separately, PJM has asked a judge in Harris County, Texas, to compel depositions by GreenHat's principals as a prelude to a potential civil suit against the traders. GreenHat responded with a counterclaim alleging Shell reneged on $70 million it owes for the transactions (Case No. 2018-69829).

Shell responded that the Texas court lacks jurisdiction over GreenHat's claim. The court rejected Shell's argument and created a second docket for the companies' dispute. ■

SPP

SPP Staff Outline Seams Strategy to SSC

SPP's interregional relations staff on Wednesday shared with the Seams Steering Committee their strategic vision for seams efforts through 2021.

The vision is heavy on improving transmission planning across the seams and offering reliability coordination services in the Western Interconnection. Staff referred to the seams strategy as a "living, breathing document" that will eventually be posted on the committee's *website*.

The goals include implementing improvements to the SPP-MISO Coordinated System Plan by the end of the first quarter, a process that will begin with a Jan. 31 meeting between RTO staffs and stakeholders.

SPP and MISO have revised their joint operating agreement's planning criteria in the hopes of agreeing on a first interregional project between the two. Legal staff are currently drafting language for a FERC filing. (See *MISO, SPP Tweak Interregional Criteria*.)

The RTOs also plan to begin a new study this year, using the new criteria.

Other strategic goals include:

- Implementing agreements between the SPP RC in the West and neighboring RCs;
- Developing RC coordination agreements with neighboring western RCs;
- Devising a cost-allocation Tariff mechanism for seams projects not driven by FERC Order 1000; and
- Defining the coordination of grid-switchable resources with ERCOT during emergency conditions.

Clint Savoy, SPP's senior interregional coordinator, told the SSC that staff have begun reaching out to neighbors to evaluate the potential value and benefits of sharing operating reserve responsibilities with other balancing authorities.

The committee also welcomed ITC Holdings' David Mindham and Corn Belt Power Cooperative's Kevin Bornhoft as new members.

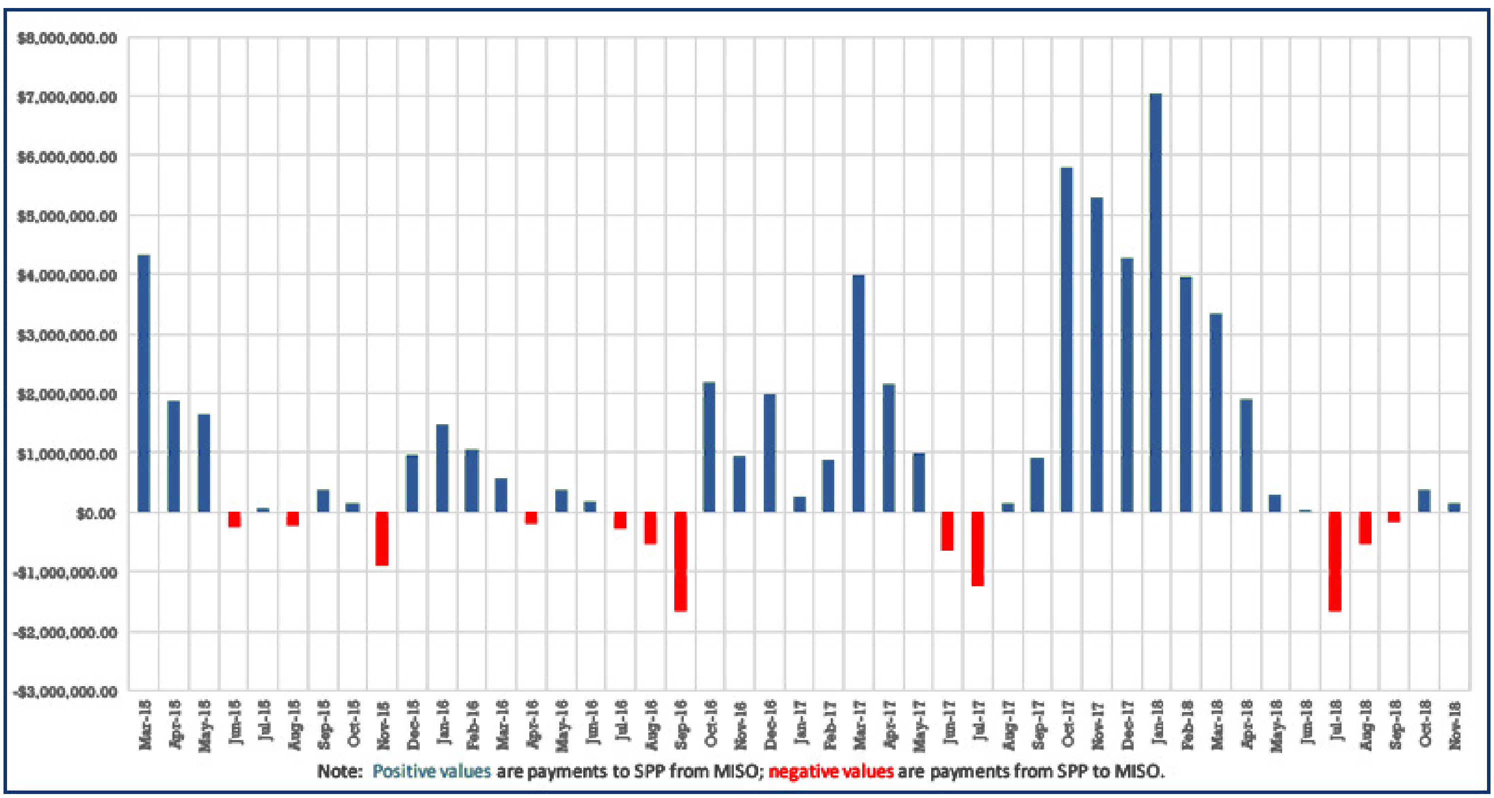
November M2M Payments Flow SPP's Way

The MISO-SPP market-to-market (M2M) process resulted in more than $148,000 in SPP's favor in November, the fourth straight month incurred payments have failed to reach $1 million.

Permanent flowgates accounted for the financial difference, binding for 53 hours. Temporary flowgates were binding for 592 hours but resulted in a $60.11 amount due to MISO.

SPP has amassed $51.8 million in distributions since the RTOs began the M2M process in March 2015, with payments flowing in SPP's direction 21 of the last 26 months. ■

— Tom Kleckner



November M2M update | *SPP*

Company Briefs

GM to Make Cadillac its EV Brand

As part of its Capital Markets Day last week, General Motors announced it would make Cadillac its lead brand for electric vehicles, with plans to introduce 20 new models by 2023.

Currently, GM's only EV model is the Chevrolet Bolt, introduced in 2016. The Cadillac signals that the company wants to take a more aggressive stand in the luxury EV space, dominated by Tesla in the U.S.

More: *Business Insider*

Digital Protective Relay Inventor to be Inducted into HOF

The man credited with producing the first commercially available digital protective relay in the U.S., **Edmund Schweitzer**, will be inducted into the National Inventors Hall of Fame in May.

The hall, which includes Thomas Edison, Enrico Fermi and Nikola Tesla among its ranks, honors inventors who hold a U.S. patent for a significant technology. The upgrade to digital from analog "revolutioniz[ed] the performance of electric power systems with computer-based protection and control equipment," according to the hall.

Schweitzer founded Schweitzer Engineering Laboratories in 1982 and began manufacturing and selling his product from his basement in Pullman, Wash. "I'm humbled by this incredible honor," Schweitzer said. "So many of the inventors recognized by the National Inventors Hall of Fame are heroes of mine."

More: *The Spokesman-Review*

SWEPCO Seeking 1,200 MW of Wind by 2021

American Electric Power's Southwestern Electric Power Co. issued a request for proposals last week for up to 1,200 MW of additional wind energy resources to be in operation by Dec. 15, 2021.

The proposals, due March 1, must have a minimum nameplate rating of 100 MW. SWEPCO said it is seeking to acquire new or existing projects that qualify for at least 80% of the federal production tax credit.

"SWEPCO continues to see strong customer interest in more renewable energy to meet their sustainability and renewable energy goals," COO Malcolm Smoak said.

More: *Arkansas Business*

Tesla Begins Construction of Gigafactory 3 in China

Tesla last week laid the foundation stone for its third Gigafactory in Shanghai, in a ceremony attended by CEO Elon Musk and Mayor Ying Yong.

Musk tweeted that construction will be completed in the summer and production of the Model 3 should start by the end of the year.

More: *pv magazine*

Federal Briefs

Trump Nominates Wheeler for EPA Head; Hearing This Week

President Trump last week nominated acting EPA Administrator **Andrew Wheeler** to be the agency's official head, and Sen. John Barrasso (R-Wyo.), chair of the Environment and Public Works Committee, quickly scheduled a confirmation hearing for Wednesday.

Democrats questioned the timing of the hearing, as non-essential EPA employees have been furloughed since Dec. 29 and will not return until the partial government shutdown is resolved. The Office of Management and Budget, however, on Saturday said staff helping Wheeler prepare for the hearing are "excepted" from furlough.

More: *The Hill*; *Politico*, *Politico*

No End in Sight for Shutdown, now Longest in US History

The partial government shutdown, held up over **President Trump**'s demands that Congress appropriate $5.7 billion to fund a stretch of wall on the Mexico border, became the longest in history over the weekend, with 800,000 federal workers, including those in EPA and the Interior Department, missing their first paychecks Friday.

It is now in its 25th day with no clear indication of when or how it might end.

Trump continues to claim that the wall is needed for border security and is considering declaring a national emergency to unlock Defense Department funds to build it.

More: *Politico*

White House Considering Bishop, Bernhardt for Interior Chief

White House officials are considering Rep. **Rob Bishop** (R-Utah), ranking member of the House Natural Resources Committee, to be President Trump's nominee to replace Ryan Zinke as secretary of the Interior Department.

Officials are also looking at acting Secretary David Bernhardt, who has already played a key behind-the-scenes role shaping department policies.

Bishop has said he will not run for reelection in 2020. When asked if talks were stepping up with the White House over the position, he said, "I don't know. If it is, I am not aware of it."

More: *Bloomberg*

State Briefs

IOWA

DOT Proposes Increasing Fees for EVs

The state Department of Transportation has proposed that the Legislature consider increasing fees or charging taxes to electric vehicle owners.

The recommendation follows a report that showed a $317,000 reduction in the Road Use Tax Fund last year. Road infrastructure is funded in part by gas taxes.

"The impact today is relatively minor ... but that ramps up pretty quickly, particularly if you look at the high scenario, where in six years the impact will be a little over $11 million and growing significantly beyond that," said Stuart Anderson, director of the department's Planning, Programming and Modal Division.

More: *The Gazette*

MASSACHUSETTS

MHI Vestas Chooses Boston for HQ

Danish wind turbine manufacturer MHI Vestas Offshore Wind met with Gov. Charlie Baker last week to announce it has chosen Boston as the location for its U.S. headquarters.

Company officials said the city was chosen over others because the offshore wind industry is furthest along in the state, in large part because of a 2016 law that requires utilities to buy up to 1,600 MW.

Vineyard Wind, which was chosen to develop an 800-MW wind farm south of Martha's Vineyard, chose MHI Vestas to construct the facility's turbines.

More: *The Boston Globe*

MICHIGAN

PSC Approves Consumers Energy EV Charging Program

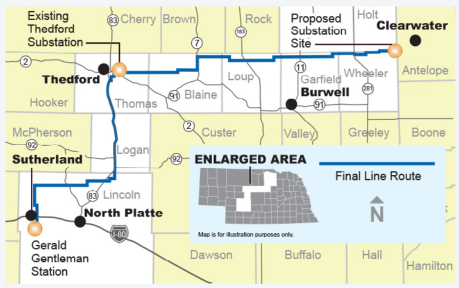
The Public Service Commission last week approved Consumers Energy's PowerMIDrive electric vehicle charging program, a three-year, $10 million pilot that seeks to grow EV use in the state through new rates, rebates and customer education.

The program includes a Nighttime Savers Rate to encourage drivers to charge their EVs between 7 p.m. and 6 a.m. Residential drivers who sign up for the rate will be offered a $500 rebate for each EV. Consumers also will offer $5,000 rebates for chargers installed in public areas such as workplaces and multi-unit dwellings.

More: *The Associated Press*

NEBRASKA

NPPD Awards Contract for R-Project Tx Line



The Nebraska Public Power District board of directors last week awarded a $265 million construction contract to Forbes Brothers Timberline Construction for its controversial "R-Project" 345-kV transmission line through the Sandhills.

The need for the $400 million-plus, 225-mile line was identified by SPP in its Integrated Transmission Plan 10-Year process.

The U.S. Fish and Wildlife Service still needs to rule on NPPD's application for an "incidental take permit" because of the project's potential impact on the endangered American burying beetle.

More: *The North Platte Telegraph*

NEVADA

NV Energy Sues PUC over ADIT Issue

NV Energy has filed a lawsuit against the Public Utilities Commission, accusing it of "engaging in unlawful and impermissible ad hoc rulemaking" in examining the utility's accounting of accumulated deferred income taxes.

The PUC approved a rate reduction for NV Energy after the passage of the 2017 federal Tax Cuts and Jobs Act. But casinos and Walmart complained that the utility's refusal to change its ADIT account procedures could result in a windfall of up to $46 million.

NV Energy claims that after the initial rate reductions were approved, the commission "improperly broadened" the scope of the proceedings to include an examination of ADIT taxes on protected utility assets. The utility noted it is not challenging or seeking to change the rate reductions.

More: *The Nevada Independent*

PENNSYLVANIA

Wolf Announces 1st Statewide Emissions-reduction Plan

Gov. Tom Wolf announced last week that he has signed an executive order setting the first statewide plan to reduce emissions of carbon dioxide.

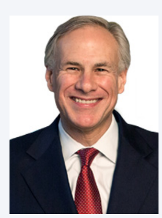
Wolf's goal is to reduce overall energy consumption by 3% per year to reach a total reduction of 21% by 2025 compared with 2017 levels. The executive order directs the state to replace 25% of its passenger car fleet with battery and plug-in electric hybrid cars by the same year and buy enough renewable energy to offset 40% of the state's electric use.

"In the absence of leadership from the federal government, states and cities are stepping up and doing their part to reduce emissions," Wolf said in a statement. "Today I am proud to declare the commonwealth's intention to address climate change, the most critical environmental threat facing the world."

More: *The Philadelphia Inquirer*

TEXAS

Scientists, Professors Request Meeting with Abbott on Climate



Twenty-seven climate scientists, researchers and professors from state universities sent a letter to **Gov. Greg Abbott** last week requesting the opportunity to brief him on climate science and what the state needs to do to reduce greenhouse-gas emissions and adapt to climate change.

The offer comes after the governor told a reporter it was "impossible" for him to say whether man-made climate change has affected weather disasters in the state because he's "not a scientist."

"We, the undersigned, are climate scientists and experts, and can report to you that climate change is happening, it is primarily caused by humans, and it is having a devastating impact on Texas, including increasing deadly flooding resulting from Hurricane Harvey," the letter said.

More: *The Dallas Morning News*

WYOMING

Gordon Pledges Advocacy for Coal Exports

In his first State of the State speech, **Gov. Mark Gordon** pledged to fight to enable more U.S. coal exports overseas, criticizing permit delays that have prevented them.

"Our access to these Asian markets remains restricted, tied up in permit after permit," Gordon said. "I believe this to be an unconstitutional restraint of trade."

He said technology employed at coal-fired plants recently built in Japan and South Korea can scale back carbon emissions into the atmosphere. "That is progress that should be a gut cinch for those advocating to control carbon emissions."

More: *The Associated Press*