



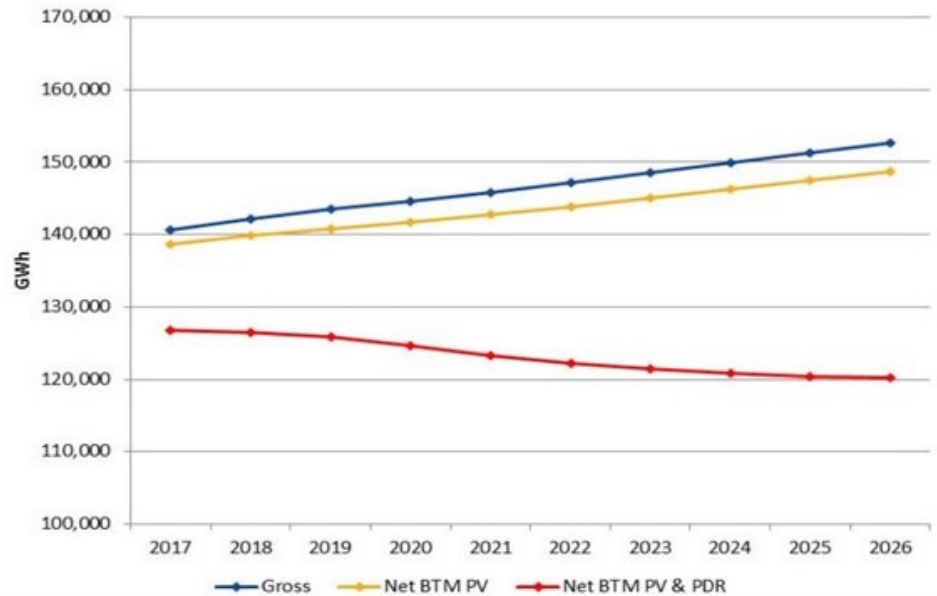
EE, Renewables Flattening ISO-NE Demand for Next Decade

By Michael Kuser

WESTBOROUGH, Mass. — Energy efficiency, lower economic growth and burgeoning home solar installations will reduce ISO-NE's net load through at least 2026, Manager of Load Forecasting Jon Black said Wednesday.

While the region's gross annual load is expected to rise by 8.5% to 152,593 GWh by 2026, load net of behind-the-meter solar and passive demand resources will drop 5.2% to 120,181 GWh. "There were no methodology changes in the [gross load] forecast since last year," Black told the Planning Advisory Committee on March 22. "It's just refreshes of the data."

The region's weather-normalized net electric consumption declined 1.5% in 2016



Draft 2017 CELT ISO-NE energy forecast | ISO-NE

[Continued on page 11](#)

ERCOT Says DER not yet a 'Reliability Concern'

By Tom Kleckner

AUSTIN, Texas — The growth of distributed energy resources is not yet causing reliability problems, and accurate mapping and localized pricing signals should address concerns in the future, ERCOT said last week.

Based on installed capacity and current growth rates, DER does not pose "an immediate or near-term reliability concern," the Texas grid operator said in a [report](#) released Thursday.

The report says ERCOT's DERs are "characterized by a combination of low energy prices and an absence of regionwide regulatory incentives, leading to a penetration growth rate" much slower than in California and other regions.

[Continued on page 9](#)

Calif. Bill Would Introduce 'Clean Peak Energy Standard'

By Robert Mullin

A top California lawmaker last week introduced a bill that would require the state's utilities to meet an increasing amount of their peak energy demand with renewable resources and energy storage systems.

The proposed law would set a "clean peak energy standard" to reduce the reliance on flexible, gas-fired peaking plants to meet peak ramping needs as the state seeks to obtain 50% of its electricity consumption with renewable energy resources by 2030 ([AB 1405](#)).

State Assembly Speaker Pro Tempore Kevin



Mullin

Mullin (D), the bill's sponsor, said that while California's renewable energy and ambitious greenhouse gas reduction goals are "laudable," they are "ultimately incongruous in the absence of a policy framework and

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NYISO Board Member Resigns After less than 1 Year
(p.20)



FERC Staff OKs PJM Aggregation, DR Rules
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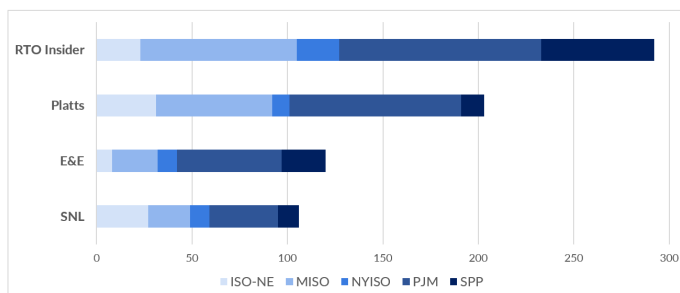
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For information, contact Marge Gold at Marge.Gold@RTOInsider.com or 240.750.9423



CAISO Sees Ups and Downs in Q4 Real-time Prices

By Robert Mullin

CAISO's real-time market experienced an uptick in volatility during the fourth quarter of 2016, as five-minute prices at times spiked to well above day-ahead and 15-minute levels on unexpected variability in output from solar resources.

On the flip side: Solar generation increasingly sent mid-day prices into negative territory during the quarter, a trend that the ISO's internal Market Monitor says is continuing into this year.

"November did see a fairly high frequency of prices above the \$250 level in the five-minute market," Gabe Murtaugh, a senior analyst with the ISO's Department of Market Monitoring, said during a March 22 call to discuss his group's quarterly market issues [report](#). "You'd have to go back to the beginning of 2015 to see this frequency."

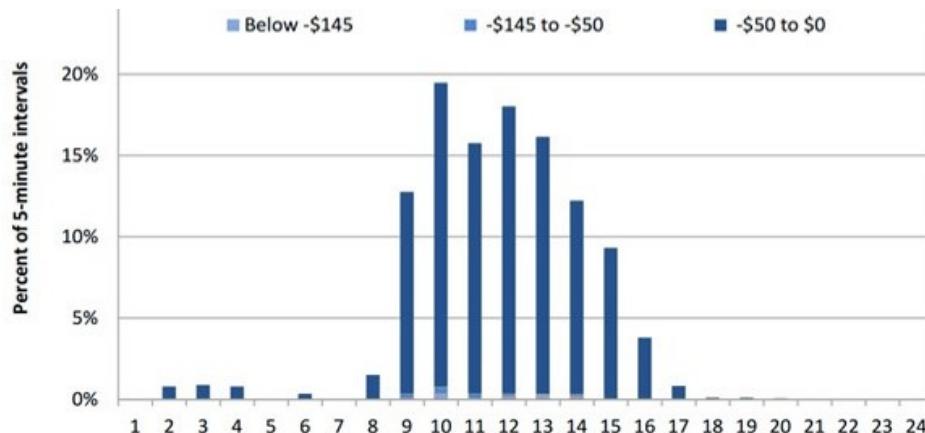
In November, real-time prices surged to \$250 or higher during nearly 1.5% of intervals, compared with fewer than 0.4% of intervals during the same period in 2015. Prices hit \$750 or more during 0.6% of intervals, up from 0.3% a year earlier.

Murtaugh attributed the prices spikes to more cloud cover than was forecast by CAISO, translating into lower solar output than was accounted for in the day-ahead market during specific intervals. The ISO was forced to move up the bid stack to secure higher-priced resources in real-time to cover the shortfall — especially during the afternoon ramp as solar resources began to reduce output.

"This outcome resulted in part from a combination of solar deviations and tight supply conditions during intervals when system ramping needs were greatest," the department said in its report.

Contributing to the price discrepancies between the five- and 15-minute markets were differences in the solar forecasting methodologies used for each, an issue the ISO addressed through changes to its forecasting software in December.

Still, instances of high prices during the fourth quarter were "fairly irregular," according to Murtaugh. More frequent were



CAISO's Q4 negative prices occurred most frequently during mid-day, the period of highest solar output. | CAISO

intervals of negative prices, the Monitor noted.

The department observed negative prices during 4.7% of intervals during the five-minute market and 1.8% of those in the 15-minute market. By comparison, during the same period a year earlier, negative prices occurred in 2% and 1% of five- and 15-minute market intervals, respectively.

The last quarter of 2016 also saw five-minute prices go negative nearly 20% of the time during the 10 a.m. interval — the beginning of the mid-day period most subject to solar-drive price dips.

Nearly all of the negative prices were the result of the ISO's market mechanisms — and not the result of out-of-market operations to curtail output.

"These are conditions where an economic downward dispatch is issued to a unit with a negative marginal cost, so negative marginal cost units are setting the marginal price in the system," Murtaugh said. "This is a solution that is arrived at from the market optimization and it's similar to any other solution that we would see in the market during other times of the day when marginal costs are set at a marginal level."

The Monitor's data showed that most of the negative prices held to a range between \$0 and -\$50/MWh.

Carrie Bentley of Resero Consulting wondered where most of the negative prices clustered — closer to \$0 or \$50?

"Off the cuff, it tends to be more clustered between the \$0 and \$25 range," Murtaugh responded. "That typically tends to be the amount of tax incentives that are given out on a per-megawatt-hour basis to solar facilities and wind facilities — and those tend to be the ones we see setting the price more frequently."

Murtaugh also offered call listeners a "teaser" regarding the first quarter: "For the data that we've already looked at in 2017, the [negative price] numbers are fairly high for the first quarter as well."

Wei Zhou, a senior project manager with Southern California Edison, probed Monitor staff about an observed increase in negative prices in the ISO's day-ahead market this year.

"What's the expectation for the frequency of negative pricing in the day-ahead market?" Zhou asked.

Keith Collins, CAISO manager of monitoring and reporting, called the development an "improvement" that would allow the ISO to better align resource commitments in the day-ahead market with actual conditions in real-time, decreasing the potential for oversupply.

"So shifting [negative prices] to the day-ahead is not necessarily in and of itself a bad thing, but it's not a trend that was observed prior to the last few weeks," Collins said, adding that it was a topic that could be covered in a future Market Performance Planning Forum.

CAISO NEWS



CAISO to File 'Expedited' Black Start Plan in May

By Robert Mullin

CAISO staff expect to submit a proposed black start procurement proposal to the Board of Governors in May, officials said last week.

The ISO launched an accelerated procurement effort in January after identifying the need for additional black start resources in the transmission-constrained San Francisco Bay Area. (See [CAISO Kicks Off Effort to Procure Black Start Resources](#).)

"I'm not expecting [that] we're going to have significant Tariff changes for purposes of this initiative," Andrew Ulmer, CAISO director of federal regulatory affairs, said during a March 21 call to discuss a draft final proposal that deviated little from the approach laid out in the initial proposal. (See [CAISO Proposes TO-focused Black Start Procurement](#).)

Ulmer added that the ISO hoped to make draft Tariff language changes available to stakeholders ahead of the board vote.

The black start initiative represents the second phase of a 2013 undertaking to address NERC reliability standard EOP-005-2, which required transmission operators to draw up plans for system restoration

in the event of widespread blackouts.

The ISO's plan envisions the significant involvement of an affected transmission owner in selecting a black start resource, both in drawing up technical specifications and vetting proposals from those resources that bid into the solicitation.

Based on stakeholder feedback, CAISO settled on a cost-of-service approach to compensating the resource, rather than providing a capacity-type payment sufficient to support the operation of an otherwise unprofitable generator.

The payment would allow for recovery of capital and fixed operations and maintenance costs plus a "reasonable margin" for the resource owner, according to Scott Vaughan, lead grid assets manager at the ISO.

The proposal calls a resource to be contracted under a three-party agreement between the ISO, the local TO and the resource's owner.

Paul Nelson, electricity market design manager at Southern California Edison, sought more details about the nature of the agreement — specifically the extent of the TO's responsibility.

Ulmer explained that CAISO expects that any black start resource procured under the process would not only become part of the ISO's system restoration plan but that of the TO as well.

"It makes sense to us to have a three-party agreement with ISO, the black start resource and the participating transmission owner ... ensuring we have evidence that we secured the capability for the [NERC] reliability standards."

"So ... there's three roles — the ISO, the black start resource and the transmission — and all three in conjunction need to provide certain services and responsibilities, and the contract will lay out what those are and who's responsible for the roles and responsibilities and the costs," Nelson offered.

"Yes, that's correct," responded Ulmer, adding that in April, CAISO intends to release a sample contract for stakeholder review.

CAISO also plans next month to publish draft technical specifications for black start resources, followed by a stakeholder meeting on the subject during the second half of May. During the first half of June, the ISO expects to issue a request for proposals for resources in the San Francisco area.

Stakeholders should submit comments on the black start draft final proposal to the ISO by April 4.



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ERCOT Stakeholders OK Change to DC Tie Curtailments

By Tom Kleckner

AUSTIN, Texas — Despite opposition from independent generators and competitive retailers, ERCOT stakeholders last week approved a protocol change that clarifies that the ISO can curtail DC tie loads without having to declare an emergency condition.

The Technical Advisory Committee on Thursday approved a nodal protocol revision request (NPRR818) that specifies that ERCOT may curtail DC tie loads during a watch, before declaring an emergency condition.

Representatives from two independent generators (Luminant and Dynegy) and three competitive retailers (Direct Energy, Just Energy and Reliant Energy Retail Services) abstained from the vote but made their opposition known.

Luminant's Amanda Frazier said she was concerned about the way in which the NPRR was developed. It was written after

ERCOT operators issued a power operations bulletin (POB) on Sept. 28 that changed the ISO's operation of its five DC ties, which have a capacity of more than 1,250 MW. The POB, which took effect two days after its issuance, particularly affected exports into Mexico over Comision Federal de Electricidad ties.

Unilateral Action

"ERCOT has been curtailing DC ties in emergency situations. Then they unilaterally decided to stop doing that — and did that by issuing a [POB], a process not reviewable by stakeholders," Frazier said. "That materially changed market outcomes for those market participants using DC ties into Mexico. I find that problematic. I think if something needs to be changed in the protocols that has major market impacts, we should know about it. We should be able to look at it, and we should know the policy decisions behind it."

Luminant's written [comments](#) recommended ERCOT only curtail DC ties during a Level 2 energy emergency alert (EEA), and not during a watch. It pointed out that voluntary load curtailment is not fully deployed until the ISO declares a Level 2 EEA. Involuntary load shed should not be used ahead of other "compensated, voluntary reliability deployments," the company said.

'Future Fix'

"I understand that wouldn't work in a localized problem, but this language [isn't limited to] a localized emergency," Frazier said. "I don't think it's ... appropriate to curtail DC ties before an EEA2 for a systemwide emergency, but I understand that's going to be looked at in a future fix to this."

Shams Siddiqi, representing Rainbow Energy Marketing Corp., the NPRR's sponsor, told the TAC that "future fix" will be an additional protocol change.

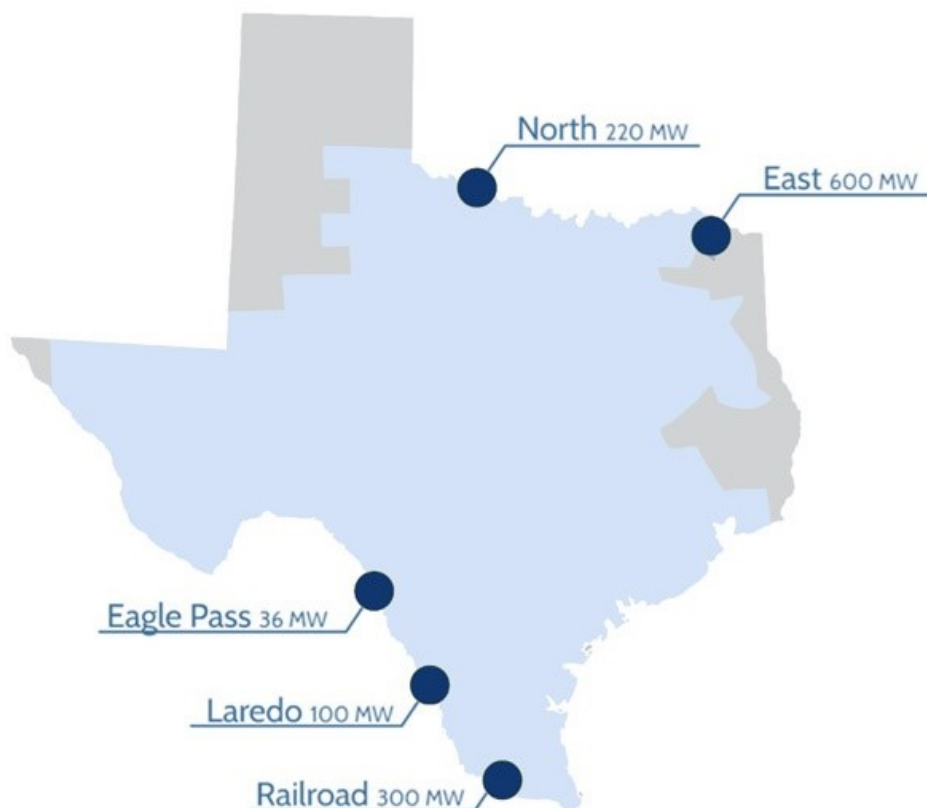
Reliant Energy's Bill Barnes said he would not oppose the NPRR given that additional revisions would be filed. He said that would fix "the problem we see: loosening reliability actions to allow these DC ties to be curtailed sooner, which has market impacts."

"I think the ops team took what they viewed as appropriate actions, considering some of the changes that occurred," ERCOT COO Cheryl Mele told the TAC, referring to the issuance of the POB. "The question I'm hearing is POBs with such a significant impact shouldn't come out [two days] before we implement it. I concur with that. We should use the proper forums and processes."

Mele's comments related to recent changes in ERCOT's capacity, including the Frontera Plant's move from ERCOT to Mexico, and an increase in DC tie capacity, ERCOT spokeswoman Robbie Searcy said after the meeting. (See [ERCOT Board OKs Rio Grande Valley Fixes](#).)

'Fair Request'

Garland Power & Light's Dan Bailey asked ERCOT to report back to the committee on how often curtailments are made during watch events.



DC ties in ERCOT | ERCOT

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ERCOT Stakeholders OK Change to DC Tie Curtailments

Continued from page 5

“That is a fair request,” Mele responded. She said the reports will be filed with the TAC’s Reliability and Operations Subcommittee, “so you guys will be engaged.”

Rainbow Energy contended the NPRR would “minimize inefficient wholesale market operations and consequent harm to market participants.” The revision would be effective April 5, assuming ERCOT’s Board of Directors approves it the day before.

Before ERCOT issued the operations bulletin, it would accept DC tie e-Tags up to the physical limit of the ties, rarely curtailing the tags close to the operating hour.

Under the POB, e-Tags have been denied

when day-ahead prices were relatively high while real-time prices were depressed and DC tie capacity was under-utilized, according to Siddiqi’s “business case” for the change. The result: “an avoidable inefficient outcome for the market and loss for the market participant,” Siddiqi said.

Siddiqi also said ERCOT prefers to take action in advance to avoid the chance of an emergency condition “and subsequent [NERC] scrutiny of why ERCOT did not act in advance to avoid the emergency.”

“Market participants wanting to export power have to procure power in the day-ahead market without knowing whether the e-Tag will be approved or denied,” according to the NPRR. “In turn, they are subjected to a loss and contractual difficulties with their counterparties if the e-Tag is denied.”

By allowing e-Tags to be curtailed in a watch before an EEA2, “ERCOT can revert back to its pre-POB operating procedure of approving e-Tags up to the physical limits of the DC ties,” Siddiqi said. “E-Tag approval can again be done prior to DAM [the day-ahead market] — allowing market participants to correspondingly procure energy in DAM and have the added certainty in its contractual obligations.”

“We have worked with Rainbow to implement what we understand the stakeholder’s intent, so we can be very transparent in the future,” said ERCOT’s Dan Woodfin, senior director of system operations. “The protocols don’t affect how we set limits today. With this change, how we set those limits will be clarified.”

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Technical Advisory Committee Briefs

Dispatch Changes won't be Pursued

AUSTIN, Texas — The ERCOT Technical Advisory Committee agreed last week not to pursue a change in how ISO operators commit and dispatch resources, agreeing with a Wholesale Market Subcommittee study that the software changes required would not produce sufficient production cost savings.

The TAC then asked the subcommittee to begin working on real-time co-optimization of reserves.

The ISO developed an in-house software platform to perform multi-interval real-time market (MIRTM) simulations for selected operating days from 2015 and 2016. The study found MIRTM is feasible for both fast-responding generation resources and load resources with temporal constraints. But the feasibility study concluded that “the estimated cost[s] are in excess of the measured benefits and therefore insufficient to support [moving] forward with MIRTM at this time.”

ERCOT’s real-time market dispatches and prices energy in single five-minute intervals and does not consider potential changes in

system conditions more than five minutes into the future. As a result, it is unable to coordinate the commitment of combustion turbines and demand response resources that are available within 10 to 30 minutes but unable to respond within five minutes.

The study was ordered to determine whether the ISO could improve the efficiency of its short-term commitment decisions by analyzing multiple consecutive five-minute intervals to determine the most economical commitment and dispatch.

ERCOT will share the study with the Board of Directors during its April 4 meeting. If approved, the study will be filed with the Public Utility Commission of Texas.

The WMS now finds itself freed up to take on real-time co-optimization, which shifts the responsibility for providing reserve services to online generation resources with the lowest incremental energy cost. Co-optimization has been the subject of discussion at the PUC, most recently during its last open meeting. (See [Texas PUC Wary of Using ERS to Avoid Local Blackouts](#).)

“We’ve been waiting for [MIRTM] to clear the decks, and the decks have been cleared,” Morgan Stanley’s Clayton Greer said.

“We have an obligation at this point to explore this,” Citigroup’s Eric Goff said. “[The PUC] has given various hints that they’d like additional information. As a stakeholder body, I believe we have the obligation to make those hints and wishes reality.”

TAC Vice Chair Bob Helton, of Dynegy, agreed. With members raising concern over ERCOT’s estimate of \$20 million for software changes, he directed the WMS to define a study scope and what components of co-optimization should be analyzed.

Staff Shares Draft Principles for Market Continuity

ERCOT staff shared with the TAC a draft of principles to address the ISO’s lack of guidelines on restarting its markets following outages. The principles do not change existing black start procedures.

Staff raised the issue last year with the board and conducted a workshop in May to frame the discussion around gaps in the processes.

The principles include:

- Prioritizing the real-time market’s restart

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Technical Advisory Committee Briefs

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- before other markets or activities;
- Starting congestion revenue rights auctions and other functions only after the real-time and day-ahead markets are restored;
- Expecting limited settlements functionality during market restoration;
- Payments being made in “as timely a manner as possible;”
- Relaxing credit requirements and releasing cash or other collateral to provide short-term liquidity to market participants;
- Seeking emergency funding to pay resources before other alternatives are considered; and
- Uplifting market restart costs on a load-ratio share basis after market recovery.

ERCOT staff is expected to build on the principles with more formal procedures.

“This is a good start. ERCOT didn’t have transparent principles before,” Direct Energy’s Read Comstock said.

Committee Approves 16 Revision Requests

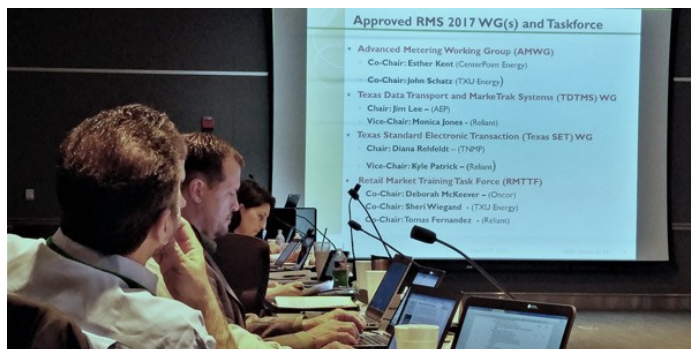
The TAC also approved nine other NPRRs, three revisions to the Planning Guide (PGRRs), two revisions to the Load Profiling Guide (LPGRRs) and revisions to the Retail Market Guide (RMGRR) and Nodal Operating Guide (NOGRR).

- NPRR776:** Aligns protocol language with currently used verbal communication practices between transmission service providers (TSPs), qualified scheduling

entities (QSEs) and generation resources. Also identifies new requirements for data TSPs provide to ERCOT, QSEs and the generators. The committee tabled **NOGRR167**, which aligns the Nodal Operating Guide with NPRR776.

- NPRR799:** Requires that TSPs and resource entities — generation and load that can reduce electricity usage or provide ancillary services — submit updates to the outage scheduler within one hour of the facility’s outage start or completion.
- NPRR802:** Clarifies current settlement practices and protocol language, including how reliability unit commitment resources opting out of settlement are treated in calculating real-time online reserve capacity.
- NPRR804:** Clarifies that ERCOT should post both a systemwide network model and a set of station one-line diagrams, and that the model posting does not disclose data about private-use networks.
- NPRR808:** Extends the CRR auction process into the third year forward, revises the percentages sold in the auction’s long-term sequence and aligns modifying load zones to the timetable.
- NPRR809:** Defines the terms “initial energization” and “initial synchronization;” adds a reference to a quarterly stability assessment for interconnecting generation resources when evaluating the need for a generic transmission constraint; and clarifies a resource’s requirements prior to initial synchronization.

- NPRR812:** Clarifies short-term system adequacy report language; aligns protocol language with current ERCOT practices and Public Utility Commission of Texas rules for posting resource and load information; and modifies the requirement for posting a RUC initial-conditions report to only include the process as originally intended in **NPRR314**.
- NPRR813:** Requires references to service organization controls for the annual ERCOT market settlement audits.
- NOGRR166:** Eliminates a redundant report of daily operational information that can be found elsewhere on the Market Information System.
- PGRR052:** Ensures a new generating unit’s operating limits are established by setting a timeline for stability studies following a full interconnection study (FIS), incorporating model data or transmission system changes, not known during the FIS, before a new unit is brought online.
- PGRR054:** Clarifies the content, review period and process for posting an FIS’ results, and establishes a process for identifying, proposing and implementing solutions to stability issues identified during the FIS.
- PGRR055:** Defines the process for revising the Planning Guide to first consider PGRRs at the subcommittee level.
- RMGRR144:** Eliminates the requirement for transmission and/or distribution service providers to maintain a secure list of retail electric provider data numbering systems for all electric service identifiers (ESI IDs) with “switch-holds” — measures to prevent customers with unpaid bills from changing retail electricity providers.
- LPGRR060:** Provides additional clarification to the load-profiling guide by removing “orphaned language” not captured in **LPGRR057**, which was approved by the TAC in October.
- LPGRR061:** Modifies the annual validation timelines for residential and business ESI IDs by starting the validation activities on March 30 and concluding them on Sept. 30 of each calendar year.
- NPRR810:** Removes the applicability of a reliability-must-run agreement’s incentive factor to reservation and transportation costs associated with firm fuel supplies, and accordingly separates costs in the RMR standby payment equation.



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— Tom Kleckner



ERCOT Says DER not yet a ‘Reliability Concern’

Continued from page 1

“[We] are making sure we don’t have any reliability issues,” COO Cheryl Mele told members of the Technical Advisory Committee during its monthly meeting. “No current issues exist. That’s not the driver here, other than trying to stay ahead of what can be a growing resource in the ERCOT grid.”

Mele said the ISO’s first priority is to begin discussions with transmission and distribution service providers (TDSPs) about mapping resources larger than 1 MW. Those discussions will take place within the TAC’s Reliability and Operations (ROS) and Wholesale Market subcommittees.

ERCOT estimates there were 900 MW of DER interconnected with the grid as of December 2015, based on annual reports filed at the Public Utility Commission of Texas by TDSPs in competitive-choice areas. Another 200 MW are thought to be deployed in non-opt in entity (NOIE) service territories (those not competing in the ERCOT market).

The ISO said there were about 90 registered DER units, primarily diesel generators and some rooftop solar, as of March.

“As these resources grow, deployment of DER with capacity greater than 1 MW could result in some reliability concerns, depending on their location and level of concentration on the grid,” the report said.

The ISO has projected an annual DER growth rate of 10%. (See [ERCOT Looks to Incorporate DG. Improve Ancillary Services in 2017.](#))

ERCOT currently compensates DERs with zonal prices. Mapping those resources will allow for locational pricing and result in their more appropriate response to transmission constraints.

Definitions

The report said DER can be anything from large, fossil-fueled reciprocating engines to small rooftop solar systems. It includes an updated definition of DER: “Generation, energy storage technology or a combination of the two that is interconnected at or below 60 kV and operates in parallel with the distribution system.”

Further discussion will be needed if the definition is expanded to include demand response, ERCOT said.

The ISO said it believes “the foundation to the reliable and efficient management of this future distributed grid is visibility” through more detailed collection of DER data from TDSPs. It does not propose to model or operate the distribution system, leaving that to the distribution providers.

However, ERCOT said it will work with market participants through the stakeholder process to develop a standardized method for mapping DER units to their loads. The ISO said this will improve situational awareness of DER activity on the grid and “allow for

stakeholder consideration of localized pricing signals” to support reliability.

The ISO also proposes working with stakeholders on a process for competitive choice and NOIE distribution providers to monitor the accumulation of clusters of unregistered DER (less than 1 MW). It estimates there are more than 11,000 such facilities in its market and more than 12,000 in NOIE territories.

When the combined connected capacity of these smaller units exceeds an agreed-upon threshold, the TDSPs would work with ERCOT to determine the best method for mapping them.

The new report updates a concept paper published in August 2015 that laid out a potential framework for DER participation in the wholesale market, which identified reliability concerns from a large deployment of DER.

The TAC is expected to refer the report to the ROS and WMS at its April meeting.



Meridian Solar

ERCOT Hits 50% Wind Penetration Mark

ERCOT set a new record for wind penetration last week when it hit 50% at 3:50 a.m. March 23. The ISO was generating 14,391 MW of wind energy at the time.

The Texas grid operator reported a peak load of 45,257 MW that afternoon. Wind was responsible for 15,477 MW at its peak that day.

ERCOT has produced as much as 16,022 MW of wind generation, which happened on Christmas last year. It manages more than 17

GW of wind energy and has 28.6 GW of proposed wind capacity in its interconnection queue.

The ISO had been in competition with SPP to see which would be the first North American grid operator to reach 50% penetration. However, SPP eclipsed that barrier Feb. 12 and has established several new records since then, the last coming March 19 when it reached 54.22% penetration with 12,078 MW of wind energy.

SPP has 16 GW of installed wind capacity and another 21 GW in the interconnection queue.

— Tom Kleckner

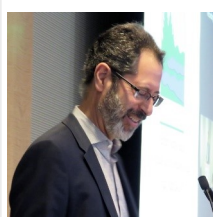
ISO-NE NEWS



State Officials Brief NE Roundtable on Renewables Plans

By Michael Kuser

BOSTON — The nation’s smallest state doesn’t get to crow very often. But at the New England Restructuring Electricity Roundtable on Friday, Commissioner Carol Grant of Rhode Island’s Office of Energy



Resources basked in applause as moderator Jonathan Raab said the state deserved to take a “victory lap” for putting into operation the first offshore windfarm in the U.S.

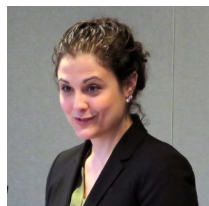
Not just the U.S., Grant corrected: “The first in the Western Hemisphere.”

The 30-MW Block Island Wind Farm, which began commercial operations in December, is a small step toward meeting the state’s “strategic goal” of 1,000 MW of “clean energy” by 2020, announced by Gov. Gina Raimondo on March 1. The state currently is little more than one-tenth of the way, with 138 MW operational, Grant said.

Although the governor’s challenge is not a legislative mandate, Grant said the legislature has enacted policies that will get Rhode Island halfway to the goal.

“The success of the Block Island Wind Farm is a big help in persuading people that anything is possible,” she said. “The reason we’re really fortunate in this region is that we actually have the ability to collaborate across states. In a small jurisdiction like Rhode Island, that helps because there’s brain power just across the border to the north.”

Grant joined Massachusetts Secretary of Energy and Environmental Affairs Matthew Beaton and Connecticut Deputy Commissioner for Energy Mary Sotos in

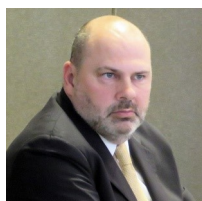


briefing an audience of policymakers, stakeholders and analysts on how their

states are attempting to transition to clean energy with minimal market disruption.

“I wouldn’t underestimate how much the rest of the country looks to New England for our experience in renewable energy and a lot of this thought leadership, experience with regional gas transmission,” Sotos said.

“The core of our energy strategy boils down to three elements: cost, carbon and reliability,” Beaton said. “We have some of the highest costs in the nation and we have to be cognizant of that in the commonwealth. ... We have some of the most aggressive carbon reduction goals, the legislature having mandated a 25% reduction by 2020 and 80% reduction by 2050.”



After his presentation, Beaton left for a meeting with Gov. Charlie Baker, while his deputy, Undersecretary Ned Bartlett, stayed behind to answer questions. The

first came from Raab, who asked for the main ingredients in the “secret sauce” for a sustainable solar energy policy. Bartlett answered that “the challenge is to bring the reality of time-differentiated pricing into the renewables market,” adding that open and inclusive markets create choices.

ISO-NE Previews Economic Study

A second panel at the roundtable featured Bob Grace, president of consulting firm Sustainable Energy Advantage; Jamie

Howland, director of climate and energy analysis for the Acadia Center think tank; and Michael Henderson, ISO-NE director of regional planning and coordination.

Henderson presented a draft version of the RTO’s 2016 Economic Study, soon to be finalized before the grid operator’s Planning Advisory Committee. Phase I of the report analyzes production costs and related metrics, while Phase II discusses several market and operational issues.

Henderson referred his listeners to “a lot of great work being done by the U.S. Department of Energy, and particularly [the National Renewable Energy Laboratory], in modeling what the ISO needs to use in terms of wind and photovoltaics. A lot of those databases are essential to the planning process. But I leave it to you and the developers to come up with the costs. We don’t do that at the ISO.”

Responding to Henderson’s slideshow, Richard Levitan of Levitan & Associates asked, “It looks like there’s an annualized transmission [cost] of \$1.5 [billion] to \$2 billion to accommodate the build of clean energy and green energy in northern New England. ... That transmission result [locks] onshore wind in northern New England.”



Henderson acknowledged that a “very, very large-scale wind development” in northern

Continued on page 11



From left to right: Jamie Howland, Acadia Center; Bob Grace, Sustainable Energy Advantage; and Michael Henderson, ISO-NE. | © RTO Insider



EE, Renewables Flattening ISO-NE Demand for Next Decade

Continued from page 1

versus 2015, according to the RTO's [draft 2017 Capacity, Energy, Loads and Transmission energy and summer peak forecast](#). The completed forecast will be published by May 1.

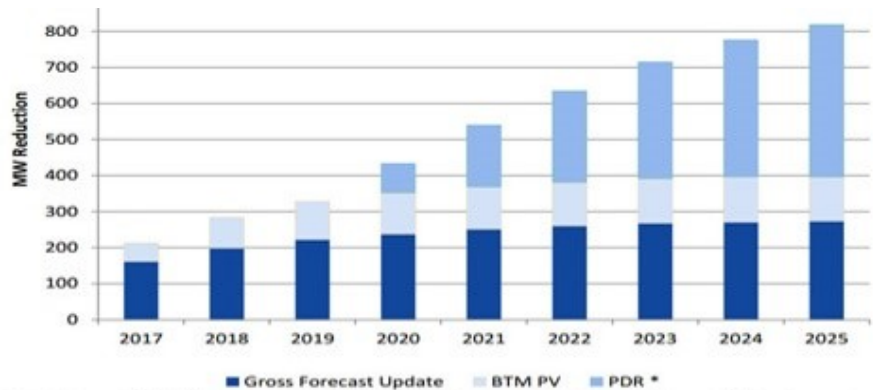
Compared to last year's forecast, the new report projects the 2025 annual energy demand will be 3.9% lower. The summer 50/50 forecast is approximately 3% lower, while the 90/10 forecast is 2.7% lower.

Reasons for the drop include a 15% increase over last year's forecast in projected behind-the-meter solar for 2025 and an 11% increase in projected energy efficiency, the latter due to a revised production cost escalation methodology.

The grid operator projects approximately 2,444 MW of PV development over the coming decade, for a total of 4,362 MW in 2026.

Black said that they are now getting more granular data on load reduction because of PV after increasing the number of installations monitored from 1,200 to 9,000. The RTO counts distributed solar — those less than 5 MW — as reducing net load.

Passive demand resources climbed 11% last year to 14,380 GWh. Passive demand resources include the use of energy-efficient appliances and lighting, "smart"



* PDR for FCM years (2017-2019) is unchanged from 2016 CELT. 2020 represents FCA11. Years 2021 through 2026 are forecast ed values. Change in summer peak net load reduction by component, draft 2017 vs. 2016 CELT | ISO-NE

cooling and heating technologies that cycle air conditioners on and off, and measures to shift electricity use to off-peak hours.

Paul Peterson of Synapse Energy Economics asked RTO officials about the projected annual increases in PV resources. The report shows a 445-MW increase in 2017 PV versus 2016, a 23% jump.

"The PV is going to eat up large number of megawatt-hours. That will affect generation developers. If the pie continues to shrink, it becomes very difficult for generators to earn the same amount of revenue from energy sales," Peterson said. "Generators need to know if solar will be five, six or eight thousand megawatts in 2026. Will the trend accelerate?"

"There's a lot of uncertainty over that, around when this stuff becomes economic," responded Black. "A lot depends on rate structuring. We're waiting for clearer signals."

ISO-NE officials [told Vermont legislators](#) in January that the capacity market "will be an important revenue-balancing mechanism to ensure resource adequacy as renewable resources drive down revenues in the energy market."

Black said expectations of lower economic growth were based on a Moody's Investor Service's forecast that predicts New England's share of the U.S. gross domestic product declining from more than 5.7% in 2000 to just more than 5% by 2026.

State Officials Brief NE Roundtable on Renewables Plans

Continued from page 10

New England would require a "quite expensive" transmission expansion. "To facilitate it in some of the first steps, the ISO is doing a number of cluster studies now where we're looking at inputs on the order of 2,400 MW in the north country. ... Whether or not it's economical — the way we want to go in the region — [I] leave that for others: someone who wants to consider policy, costs or metrics other than what we considered in this report."

Grace used his own [metrics](#) to show the increase in renewable supply entering the

New England market. "This is the wind projects coming online, this is increasing imports, this is biomass refurbishment. It's a lot of different things hitting us at once, but it puts us in a new place."

Howland [discussed](#) the potential of incorporating distributed resources into planning through "active load management, which is our term ... for smaller-scale demand management that is more flexibly dispatched and automatically dispatched.

"So it could benefit hot-water heaters ... and then energy storage in the region," he said.

The last question of the day went to Henderson: Have you looked at the effect of

pricing pressure from solar and wind?

Henderson said the RTO's analysis found that even with a large-scale development of renewables, "there are still very, very, very significant periods of time when natural gas remains on the margin" in the region.

The analysis also showed renewables on the margin, particularly in light-load periods like May. "And by the way, all that load occurred in the middle of the day, so ... there were many days when [energy storage] would be feeding the network at night and drawing from the network during the day, which is kind of the opposite of the way we think of storage operating today," Henderson said.

ISO-NE NEWS



Planning Advisory Committee Briefs

ISO-NE to Use Generic Models for Faster System Study Updates

WESTBOROUGH, Mass. — ISO-NE planners will make a several changes in their procedures in 2017, including revisions to Planning Procedure 3, incorporating probabilistic planning, a review of how the RTO identifies Bulk Power System (BPS) assets and a streamlined method of developing models, Director of Transmission Planning Brent Oberlin told the Planning Advisory Committee last week.

The process changes and the incorporation of updated load, energy efficiency and photovoltaic forecasts may have a significant impact on both the system's identified needs and their year of need, Oberlin said.

Responding to stakeholder concerns about too much time being required for ISO-NE to complete needs assessments, Oberlin said that planners will move from a work flow based on serial preparation to one based on parallel modeling.

"We're stealing from PJM here..."

Brent Oberlin, ISO-NE

"We're stealing from PJM here, which has inspired us to create generic case studies to look at all of New England at once rather than state by state," he said at the March 22 meeting. "Right now, our start-to-finish case study process takes six months.

"After we talked to PJM, [we] kind of hit [ourselves] in the head" for not making the change sooner, Oberlin said. The current process is "serial, it's slow and I don't think it's effective."

ISO-NE plans to create a "library" of generic cases and study files for use in the future. Once the RTO and its transmission and other facility owners update the system topology data, the generic cases and study files will be updated with the latest load, energy efficiency, photovoltaic and resource data and posted for stakeholder review.

The RTO also is comparing its assumptions for classifying assets as BPS with those of other transmission operators in the North-east Power Coordinating Council (NPCC).

"It's not lost on us that New England has more than half of the BPS classified substations within the NPCC, so we may revise the definition of what is a BPS," Oberlin said.

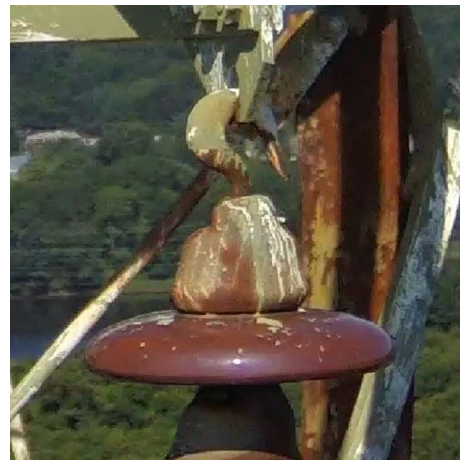
The changes to Planning Procedure 3, which took effect Feb. 10, reduced the types of contingencies required for second contingency testing, limiting them to those with the greatest potential to impact the identification of system needs.

No longer required to be tested as the second contingency: the loss of two adjacent circuits on a multiple circuit tower and a permanent phase-to-ground fault with breaker failure. These second contingencies must still be tested under NPCC requirements, but solutions will be required only when the problems impact BPS facilities.

After more than a year of work with the PAC, the RTO will begin incorporating probabilistic dispatch methods in late spring, starting with the inclusion of probabilistically based local dispatches in the base system conditions used in needs assessments. The use of probabilistic methods will likely increase in the future, Oberlin said.

Eversource Towers Show Their Age

Eversource Energy engineering manager John Case showed slides of rusting steel and deteriorating concrete foundations to prove the need for replacing four aging towers carrying transmission lines over the Thames River in Connecticut.



Part of rusted tower | Eversource Energy

About half a mile of the 1410/100 lines from Montville to Gales Ferry Junction shares double-circuit steel lattice towers that straddle the river at the Montville-Ledyard border.

"These structures were constructed in 1921 and have exceeded their planned life, and may have done [so] before I was born," Case said to laughter. "And I am not a young man."

Recent inspections of the structures revealed severe degradation of the foundation, towers and hardware. The four towers will be replaced with six galvanized steel poles at an estimated cost of \$8.5 million (-25%/+50%).

— Michael Kuser



Rusted transmission tower | Eversource Energy

ISO-NE NEWS



ISO-NE Nixes Keene Road Tx Upgrade

By Michael Kuser

WESTBOROUGH, Mass. — Transmission developers will have to wait a bit longer for ISO-NE's first competitive project.

The RTO told stakeholders Wednesday that it will not issue a request for proposals for the Keene Road market efficiency transmission upgrade because the cost would be greater than the production savings. The grid operator had explored the project as a way to release pent-up wind resources in Maine.

Director of Transmission Planning Brent Oberlin presented his staff's analysis to the Planning Advisory Committee on March 22, confirming preliminary results released in December. (See [ISO-NE Study Sees Little Savings from Keene Road Tx Upgrade](#).)

The study showed increasing the Keene Road export limit from 165 MW to 195 MW would save \$1.37 million in production costs annually over a 10-year period. Raising the interface export capacity beyond 195 MW would result in very small additional savings. ISO-NE estimated a total project cost of \$7 million to \$10.4 million.

The upgrade would have been eligible for competitive bidding under FERC Order

1000. ISO-NE has yet to implement a request for proposals under the order.

The New England States Committee on Electricity (NESCOE) said the upgrade isn't worth the cost to consumers.

"First, consumers would fund ISO-NE's first-time work to implement an RFP and evaluation process," NESCOE said in comments filed with the RTO last month. "Second, as required by the Tariff, consumers would also have to pay for the incumbent transmission owner to develop a backstop solution. Those unavoidable costs have to be considered in the context of a very small project for which there is no present indication that an economic solution exists."

Aleks Mitreski of Brookfield Renewable filed comments saying his company "strongly supports" the project. "In addition to production savings, there would be significant added benefits in the added production of non-emitting [megawatt-hours] that would contribute toward meeting state policy goals and GWSA (Global Warming Solutions Act) targets," he wrote.

Jeff Fenn of SGC Engineering, representing Emera Maine, also questioned Oberlin. "It's not entirely true that no one has come

forward with a solution" for the Keene Road bottleneck, he said.

The Keene Road interface is the 115-kV system that is left after the loss of the Keene Road 345/115-kV autotransformer, Fenn told *RTO Insider* after the meeting. The interface can be overloaded by the locally connected 115-kV generation, causing a voltage violation upon loss of the autotransformer.

Fenn said the problem could be solved by eliminating some of the generation post-contingency.

One method would be relocating one of the generator leads such that it was lost with the loss of the autotransformer. An alternative would be a generation rejection special protection scheme.

Fenn said either solution would cost less than \$500,000, "therefore well within the payback as defined by the ISO economic study. In addition to this, it is probable that one of the generators in the area would be willing to fund the change as the benefit to them would provide a rapid payback."

However, Fenn said the RTO "determined that the line relocation smelled too much like an SPS, and as such was not allowed to be considered. They also refused to consider the SPS alone as a solution."

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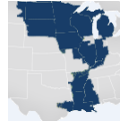
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MISO Stakeholders Debate Postage Stamp Cost Allocation

By Amanda Durish Cook

NEW ORLEANS — A debate over the fairness of the postage stamp cost allocation method and how to quantify transmission benefits took center stage at the MISO Advisory Committee's quarterly hot topic discussion.

MISO Vice President of System Planning and Seams Coordination Jennifer Curran noted that the RTO has not changed cost allocation rules since the integration of MISO South.

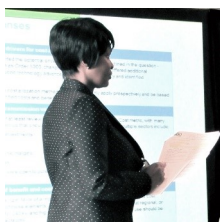
"Are there benefits that are no longer relevant? Are there benefits that we haven't even realized yet? These questions are critically important," Curran said during the March 22 discussion.

As part of a review of its cost allocation procedures, MISO is considering lowering the 345-kV threshold on market efficiency projects and replacing the footprint-wide postage stamp rate with a method that assigns costs to benefiting transmission pricing zones. It is also seeking to identify other economic benefits in addition to production cost savings, including eliminating the need for future fixes by pursuing a long-term project over a short-term project and projects that aid planning reserve margins. (See [MISO Changes to Queue, Auction, Cost Allocation to Dominate 2017](#).)

Curran said she didn't expect unanimous sector support on any revised cost allocation procedure, but there is some consensus within sectors. "The biggest challenge we face is a common definition given the challenges we face," Curran said.

For the Love of Money

Discussion facilitator Julia Johnson, president of regulatory advising firm Net Communications, introduced the topic, saying it was "incredibly hot and had incredible significance." She then cued the O'Jays' "[For the Love of Money](#)," eliciting applause.



Julia Johnson



Jennifer Curran | © RTO Insider

Transmission Owner sector representative Matt Brown of Entergy pointed out that MISO changed aspects of its transmission cost allocation in 2003, 2007, 2009 and 2012. "This is not a static set of rules, and MISO has shown the ability to change and adapt," Brown said. But he said that "experimental" changes should not be made to MISO's "mature" cost allocation process.

"There is a lot that works with what we have now, and I caution everyone not to lose sight of that," Brown said.

Northern Indiana Public Service Co.'s Paul Kelly cautioned MISO against "speculating" on transmission benefits, saying they should be represented with an equation that can be repeated across projects.

WEC Energy Group's Chris Plante said most in his Transmission Dependent Utilities sector support a postage stamp rate because many benefits of transmission projects are not quantifiable or are realized later.

"Today's reliability project could be tomorrow's multi-value project," Plante said.

Brown said the TO sector is not interested in pursuing a postage stamp allocation, which assesses a uniform rate on all MISO transmission owners, simply for the sake of benefits that may be missed. "If you can't measure it, it's not a benefit that should be considered. Benefits need to be demonstrable, repeatable and non-duplicative," he said.

Thomas: Postage Stamp not Always Best

Arkansas Public Service Commission Chairman Ted Thomas, the delegate for the Regulatory sector, said MISO should conduct extensive analysis before implementing any change.

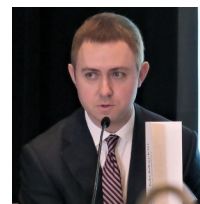
"The business is changing, but modeling is changing too, and we have more operational history. If there need to be sub-zones — better ways of how a true beneficiary pays — then we need to do that," Thomas said.

Thomas also said postage stamp allocation is not always the most equitable method. "Let's not use a postage stamp when we can't figure [benefits] out. Let's go back to the lab and figure it out," he said.

MISO Director Michael Curran said he understood stakeholder frustration if too many benefits are swept into a "common good" category and applied on a postage stamp basis.

Plante said that while MISO's modeling has improved and can identify a beneficiary "right down to a point of delivery," the modeling is only as good as the assumptions on which it is based, including forecasting natural gas prices and impacts of future regulations.

Public Consumer sector representative and attorney Kevin Lemley said postage stamp allocation fails to recognize that non-transmission alternatives can solve some problems.



McMackin

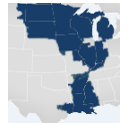
ITC Holdings' Devin McMackin said MISO's list of project types is probably too "rigid" and said he supports more flexibility or an expansion of project types.

Allocation by Project Type

MISO's allocation procedures vary by project type:

- Costs of market efficiency projects 345 kV and above are split 80% to local resource zones based on benefit and 20% to load through postage stamp.
- Generation interconnection projects above 345 kV assign 90% of costs to the interconnection requestor, with 10% allocated to load on a postage stamp basis.

Continued on page 15



MISO Stakeholders Debate Postage Stamp Cost Allocation

Continued from page 14

- Multi-value projects are allocated entirely to load via postage stamp.
- Baseline reliability projects are allocated entirely to local pricing zones.
- Projects arising from transmission service requests are paid for by transmission customers, but the transmission owner can elect to roll costs into local pricing zone rates.

Participant-funded projects are left out of cost allocation procedures entirely, and projects not eligible for allocation can be recovered through a zonal transmission rate.

Plante said cost allocation needs to be resilient, able to survive an expanding footprint and shifting resource mix. Stakeholders again brought up MISO's hourglass-shaped footprint and constrained MISO South interface, which some maintain precludes a benefits ratio from being applied to the footprint uniformly.

Alliant Energy's Mitchell Myhre, representing the TDU sector, said adjusted production cost benefits should remain the primary metric when deciding allocation. All other

benefits should be secondary considerations in cost allocation, Myhre said.

Director Paul Bonavia asked for a future session between the board and MISO staff on a preliminary cost allocation proposal.

'Rough Justice'

Director Curran urged MISO and stakeholders to create a proposal, citing an adage: "Done is better than perfect."

Several stakeholders said that any cost allocation revision that MISO files with FERC would be an example of "rough justice," meaning it would be generally fair but not acceptable to all parties.

MISO stakeholders are discussing possible allocation changes in the Regional Expansion Criteria and Benefits Working Group (RECBWG). Group chair Carolyn Wetterlin said the working group is considering simplifying its name to the Transmission Cost Allocation Working Group.

A day earlier, during a presentation on the 2017 MISO Transmission Expansion Plan (MTEP 17) at the March 21 Markets Committee of the Board of Directors, Director Phyllis Currie asked what MISO's biggest challenge is when it comes to



Director Mark Johnson speaking, with MISO CEO John Bear in foreground. | © RTO Insider

transmission planning.

"At the end of the day, I think it comes back to who pays," Jennifer Curran said.

Director Mark Johnson asked for a review of MTEP-approved projects to determine if their projected cost benefits had been realized. Curran said MISO could collect that information.

Director Thomas Rainwater said he liked the idea of cost allocation post mortems, in which MISO staff would examine whether transmission benefits are being distributed as they were estimated.

MISO to Amend Alternative Dispute Resolution Process

By Amanda Durish Cook

NEW ORLEANS — MISO will soon make a filing to add more confidentiality and legal definitions to its alternative dispute resolution process, stakeholders learned at the March 22 Advisory Committee meeting.

With the changes, data exchanged during alternative dispute resolution meetings covered by nondisclosure agreements will be treated by MISO as confidential or as Critical Energy Infrastructure Information.

MISO will invite other entities to participate in resolution meetings if their "participation is indispensable to resolution of the dispute." The RTO will also be allowed to dismiss the dispute or "discontinue the informal dispute resolution process if such

entity declines to participate in the dispute."

MISO Deputy General Counsel Eric Stephens said the RTO already uses the concept of indispensable parties but is looking to codify it.

The revisions also clarify MISO's ability to grant relief such as damages, which is "subject to the potential need for a waiver from FERC," the RTO said.

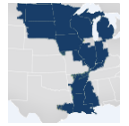
MISO will also pass its responsibilities to recommend sanctions and give referrals for investigations to its Independent Market Monitor. Stephens said the RTO did not think it was appropriate to recommend sanctions or instigate investigations as a result of the resolution process. The new language also clarifies that MISO will not facilitate dispute procedures for contracts that are not service agreements or rate

schedules under its Tariff.

MISO will also extend the initial timeframe for final resolution of an informal dispute from 90 to 180 days. "Our experience over the last two years has taught us that these take on average about 180 days," Stephens said. He added that the timeframe could be extended by another 90 days before MISO ends attempts to facilitate discussions, and the dispute is either dropped or escalated into a court proceeding.

The changes will be made to Tariff Attachment HH. (See "MISO Stakeholders to Hear Changes to Alternative Dispute Resolution," [MISO Steering Committee Briefs](#).)

Stephens said MISO will accept stakeholder input through April 12 and plans to file the new procedures for FERC approval by May 1.



Tornadoes, Wind Generation Drive MISO Tx Congestion

By Amanda Durish Cook

NEW ORLEANS — MISO experienced a quiet winter, aside from early February tornadoes in Louisiana and high congestion charges from a MISO-PJM constraint.

Demand peaked at 100 GW, about 9 GW below MISO's all-time winter peak during the 2014 polar vortex.

"We had a relatively mild winter and that turns into relatively mild operating conditions," MISO Executive Director of Market Design Jeff Bladen said during a quarterly operations report at the March 21 Markets Committee of the Board of Directors meeting.

Average LMPs rose to \$28/MWh from \$21/MWh last year as gas prices rose 55% year-over-year, Markets Committee Chair Paul Bonavia said. He said MISO's plentiful wind output kept prices from ticking further upward.

Independent Market Monitor David Patton said the most significant event in the quarter was a series of tornadoes in Louisiana on Feb. 7 that resulted in multiple transmission outages and pushed Louisiana Hub prices above \$1,000/MWh for three hours. The storms led to \$19 million in real-time congestion.

Patton said the storms caused real-time prices to be 30% higher than day-ahead prices for all of February.

"An event like this can cause a huge spike in balancing congestion charges," Patton said. Balancing congestion charges, which normally average \$1 million per month, totaled \$11 million.

Bladen said the weather incident caused MISO's monthly market efficiency metric to increase by \$15 million. "The impact was appreciable due to the outages," Bladen said.

Director Baljit Dail expressed worry that an "act of God" caused such havoc on MISO's markets, and said the Human Resource Committee of the Board of Directors could look into purchasing insurance against it. "When you consider the world we live in, more of these severe weather events will happen," he said.

"We certainly do quite a bit to prepare for these severe conditions," Bladen replied.

Director Michael Curran asked if approved transmission projects in Louisiana would help relieve congestion in future emergency conditions. MISO staff agreed that they would.

Real-time congestion in the quarter increased 48% over last year but dipped 21% when compared to fall, when outage rates were high in MISO South. (See [IMM Report Highlights Outages, Wind Over-Forecasting.](#))

"When you consider the world we live in, more of these severe weather events will happen."



© RTO Insider

Baljit Dail, MISO

Wind Causes Congestion on PJM Seam

Not all of MISO's winter real-time congestion could be attributed to severe weather. Most congestion occurred along the MISO-PJM seam and was caused by transmission outages and high wind output, Patton said.

A single MISO-PJM market-to-market constraint alone accounted for \$40 million worth of congestion and was "difficult to manage because it is dominated by PJM resources," Patton said. On Feb. 7 — coincidentally the day of the tornadoes — MISO transferred control of the constraint to PJM, "reducing congestion on the constraint and improving the dispatch," according to Patton.

The Monitor said he would like to see MISO, PJM and SPP become more active in transferring monitoring of constraints "but it requires agreement and improved processes." There are a number of cases where the non-monitoring RTO has all of the transmission loading relief on a flowgate, he said.

Patton also said there are several instances in which MISO and a neighboring RTO have

to manually control flowgates, which is not as efficient.

"We feel the RTOs should develop better software and procedures" to switch control of the constraint to the RTO with the most relief, Patton said.

A jump in wind production also contributed to higher congestion in the quarter. Wind output rose 21% from the fall and 20% over last winter as MISO set an all-time wind output record of 13.7 GW on Dec. 7, beating the previous 13.3-GW record set in late November.

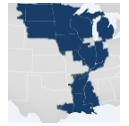
Patton said wind output contributed to \$47 million of real-time congestion costs. He said the increase in wind output was most significant near the MISO-SPP seam where MISO wind resources are plentiful. SPP had difficulties controlling power flows from MISO into SPP.

"We get into situations where it's difficult because we have a lot of wind resources that whip the flows around," Patton said, adding that SPP sometimes will control the flows manually, which is more expensive.

"When your neighbor is dominating the constraint, you should hand the constraint over. SPP in particular has been resistant to this. PJM has been more willing to do this than SPP," Patton said.

He said MISO and SPP should continue to work together to address monitoring control of constraints rather than "abandon economic coordination."

MISO and SPP are working together on transfers of monitoring control and hope to agree on a smoother process later in the year, MISO staff said.



Advisory Committee Briefs

AC Assesses Capacity Auction Design Status

NEW ORLEANS — In its first-ever current events discussion, the MISO Advisory Committee focused on moving on after the RTO's failed capacity auction redesign.

MISO Executive Director of Market Design Jeff Bladen told the committee on March 22 that the RTO is open to revisiting discussion on another capacity auction solution only if stakeholders want it.

On Feb. 2, FERC rejected MISO's proposed Competitive Retail Solution, which would have applied a sloped demand curve and three-year forward capacity auction to the RTO's retail-choice areas.

The commission said bifurcating the RTO's capacity market by holding a forward capacity auction for competitive load three years prior to the current Planning Resource Auction would create too much price volatility and uncertainty. A market-wide clearing process that operates within a single set of transmission capability constraints and supply offers is more efficient than a bifurcated market, FERC said. (See [MISO Won't Seek Rehearing on Auction Redesign](#).)

Entergy Vice President Matt Brown and other stakeholders said MISO should abandon its search for a solution to resource adequacy concerns in the competitive areas

and focus on other ways to improve the PRA, including creating external resource zones and adding a seasonal aspect.

"I think our stakeholders have been very clear — and FERC has been very clear — that an Eastern-style capacity market is not right for MISO," Brown said. "From our perspective ... it's time to let this go."

NRG Energy's Tia Elliott said Illinois' legislation subsidizing nuclear plants and a Michigan law increasing the state's renewable portfolio standard should not be considered a fix for climate warming concerns. Although the Trump administration hopes to kill EPA's Clean Power Plan, MISO could be faced with similar environmental regulations in the future, she said. "The political landscape could swing again, and we could be back in the same situation."

Minnesota Public Utilities Commissioner Matt Schuerger reminded stakeholders that ensuring adequate capacity is the responsibility of individual states.

OMS-MISO Survey Dispute Revisited

The committee also returned to stakehold-

ers' accusations that MISO and the Organization of MISO States have overstated a possible capacity shortfall through their joint resource adequacy survey. (See [Differences Persist over OMS-MISO Survey Improvements](#).)

After a stakeholder pointed out that ERCOT was sued last year in an ongoing fraud case over misleading capacity reports, OMS member and Arkansas Public Service Commission Chairman Ted Thomas defended the survey.

"There isn't a perfect way to do it. It's a survey; it's not a utility planning document," Thomas said, adding that the survey was meant to help states understand their neighbors' actions as they develop their own integrated resource plans.

Thomas said that if a utility is "dumb enough" to use the survey as a planning document, the utility deserves to get sued, not the producers of the survey. He also blamed local media for promoting a sky-is-falling narrative, saying reporters often don't understand the survey results.

"Try explaining this stuff to a newspaper reporter," he griped.

— Amanda Durish Cook

"Try explaining this stuff to a newspaper reporter."

Ted Thomas, Arkansas PSC

Anemic Loads, Plentiful DR Boost MISO Summer Outlook

NEW ORLEANS — MISO expects a 19.2% planning reserve margin this summer, well above its 15.8% requirement, and a percentage point above its projection last year, despite predictions of higher-than-normal temperatures.

The figure is also higher than the prediction of 17.4% in the RTO's resource adequacy survey with the Organization of MISO States. The RTO said the difference was the result of negative load growth and more demand response resources.

"We're seeing a decline in load forecasts and an increase in demand response," [explained](#) MISO Vice President of System Operations Todd Ramey at the March 21 Markets Committee of the Board of Directors meeting.

Independent Market Monitor David Patton said his monitoring staff has calculated a similar percentage.

MISO relied on data from the National Oceanic and Atmospheric

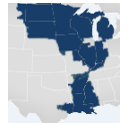
Administration to calculate summer readiness; the agency forecasts higher-than-average summer temperatures in the footprint, with MISO South experiencing the most significant temperature spikes.

Based on the forecast, MISO expects a 125.1-GW peak demand with 149.1 GW of supply on hand to meet it. Last year, the RTO anticipated a 125.9-GW peak demand and said it had 148.8 GW at the ready for an 18.2% reserve margin. MISO's 24 GW worth of reserves are higher than last year's 23 GW, and beats the requirement by 4.2 GW.

MISO will reveal final reserve margin numbers at a summer readiness workshop sometime in May.

— Amanda Durish Cook

MISO NEWS



Board of Directors Briefs

Committee Could Lengthen Board Member's Tenure

Though one director is reaching his term limit, MISO's nine-member Board of Directors could look the same going into 2018.

Directors Thomas Rainwater's, Paul Bonavia's and Baljit Dail's terms expire at the end of 2017. Rainwater and Bonavia have not reached MISO's limit of three three-year terms, and both agreed to seek re-election by MISO membership for another term.

Dail has reached the term limit, but Board Chairman Michael Curran said at the March 23 board meeting that Dail has agreed to seek re-election for an additional term if a waiver is recommended by the Nominating Committee and approved by the board.

MISO's Principles of Corporate Governance state that the term limit can be waived if the board determines "that a director's continued service is necessary to retain his or her skills or expertise, to maintain geographic or other diversity of the board, or is otherwise in the best interests of" MISO.

MISO's board has seen considerable turnover in the past two years, with two directors — Phyllis Currie and Mark Johnson — added in late 2015 to replace former Director Eugene Zeltmann, and three directors — H.B. "Trip" Doggett, Barbara Krumsiek and Todd Raba — brought on in late 2016 to replace former Directors Judy Walsh, Michael Evans and Paul Feldman.

This year, stakeholders elected Arkansas Public Service Commission Chairman Ted Thomas to serve on the Nominating Committee. The vote for the second stakeholder seat ended in a tie between Madison Gas

and Electric's Megan Wisersky and Entergy's Matt Brown. Stakeholder relations staffer Alison Lane said the vote for the second seat will be redone, with ballots sent out again this week. She said if all seven voting-eligible sectors participate, the vote cannot end in a tie.

MISO Market Software Adequate for Another 5-7 Years

MISO will be able to squeeze an extra couple of years out of its aging market system, said Dail, chair of the Technology Committee.

Late last year, MISO Executive Director of Market Design Jeff Bladen said officials expected to replace the system in two to three years, announcing that the RTO had hired consultants to study system improvements. (See [MISO to Study Aging Software; Market Improvements Planned for 2017.](#))

But Dail said the system can take on more complexity and remain usable for five to seven years.

MISO staff said the Clean Power Plan's likely rejection by the Trump administration defers the need for new system technology, because intermittent and behind-the-meter generation is not expected to be added at such a rapid pace. Currie asked how much money MISO could expect to save because of the IT deferral. MISO CEO John Bear said the savings would be reported in future budget projections.

"That's a welcome, but somewhat dramatic, change in timeframe," Krumsiek said.

Dail also said that an internal technology audit again ranked MISO low when it comes to removing employee access to MISO systems after they are transferred or leave the RTO's workforce. MISO had a self-imposed goal of 24 hours to remove both critical system access and perform an administrative cleanup. NERC standards allow 24 hours to remove an employee's system access and 31 days to scrub employee information from the system. Dail said MISO has since allowed itself a more doable seven days to perform an administrative cleanup, separating it from the 24

-hour access deadline.

MISO Operations Under Budget; Project Timing Nudges Capital Spending Over

MISO's \$37.7 million in spending so far in 2017 is under budget by \$100,000, or 0.3%, newly hired Chief Financial Officer Melissa Brown said. She said the savings can be attributed to a slower hiring rate and MISO delaying some travel and the hiring of consultants.

However, MISO's capital spending is over budget by 2.4%. Tony Guisinger, strategic development and operations executive, said capital spending is higher than planned because of some later-than-planned equipment purchases and related installation fees.

Guisinger, who assumed financial duties after former Vice President of Finance Jo Biggers left unexpectedly last year, is still assisting Brown, who joined MISO in late January. (See [MISO Appoints Melissa Brown as New CFO.](#))

Board May Conduct Long-Term Incentive Review

Human Resources Committee Chair Todd Raba said MISO is planning a review of its long-term executive incentive plan.

The long-term bonus plan, which gauges and rewards performance for longer than one year, has not been changed in 15 years. Raba said his committee would complete a review of the current plan in June and act on proposed changes by October.

MISO made changes to its short-term incentive plan, doled out annually, last year. (See [MISO Directors to Decide Yearly Executive Bonuses.](#))

MISO Adds 2 New Members

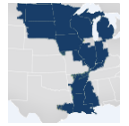
The board unanimously voted to grant MISO membership to two non-transmission-owning companies.

Clean energy project developer and operator ALLETE Clean Energy joined the Independent Power Producers sector, and transmission developer Verdant Plains Electric joined the Competitive Transmission Developers sector.

— Amanda Durish Cook



The MISO Board of Directors meeting in New Orleans. | © RTO Insider



PJM Filing Renews MISO Monitor's Call for Pseudo-Tie Elimination

By Rory D. Sweeney

NEW ORLEANS — MISO Independent Market Monitor David Patton last week used PJM's proposed *pro forma* pseudo-tie agreement to renew his call for an end to pseudo-ties.

On March 9, PJM made a Section 205 filing with FERC to add criteria for accepting pseudo-ties ([ER17-1138](#)). PJM would require that it have dispatch control over new and existing pseudo-ties from NYISO and MISO. (See [PJM to Tighten Pseudo-Tie Rules Despite Stakeholder Pushback](#).)

On Thursday, PJM officials delayed a stakeholder vote on the agreements. (See related story in [PJM Markets and Reliability and Members Committees Briefs](#), [p.24](#).)

Having NYISO units dispatched by PJM — which may not be fully aware of all the ISO's data — is not a sound idea, considering New York's transmission congestion, Patton said. He added that at least 18 units in MISO would be dispatched by PJM in the 2017/18 planning year beginning June 1. PJM currently dispatches 13 MISO units.

"It's very inefficient. ... It's just a terrible idea," Patton told the Markets Committee of the Board of Directors on Thursday.



Curran

Krumsiek

Patton said PJM's filing signals a good time for MISO to again propose replacing pseudo-ties with a firm capacity delivery procedure. MISO's proposal would guarantee the delivery of the capacity purchased by PJM by the host RTO scheduling a firm export in the real-time market and having the external capacity supplier settle the export with both RTOs. Patton said MISO's proposal is an "attractive" idea. (See "MISO IMM Warns Again of PJM Pseudo-Ties," [MISO Market Subcommittee Briefs](#).)

MISO Director Michael Curran said the creation of pseudo-ties itself was an "emotional response" to manage electricity flows from different balancing authorities in the early days of RTOs. "It's difficult to try to get this to work, because it never worked in the first place. It sounds like it's coming to a critical point here, and we'll have to work with New York to bring some sanity to the

situation," Curran said.

Patton said MISO and NYISO might face resistance from PJM because PJM staff and stakeholders generally view the pseudo-tie concept as a way to maintain control of the quality and reliability of the generation on its system.

"I wouldn't be opposed to a megawatt limit" on the volume of exports from MISO to PJM, Patton added.

Curran did not let the comment go unnoticed. "I'm shocked by that. You're a fundamentalist, and suddenly you're in favor of limits," Curran said lightheartedly. "I'd hate to see you close the borders."

Director Barbara Krumsiek asked which of PJM's neighbors support PJM's proposal.

"That's a good question," Patton said laughing. He added that NYISO has no pseudo-ties with PJM and would most likely want to keep it that way.

Director Baljit Dail asked when the pseudo-tie issue might be solved.

Richard Doying, MISO executive vice president of operations and corporate services, said resolving the issue would be a long-term project. He said MISO would consult both its Monitor and stakeholders before proposing a Tariff solution to FERC.

MISO, PJM See No Joint Reliability Projects; Evaluating MEPs

By Rory D. Sweeney

MISO and PJM officials will entertain stakeholder proposals for interregional reliability projects even though none of the 19 reliability upgrades currently planned near the RTOs' seam offers opportunities for collaboration, RTO officials said last week.

The 10 projects in PJM's Regional Transmission Expansion Plan include four in American Electric Power's zone, one in East Kentucky Power Cooperative, three in Duke Energy Ohio/Kentucky, one in Rochelle Municipal Power's zone in north-center Illinois and one that crosses AEP's and DEOK's zones on the border of Ohio and Indiana.

The nine projects in MISO's 2017 MISO Transmission Expansion Plan include two in

ITC Transmission's zone, three in ITC subsidiary Michigan Electric Transmission Co.'s zone, one in Consumers Energy, one in American Transmission Co. and two in Mid-American Energy.

Interregional reliability projects are analyzed on the basis of avoided costs. Comparisons of the MISO and PJM plans "have not identified any high potential areas for an interregional reliability project," the RTOs said at the March 24 Interregional Planning Stakeholder Advisory Committee meeting.

PJM is expected to open a proposal window for interregional projects around May. MISO will accept proposals at any time.

Market Efficiency Projects

Meanwhile, the RTOs are evaluating eight

market efficiency project proposals submitted in the window that closed Feb. 28. The grid operators received proposals for three upgrades and five greenfield projects from six respondents. The projects ranged in cost from \$1 million to \$198 million. (See "2017 MEP Identification Underway," [FERC Signals Bulk of NIPSCO Order Work Complete](#).)

PJM is currently updating its PROMOD model for 2017 and plans to begin calculations around May 1. Stakeholders who have critical energy infrastructure information (CEII) clearance and been approved to receive the model should expect access somewhere around the end of April or the beginning of May, PJM's Chuck Liebold said.

The project benefits will be compared dur-

Continued on page 25

NYISO NEWS



NYISO Board Member Resigns After less than 1 Year

By Peter Key

Bernard W. Dan resigned unexpectedly from NYISO's Board of Directors last week, less than a year after [joining](#).



Dan

Dan announced his resignation at the board's March 22 meeting. NYISO Chairman Michael Bemis relayed the news to stakeholders at the board's Liaison Committee meeting afterward.

"Mr. Dan was interested in pursuing other opportunities," NYISO spokesman Dave Flanagan confirmed. "He felt it was best to leave the board to avoid any potential conflicts."

Flanagan declined to provide any details about Dan's plans. Asked about plans to replace Dan on the 10-member board, Flanagan said, "Stakeholders will work that out through their normal process."

Dan did not respond to an email asking for comment.

Turnaround Exec

Dan's LinkedIn [page](#) describes him as a "Board Advisor, CEO and Turnaround Executive." He has been a senior advisor to the board of directors of [OneChronos Group](#) since 2015. The company, a startup that has gone through Y Combinator's accelerator program, says it is building a new type of financial exchange that will make trading cheaper.

Dan was the CEO of Sun Holdings, which trades in stocks, currencies, futures and bonds, for five years [ending](#) in July 2015.

Dan also had a nearly two-year stint at MF Global, a broker of exchange-traded futures and options. After joining in June 2008 as the chief operating officer for North America, he rose to become CEO. He resigned in March 2010 and was replaced by former New Jersey Gov. Jon Corzine. The company, which filed for bankruptcy protection in October 2011, [settled](#) a lawsuit with its auditors, PricewaterhouseCoopers, on March 23.

Before joining MF Global, Dan was CEO of the Chicago Board of Trade, taking part in its initial public offering in 2005 and its sale to the Chicago Mercantile Exchange in 2007.

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PJM Board Disputes UTC Trader's Accusations

By Rory D. Sweeney

The PJM Board of Managers responded last week to accusations leveled by XO Energy in February, defending the grid operator's practices and denying the up-to-congestion trader's request that the board disregard rule changes on uplift recently endorsed by stakeholders.

In a long and strongly worded letter to the board, XO President Shawn Sheehan accused PJM staff of having bias against financial-sector stakeholders and actively working to undermine their interests. He was specifically concerned with how the process played out in the Energy Market Uplift Senior Task Force, which recently proposed a phased response to uplift issues. Those proposals were eventually endorsed at both the Markets and Reliability and Members committees. XO had asked that the board not act on the endorsements pending the outcome of FERC's recent

Notice of Proposed Rulemaking on uplift issues. (See [UTC Trader Displeased with PJM's Handling of Uplift Rule Changes.](#))

PJM CEO and board member Andy Ott responded to Sheehan's claims in a much more reserved tone March 20, suggesting that Sheehan could meet with Dave Anders, the RTO's director of stakeholder affairs, to discuss his concerns further. Ott defended the RTO's stakeholder procedures, noting that it provided technical experts that offered "a significant amount of objective technical analysis" throughout the yearslong development of proposals from the task force.

"PJM's role is to ensure the market remains efficient and competitive, and to provide analysis and justification if they believe certain market inefficiencies should be addressed," Ott wrote. "I appreciate that some PJM stakeholders disagree with PJM's conclusions in this regard, but such disagreements do not make PJM biased or

negative toward any particular stakeholder group."

Sheehan had suggested that PJM staff pushed stakeholders into approving the proposals and didn't provide enough opportunity for engagement, but Ott noted that the process had been going on for more than three years.

"Clearly, abundant opportunity has been afforded to all stakeholders, including the financial community, to express views, persuade others and offer alternatives," he wrote. "I can find no basis to adopt the extraordinary remedy you have suggested, which would table and disregard the expressed preferences of a very sizeable majority of the PJM members."

The MRC and MC endorsed proposals for phases 1 and 2 of the uplift response. Proposals for a third phase are still being discussed at the task force level and haven't been brought for discussion at any of the standing committees.

FERC Staff OKs PJM Aggregation, DR Rules; Refunds Possible

FERC staff have greenlit — perhaps temporarily — PJM's proposed Tariff revisions to allow increased participation from seasonal resources just in time for the RTO's Base Residual Auction in May ([ER17-367](#)). The order remains subject to refund and further FERC action.

The proposals had been on a 60-day clock that would have allowed them to go into effect on March 24, but staff's order keeps the door open for additional commission review once it regains a quorum of commissioners. (See "Loss of Quorum Means Filings to Become Effective Unless FERC Staff Acts," [PJM Market Implementation Committee Briefs.](#))

The changes relax current rules prohibiting seasonal resources from aggregating across locational deliverability areas. The proposal also provides for additional winter capacity interconnection rights (CIRs) and modifies rules for measuring demand re-

sponse performance in the winter.

PJM sparked controversy about a highly debated issue among stakeholders when it unilaterally filed the revisions with FERC in October under Section 205 of the Federal Power Act. The commission issued a deficiency notice in December, which PJM replied to in January. (See [FERC Wants More Detail on PJM's Seasonal Capacity Plan.](#))

While the order notes that protesters argued that PJM's proposal was "an insufficient solution to the larger problem of the costly and inefficient nature of eliminating stand-alone sub-annual resources," it nonetheless granted the effective dates PJM proposed: Jan. 19 for winter CIRs and June 1 for DR revisions. Requests for rehearing must be filed within 30 days.

— Rory D. Sweeney

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PJM Capacity Task Force Considering 60+ 'Design Concepts'

By Rory D. Sweeney

VALLEY FORGE, Pa. — It took months to get PJM's latest stakeholder initiative on the capacity market started, but there is no shortage of interest now that it's begun.

More than 20 stakeholders attended the Capacity Construct/Public Policy Senior Task Force's second meeting on Monday — with another 100 conferencing in — to spend more than five hours discussing 63 design-concept suggestions for revising the RTO's capacity market.

Members agreed to form the task force in January, following months of debate on the scope of the undertaking. (See [PJM to Review Impact of State Public Policies on RPM](#).)

Early on in Monday's session, Steve Lieberman of American Municipal Power asked for confirmation that a suggested November timeline for deliverables is only a general target and not a specific goal. Dave Pratzon of GT Power Group suggested that such a deadline would allow revisions to be in place for next year's Base Residual Auction.

Lieberman said the main focus should be to ensure the revisions are "complete and not half ... complete."

"There's another word I would usually use there," he added.

PJM's Dave Anders, who facilitated the meeting, thanked him for not enunciating it.

One stakeholder noted that FERC has

scheduled a technical conference May 1-2 on the interplay of state policies and wholesale markets in PJM, NYISO and ISO-NE (AD17-11). "If there is a compliance obligation that comes out of that tech conference, are we able to expand this task force to discuss it?" she asked.

Anders confirmed that the task force can vote to expand its scope in such a situation, but it must receive approval from the Markets and Reliability Committee to revise its charter. He went on to set other ground rules, including how the wide variety of stakeholder interests in this process will be handled. Instead of allowing "diametrically opposed" goals to both be approved as independent objectives of the group, he proposed using a poll to evaluate levels of support for each option.

"We'll expose where the differences are," he said.

Stakeholders took immediate interest in hashing out the definition of "missing money," which NRG Energy's Pete Fuller said should adhere to its original concept of focusing on revenue levels that support future investment, not on ensuring individu-



PJM's Stu Bresler (left) and Dave Anders | © RTO Insider

al units are able to break even on a daily basis.

"It's much more of a market-confidence stance," he said.

Mike Cocco of Old Dominion Electric Cooperative agreed that the phrase "has lots of different meanings to lots of different people."

To him, "missing money" means the additional revenue source from the capacity market that is necessary with a cost capped energy market to achieve the desired level of reliability. It does not mean revenue adequacy for all generators. He said the capacity market should provide the designed level of reliability at the lowest possible cost.

PJM's Tim Burdis provided a review of state policy initiatives that are impacting, or could impact, the RTO's capacity market. He said such initiatives tend to fall into four categories: standards to attain, such as emissions reductions; direct contracts; appropriations such as zero-emissions credits; and regulations.

Exelon's Jason Barker took issue with categorizing ZECs as appropriations, saying they are more closely aligned with renewable energy credits, which Burdis had categorized as "standard attainments."

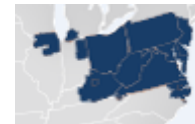
The task force's next meeting will be April 21. The location has not been set, but Anders confirmed that it won't be at PJM's offices due to scheduling conflicts.



Bob O'Connell, Panda Power Funds | © RTO Insider



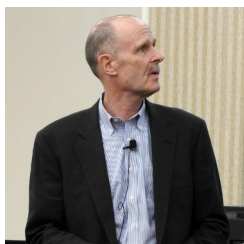
Tim Burdis, PJM | © RTO Insider



PJM Monitor Says Low Prices Indicate Competitive Market

By Rory D. Sweeney

WILMINGTON, Del. — Independent Market Monitor Joe Bowring said Thursday that the PJM market is competitive and healthy, despite what some stakeholders believe are economically low energy prices.



Bowring

LMPs were lower in 2016 than they have ever been since organized markets began, which “is a testament to competitive markets,” Bowring said during a Members Committee [briefing](#) on the 2016 State of the Market report. “Prices are not too low. We don’t need to artificially raise prices. They are what they are.”

Despite the market changes created by the introduction of the Capacity Performance model, “prices have been consistent with historical levels,” he said.

Combined cycle units, for example, did “relatively well” in 2016, he said. “Even though their margins are smaller, they are in fact making it up on volume.”

That does, however, create one issue, he said: While combined cycle units have become baseload resources, coal-fired units have shifted to an intermediate role, which is problematic because they can’t ramp up and down well. Coal steam units recorded a 32.5% capacity factor for the year, down sharply from 2015’s 43.8%. Combined cycle plants had a 62% capacity factor in 2016, almost unchanged from 2015.

Generator Markups

Bowring’s presentation focused heavily on the impact of markups, which is the difference between a market seller’s market-based offer and its cost-based offer, which reflects the generator’s marginal costs. The Monitor’s data showed that coal-fired plants often had negative markups in 2015 and 2016.

“I think [the market] is very healthy. I think it’s competitive. I think it’s showing us Manual 15 is wrong, and coal units don’t need a 10%” adder, Bowring said. The manual permits generators’ cost-based offers to include a 10% adder above their marginal costs; it was intended as a cushion against uncertainties, including fuel prices and heat rates that can vary with temperatures and plant loading.

FirstEnergy’s Jim Benchek questioned Bowring’s observation, saying coal units have “really legitimate reasons” for offering negative markups.

Bowring explained that higher markups can be exercises of market power — or an indication that the operators simply don’t want the unit to run. He presented a graph that showed the cumulative number of unit intervals with markups above \$150/MWh. The graph showed a major spike in mid-February 2015, which he said

coincided with a cold snap that might entice market sellers to exercise market power.

Algorithmic Definition

Bowring also said it’s “staggering to me” that PJM refuses to evaluate fuel-cost policies based on algorithmic standards.

In a ruling Feb. 3, FERC sided with the RTO in requiring that fuel-cost policies be verifiable and systematic but not algorithmic, as the Monitor had proposed. (See [PJM Fuel-Cost Policy Changes to Take Effect in May.](#))

FERC’s order quoted the Monitor as saying the policies should be based on broker quotes, bilateral offers or index prices. The commission said the Monitor’s position that policies be “algorithmic under all circumstances” ignores that natural gas markets can become illiquid during stressed conditions, potentially understating generators’ real costs.

The Monitor said it defines “algorithmic” as simply meaning a step-by-step process to get from a defined input to an output.

“It’s very, very simple, very, very basic,” Bowring said Thursday. “You can’t have a verifiable anything unless it’s algorithmic.”

Bowring also questioned the notion that PJM’s energy production is becoming less fuel diverse, presenting a Fuel Diversity Index that shows little change since its beginning in 2000.

Bowring [released](#) the State of the Market report earlier this month, warning that state plans to subsidize unprofitable generating resources present “a very real threat” to wholesale electricity markets. (See [PJM Monitor Concerned About State Subsidies.](#))

| Status | Priority | | | Total | % of Total | |
|----------------------------------|-----------------------|-----------|-----------|------------|---------------|-------|
| | High | Medium | Low | | | |
| Adopted | 19 | 12 | 18 | 49 | 21.7% | |
| Partially Adopted | 7 | 13 | 10 | 30 | 13.3% | |
| Not Adopted | (No Action) | 27 | 59 | 35 | 121 | 53.5% |
| | (Pending before FERC) | 3 | 1 | 0 | 4 | 1.8% |
| | (Stakeholder Process) | 4 | 6 | 2 | 12 | 5.3% |
| Replaced by Newer Recommendation | 1 | 5 | 2 | 8 | 3.5% | |
| Withdrawn | 0 | 0 | 2 | 2 | 0.9% | |
| Total | 61 | 96 | 69 | 226 | 100.0% | |

Status of Market Monitor recommendations, 1999-2016 | *Monitoring Analytics*

PJM NEWS



MRC/MC Briefs

Markets and Reliability Committee

Pseudo-Tie Proposals Too Complex for Some Stakeholders

WILMINGTON, Del. — PJM officials Thursday delayed a vote on its proposed standardized agreements for pseudo-ties, but that didn't stop complaints from stakeholders who say the rules will be overly burdensome.

"From our standpoint, this pseudo-tie business is starting to get out of control," American Municipal Power's Ed Tatum said at the Markets and Reliability Committee meeting. "The stakes are getting higher and more draconian."

The issue is particularly important for AMP, he said, because it put a lot of effort and resources into creating a pseudo-tied unit.

Mike Borgatti of Gabel Associates voiced similar concerns, noting the multiple layers of rules from separate RTOs that they would soon have to follow.

On March 9, PJM made a Section 205 filing with FERC to add criteria for accepting pseudo-ties despite a lack of stakeholder consensus ([ER17-1138](#)). (See [PJM to Tighten](#)

Pseudo-Tie Rules Despite Stakeholder Pushback.)

PJM officials had planned last week to seek stakeholder endorsement of a *pro forma* pseudo-tie agreement, a reimbursement agreement for pseudo-ties into PJM and related Tariff and Operating Agreement revisions.

But PJM's Jacqui Hugee announced at the beginning of her presentation that the proposals were being removed from voting consideration. She said a "beneficial revision" had been suggested at the last minute that PJM wanted to include in the proposal, though she didn't detail what the proposal was.

PJM's 205 filing renewed calls by MISO Independent Market Monitor David Patton to eliminate pseudo-ties altogether. (See related story, [PJM Filing Renews MISO Monitor's Call for Pseudo-Tie Elimination, p.19.](#))

Stakeholders Quibble with, but Eventually Endorse, Replacement Capacity Investigation

NRG Energy's Neal Fitch walked through the entire document in his reintroduction for approval of a problem statement and issue charge on investigating replacement capacity, but it was only one word that truly hung up other stakeholders. (See

"Stakeholders Deny Replacement Capacity Initiative; Consider Other Incremental Auction Changes," [PJM Markets and Reliability and Members Committees Briefs.](#))

Characterizing the amount of cleared replacement capacity as "high" didn't sit well with CPower's Bruce Campbell. "It's data," he said.

"Are you willing to negotiate on the fly here? Why don't we just delete the word high?" Fitch asked.

While Campbell considered that, others stepped in with an assortment of suggestions. The revision attempts eventually resulted in minor clarifications that removed the word "high."

Tom Rutigliano of consulting firm Achieving Equilibrium had concerns with requiring "resources to be deemed physical" and asked that the benefits of replacement transactions also be noted in the problem statement. Fitch declined, saying they could be discussed within the group assigned to the problem statement.

"I will make my commitment to you, that to the extent that you or your clients want to identify benefits, you are more than welcome to," he said.

The problem statement was approved by

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2017 CHICAGO

MARC

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MACRUC

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MRC/MC Briefs

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acclimation with 10 objections and three abstentions.

IMM's Proposed Fuel-Cost Policy Changes Denied

After months of debate, rule revisions in Manual 15 and the Operating Agreement regarding hourly offers and fuel-cost policies received committee endorsement, but not without a lengthy final debate. (See [PJM Fuel-Cost Policy Changes to Take Effect in May](#).)

Independent Market Monitor Joe Bowring proposed changes that concerned stakeholders and PJM, including posting its evaluation in the online Member Information Reporting Application (MIRA), reserving the right to communicate information to PJM that it doesn't communicate to the market seller and codifying in the rules that it will provide PJM with a recommendation whether to approve or reject a proposed policy.

Catherine Tyler Mooney, who works for the IMM firm Monitoring Analytics, explained that the changes would provide transparency regarding the Monitor's participation in the fuel-cost policy approval process, addressing a source of confusion for stakeholders. She said PJM proposed similar additions to Manual 15 as a result of conversations with the IMM. The key differences in PJM's and the IMM's versions were the reference to MIRA and the inclusion of the Monitor's recommendation, which was

suggested by FERC in its Feb. 3 order.

Stu Bresler, PJM's senior vice president of operations and markets, objected to referencing MIRA and the Monitor's recommendation in the manual because it's the only manual that requires Board of Managers approval for revisions. If technology or procedures change, it will require a long process to update the manual, he said. The Monitor is welcome to provide its recommendation voluntarily to PJM, but the Tariff doesn't require it, so the manual shouldn't require something different, Bresler said.

Bowring said MIRA is mentioned elsewhere in the manual, so it would need to be revised anyway if methods change, and that PJM should not block it from committing itself to providing more information than required.

Stakeholders were concerned that PJM and the Monitor were far apart on this issue, but PJM's Suzanne Daugherty assured them that wasn't so.

"I don't think [the difference] is big. I think it's specific," she said.

Stakeholders remained concerned that approval from PJM doesn't necessarily guarantee approval from the Monitor, which might still make a referral to FERC.

"It's like your [PJM] approval doesn't mean anything," one stakeholder said.

Stakeholders were also concerned with the Monitor suggesting it might keep information from them.

"I'm struggling with what you would tell to PJM that you wouldn't tell to the market seller," GT Power Group's Dave Pratzon said. "If you only share the details of why [a policy passed or failed] to PJM, you put the

market seller in a tough position."

"I understand that you want to know everything that's said to PJM about your fuel-cost policy," Mooney acknowledged, adding that the Monitor makes all of its issues with a fuel-cost policy clear to both the market seller and PJM. Bowring later explained as an example that his outfit might provide information to PJM of discussions it had with the market seller, so the information would be redundant for the market seller.

Tyler concluded the discussion by stating that "when PJM proposes changes to the manual to provide the details of how it implements the Tariff, it is allowed. When the Monitor wants to provide details of how it performs its responsibilities, it is not allowed."

The manual and OA revisions were ultimately approved following minor language changes.

Transmission Owners, Customers Clash over Infrastructure Replacement

PJM's Paul McGlynn presented an update on work in the Transmission Replacement Processes Senior Task Force that has not been halted by FERC's Order to Show Cause. In August, the commission questioned whether PJM transmission owners are complying with their local transmission planning obligations, specifically with respect to supplemental projects, as required by Order 890. (See "Transmission Replacement Activity Hiatus Extended," [PJM Markets and Reliability and Members Committees Briefs](#).)

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MISO, PJM See No Joint Reliability Projects; Evaluating MEPs

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ing the summer to determine interregional cost allocation, and the best projects will be identified in the fall. Recommendations to the respective boards will be made in November or December.

FERC Filings

On Dec. 30, the RTOs filed joint operating

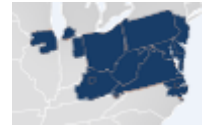
agreement changes defining the study process, benefits and interregional cost allocation for targeted market efficiency projects (TMEPs) ([ER17-718](#)).

Related tariff filings, defining the new TMEP project type and how costs of such projects would be allocated regionally, are due from each of the RTOs by April 29.

PJM's Transmission Owners Agreement-Administrative Committee (TOA-AC) closed a 30-day comment window on March 23.

MISO is considering its regional cost allocation rules for such projects in the Regional Expansion Criteria and Benefits Working Group. Stakeholders discussed a proposal based on congestion contribution at the February and March working group meetings. Another working group meeting is tentatively set for April 7 to continue discussions.

The RTOs are considering as many as five TMEPs. (See [MISO-PJM TMEP Projects Drop to Five](#).)



MRC/MC Briefs

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McGlynn said work has continued on a Transmission Cost Information Center, which the task force feels isn't covered under the order. Sub-groups have completed the design of the tool, and PJM will construct it, he said.

Despite the hiatus, tension in the task force remains, which was highlighted by an exchange between Exelon's Gloria Godson, who represented the PJM TOs, and AMP's Tatum. Godson stated that PJM TOs have a strong commitment to transparency and provide their assumptions, methodologies and detailed project information as appropriate. However, she cautioned against stakeholders expecting uniformity from TOs because their processes are not all the same.

"Companies may do things differently and uniformity may not be an appropriate request," she said.

Tatum clarified that his impression has been that transmission customers are not seeking uniformity. Rather, he argued, customers are asking for the detailed information necessary to be comfortable with owners' infrastructure upgrade and replacement proposals. Another \$1 billion in supplemental projects has been proposed, he noted, along with \$860 million in "immediate need" projects that bypass the Order 1000 competitive bidding process.

Godson took exception to Tatum's call for additional detail, saying he has "hijacked" the Sub-Regional Transmission Expansion Planning Committee in the past and "held court" for the entire meeting to make his point. Tatum rejected her characterization, and John Farber of the Delaware Public Service Commission staff interjected in his defense.

"Not being an engineer, I rely on Ed's input," Farber said. "So I don't consider it holding court."

Stakeholders Approve Variety of Actions

Stakeholders endorsed by acclamation several manual revisions and other operational changes:

- Manual 13: [Emergency Operations](#). Revisions developed in response to new NERC standards.
- Manual 37: [Reliability Coordination](#). Revisions developed in response to new NERC standards.
- Manual 1: [Control Center and Data Exchange Requirements](#). Revisions developed in response to new NERC standards.
- Shortage pricing and operating reserve demand curve solution and associated manual [revisions](#). (See "Order 825 Implementation Moves Forward," [PJM Market Implementation Committee Briefs](#).)
- A [problem statement and issue charge](#) presented by Bob O'Connell of Panda Power Funds regarding calculation of opportunity costs for units with less than three years of historical LMPs. The

initiative will evaluate whether the opportunity cost calculator included in PJM's Markets Gateway produces the same results as that used by the Monitor. It also will consider updating the calculators to reflect the nonperformance penalties under Capacity Performance. (See "Stakeholders Deny Replacement Capacity Initiative; Consider Other Incremental Auction Changes," [PJM Markets and Reliability and Members Committees Briefs](#).)

- A [draft charter](#) for the Modeling Generation Senior Task Force, an outgrowth of the Combined Cycle Owners User Group, which concluded that a more detailed generator model for combined cycle units might also be applicable to other steam units. The task force will consider expanding the model used by PJM to improve the ability to represent components of all generation types.
- A [draft charter](#) for the Incremental Auction Senior Task Force, which will consider changes to the Incremental Auction process and structure, excess capacity sales, and PJM participation in the auctions.

Members Committee

PJM Outlines Potential Impact of FERC Rulings on Auctions

PJM's Jen Tribulski explained the implications of several FERC proceedings on PJM's Base Residual Auction in May.

FERC staff issued an order on March 21 that accepted PJM's November filing on seasonal capacity and resource aggregation. Tribulski said this allows PJM to apply the new rules to the auction, but also that the commission could review the case and require refunds if it comes to a different conclusion when it regains a quorum. The auction, which will begin on May 10, is for the 2020/21 delivery year. (See [FERC Staff OKs PJM Aggregation, DR Rules; Refunds Possible](#).)

Tribulski acknowledged that the staff order was vague regarding what portions of the order it thought might not be just and reasonable. "It was boilerplate language, but I agree with you, we don't know what aspect if any they are really honing in on," she said.

NRG's Brian Kauffman asked what was meant by FERC's suspension for a "nominal period." Tribulski said it was a one-day "flash" suspension, but didn't offer additional details regarding FERC's intentions.

She also explained the potential implications of PJM's March 9 filing regarding external capacity enhancements. If FERC doesn't issue an order by May 9, the rules automatically go into effect and will be applicable for the BRA starting the next day. If FERC orders a suspension subject to refund and further proceedings that expires prior to the auction, PJM will still implement the new rules, Tribulski said. However, if FERC issues a deficiency letter or a suspension that continues beyond the auction date, the BRA will be conducted under the existing rules, she said.



Tribulski

— Rory D. Sweeney



Renewable Exports Unlikely, Task Force Concludes; Readies Final Report

Having concluded that renewable energy is “extremely unlikely” to be exported outside SPP’s footprint, staff have begun working on the Export Pricing Task Force’s final report for delivery in July.

SPP’s Sam Loudenslager said a market exists for renewable resources, but “rate stress” from building additional transmission and uncertainty that the energy would be deliverable led staff to its conclusion. He also pointed to the difficulties SPP has had in agreeing to joint transmission projects across its seam with MISO.

“It’s not impossible, but it’s difficult,” Loudenslager said.

SPP’s Michael Desselle, the task force’s staff secretary, pointed to a list of proposed market and operational improvements to address renewable resources and advocated for canceling the rest of the group’s scheduled meetings. Members objected, however, and the task force agreed to additional meetings before turning over the final report to the Strategic Planning Committee.

“I don’t think we’re done yet. We haven’t laid out anything that looks at the export issue itself,” said Marguerite Wagner, of independent transmission company ITC Holdings.

The group also discussed creating “national renewable resource areas” to enable wind exports to markets outside SPP and avoid placing the costs directly on the RTO’s members or ratepayers.

Referring to himself as a “big-picture guy,” Golden Spread Electric Cooperative’s Mike Wise, the group’s chair, asked whether the federal government should be involved, as it was in building the nation’s highway system following World War II. That would enable exporting resources outside SPP without the cost being paid directly by the RTO’s members or ratepayers, he said.

“We’re facing a problem because no one wants to pay for that transmission,” Wise said. “Renewable energy is really a national resource. Can this area be declared a national resource? Can we get ... through Congress a transmission corridor to get to this resource? Is it necessary to have this



SPP’s Michael Deselle (left) and Golden Spread Electric Cooperative’s Mike Wise | © RTO Insider

sort of major dynamic funded and paid for by the federal government?”

Wise likened his proposal for “national renewable resource areas” to Texas’ Competitive Renewable Energy Zones, which facilitated the construction of \$6.8 billion worth of infrastructure connecting West Texas wind farms with urban population centers to their east.

Oklahoma Gas & Electric’s Greg McAuley pointed out wind-energy transmission customers were the ones who invested in the CREZ lines.

“In our case, our customers can’t make use of the additional wind, at least not enough to justify significant additional investment,” he said. “It’s not clear to us how our customers would benefit from additional investment when they’re not going to be the ones using the power.”

The task force was chartered last August to establish equitable and “not unduly discriminatory prices” for exports and imports of the abundant variable energy resources in



Greg McAuley, Oklahoma Gas & Electric | © RTO Insider

the SPP region. The RTO says it has 22 GW of renewable resources in its interconnection queue.

Since the year began, the group has discussed how other regions handle export issues and heard from representatives from Southern Co., Enel Green Power NA and Clean Line Energy Partners.

Seams Committee Approves Joint Project with AECI

The Seams Steering Committee on Friday approved a potential joint project with Associated Electric Cooperative Inc., sending it to the Markets and Operations Policy Committee and Board of Directors for final approval. Those groups will hold their regular quarterly meetings in April.

The project would include a new 345/161-kV transformer at AECI’s Morgan substation and an uprate of a related 161-kV line, both near Springfield, Mo.

The Morgan transformer was included in SPP’s 2017 Integrated Transmission Planning 10-Year assessment, which was approved by the MOPC and board in January. The project, valued at \$9.2 million, is contingent on reaching a cost-allocation agreement with AECI.

The approval came in a special conference call, after members asked for more time during its March 8 meeting to evaluate the project. The vote received one abstention, from ITC Holdings. (See “AECI Joint Projects Move Forward,” [SPP Briefs](#).)

— Tom Kleckner

STAKEHOLDER SOAPBOX

The Formidable Challenges of Replacing Indian Point

By Rob DiFrancesco

The economic and environmental challenges of replacing Indian Point are formidable. So are the grid reliability challenges.

Any attempt to minimize these impacts is a disservice to New Yorkers who face, at best, an uncertain energy future due to rising prices, higher carbon and other toxic emissions, and lower grid reliability.

For more than 40 years, Indian Point has been the backbone of New York's electricity system. It generates 2,069 MW of power, providing 25% of the electricity for New York City and the surrounding region. In fact, the plant generates enough power for 2 million New York homes and the same amount typically produced by four or five natural gas natural plants.

Except for scheduled refueling outages, it generates baseload power 90% of the time, with no emissions. Even though we have up to four years to replace Indian Point's power, it is very difficult to get anything approved and built in New York, including renewable energy facilities, in such a relatively short period of time.

Price Pressures

Replacing the supply of Indian Point's power to meet the growing demand for electricity in New York will not be easy. But it is not only the resulting supply gap that puts upward pressure on electric power prices.

Improvements in the transmission grid necessary to bring new power to New Yorkers will be enormously expensive. Such infrastructure investments are particularly necessary and costly if the power must be transported over long distances, or if there is greater reliance on intermittent renewable power sources.

Other power sources are also subject to sharp price fluctuations. During the hottest days of the summer and the coldest of the winter, it is difficult for New York to get sufficient amounts of out-of-state natural gas, which also drives up prices at these critical times.

Also, the massive amount of renewable energy power needed to replace Indian Point is daunting and simply not practical.

Replacing 1,000 MW, less than half of Indian Point's generation, with solar power requires 45 to 75 square miles of land and 260 to 360 square miles for wind power.¹ For perspective, Manhattan is only 22.8 square miles of land.

Emissions

Indian Point also generates tremendous amounts of electricity with nearly zero carbon or other toxic emissions. The other critical question is not if toxic emissions will increase when Indian Point closes, but by how much.

California, Florida, Wisconsin and Vermont have all experienced greater reliance on fossil fuels and very significant increases in pollution after closing nuclear power plants.²

In fact, when advocating for New York's upstate nuclear plants, Chairman of Energy and Finance for New York Richard Kauffman said, "Without our upstate nuclear fleet, 31 million tons of CO₂ would be released in just two years, the equivalent of adding 6 million cars to the road — resulting in an additional \$1.4 billion in public health and other societal costs. New York would have to rely on more expensive and dirtier power."³

Grid Reliability

New York is fortunate that Indian Point will be operating until 2021. In fact, were the plant to close today, the state's grid would not be reliable, according to NYISO.⁴

The costs of blackouts are enormous. The New York City comptroller found that the 2003 blackout cost the city more than \$1 billion in lost wages, spoiled food and other costs.⁵

Blackouts are also a danger to public health. Researchers from Johns Hopkins University also studied the 2003 blackout and documented that it resulted in 90 deaths.⁶

Looking beyond the societal and economic costs of daylong blackouts, having an unreliable grid will make New York a very unattractive place to do business, especially for companies that are high-intensity users of electricity, such as manufacturers and high-tech companies.

Looking Ahead

Plans by state policymakers to address the issues resulting from the early shutdown of Indian Point should be transparent and thoughtful. Input from affected communities and organized labor are a must. We must address both environmental and economic issues to minimize adverse impacts on the regional economy and the ecology. Believing that Indian Point's power can simply be replaced by energy efficiency or an enormous increase in renewables is not realistic.

New York consumers and businesses need to brace for the impact that Indian Point's closing will have and be fully and clearly informed of what the impact will be in terms of monthly electric utility bills, air quality, and grid reliability.

Rob DiFrancesco is the executive director of the New York Affordable Reliable Electricity Alliance (New York AREA), a diverse organization of major business, labor, and community groups including Entergy, the owner-operator of Indian Point. Founded in 2003, New York AREA's mission is to ensure that New York has an ample and reliable electricity supply, and economic prosperity for years to come.

¹Nuclear Energy Institute, "Land Requirements for Carbon-Free Technologies," Analysis, June 2015. Information appears in a chart at the beginning of the document and is discussed throughout. Retrieved on March 14, 2017

²Nuclear Energy Institute, "Can California Cut Its Carbon Without Nuclear? Doubtful," Analysis, June 30, 2016. Items appear in charts and are discussed throughout the text. Retrieved on March 13, 2017

³NY State of Politics, "Cuomo Energy Czar Blasts Anti-Nuke Subsidy Campaign," News story with accompanying link to the letter from Richard Kauffman, October 5, 2016. Information appears in the fifth paragraph of the letter. Retrieved on March 10, 2017

⁴NYISO, "2016 Reliability Needs Assessment," October 18, 2016. Page 11, "Indian Point Center Plant Retirement - Resource Adequacy," Retrieved on March 27, 2017

⁵USA Today/Associated Press, "Blackout cost estimated at up to \$6 billion," August 10, 2003. Information appears in the 13th paragraph. Retrieved on March 10, 2017

⁶Reuters, "Spike in deaths blamed on 2003 New York blackout," January 27, 2012. Information is summarized in the eighth paragraph and discussed throughout the article. Retrieved on March 13, 2017

COMPANY BRIEFS

Del. Supreme Court: ETE Had Right to End Williams Merger

The Delaware Supreme Court ruled Thursday that Energy Transfer Equity had the right last summer to end a 2015 merger agreement with Williams Co. that was then valued at \$37.7 billion.

The ruling upholds a prior decision by the state's Chancery Court rejecting Williams' suit against ETE alleging it breached the merger agreement by failing to "use commercially reasonable efforts" to obtain a needed tax opinion and "reasonable best efforts" to complete the transaction.

More: [Tulsa World](#)

Sources: Westinghouse Clients Preparing for Bankruptcy Battle



U.S. utilities that are clients of Toshiba's nuclear unit Westinghouse are hiring advisers to prepare for its potential bankruptcy, sources familiar with the matter said.

Scana and Southern Co., which hired Westinghouse to build the first nuclear power plants in the U.S. in more than 30 years, would be among Westinghouse's largest creditors for billions of dollars of cost overruns, a source said.

Scana has hired restructuring experts from advisory firm Ducera Partners, while Southern Co. is working with investment bank Rothschild & Co., sources said.

More: [Reuters](#)

Xcel Looking to Invest Billions in Wind Energy

Xcel Energy announced last week it has filed

proposals with regulators in New Mexico and Texas to construct and operate two wind farms and to purchase wind under a third transaction.

The new wind facilities, a 520-MW farm about 20 miles south of Portales New Mexico and a 478-MW farm in Hale County, Texas, would cost \$1.6 billion to build, said David Hudson, president of Xcel Energy of New Mexico and Texas. The company also plans to purchase an additional 230 MW of wind energy under a long-term power purchase agreement with NextEra Energy Resources.

The company is looking to invest between \$3.5 billion and \$4.4 billion in wind power across seven states. It wants to build or buy up to 3,380 MW of power from 11 new wind farms as part of its "steel-to-fuel" strategy, adopted in 2016 to take advantage of low prices for wind farms and turbines because of the federal production tax credit.

More: [The Associated Press](#); [Denver Business Journal](#)

APS Proposed Rate Hike Meets Consumer Pushback

A proposed rate hike by Arizona Public Service that would include increasing monthly service fees, altering the peak usage rate and lowering compensation rates for excess energy produced by solar panels is meeting pushback from consumers.

Initially, APS asked the Arizona Corporation Commission to allow it to raise rates by about \$166 million a year, which would have amounted to an \$11/month average increase for residential customers. In March, APS and other groups reached a compromise and lowered the requested increase to \$6/month.

The commission will vote on the rate

increase this summer.

More: [Cronkite News](#); [The Arizona Republic](#)

Peabody Chapter 11 Plan Shifts Mine Cleanup Costs to Government



A Chapter 11 bankruptcy plan and related settlements approved Friday by a federal

judge for Peabody Energy will shift cleanup costs for 22 mining sites to the government.

The plan allows Peabody to pay about 2% of as much as \$2.7 billion asserted by federal, state and tribal authorities for the sites, which are polluted from lead and zinc mining that ended decades ago. The sites are located primarily in the central U.S.

More: [The Wall Street Journal](#)

PacifiCorp Reduces GHG Emissions on Its Grid by 12%



PacifiCorp announced greenhouse gas emissions on its grid

were 12% lower in 2016 compared with its previous five-year average because of improved use of its coal plants.

Spokesman Ry Schwark said the company is using technology that basically allows coal plant operators to turn output up and down faster, thus saving emissions when renewables are available.

A breakdown of the company's systemwide fuel mix showed coal at 58.9% in 2016, down from 62.7% in 2015. Wind rose from 7.1% in 2015 to 9% in 2016; solar rose from 0.1% to 1.8%; and hydro rose from 4.9% to 5.6%.

More: [Portland Business Journal](#)

FEDERAL BRIEFS

Trump to Issue Executive Order Undoing CPP

President Trump is expected today to issue an executive order instructing federal regulators to rewrite rules curbing U.S. carbon emissions. In addition to undoing EPA's Clean Power Plan, the order also is expected to eliminate a moratorium on federal coal leasing and the requirement

that officials consider the impact of climate change when making decisions.

More: [The Washington Post](#); [The New York Times](#)

Trump Approves Keystone Pipeline Construction

President Trump on Friday approved

construction of the Keystone XL pipeline, doing an about-face on former President Barack Obama's decision.

The pipeline would run 1,200 miles across the U.S. and connect the oil sands fields in Alberta, Canada, to refineries along the U.S. Gulf Coast. TransCanada still needs approv-

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FEDERAL BRIEFS

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al by state regulators of the pipeline's route through Nebraska.



In approving the pipeline, the State Department relied

upon previous environmental studies under the Obama administration and did not cite new material other than communications with TransCanada. Environmentalists are hoping that could open the permit to litigation.

More: [Politico](#)

Bill to License Advanced Nuclear Reactors Clears Senate Panel

A Senate committee passed a bill Wednesday that would enable the Nuclear Regulatory Commission to develop a framework for licensing advanced nuclear reactors that could come into development in 10 or 15 years.

The Nuclear Energy Innovation and Modernization Act, which passed 18-3 in the Environment and Public Works Committee, has support from Republicans who don't want to see the U.S. fall behind China and Russia in nuclear innovation and Democrats who want to encourage technologies that do not emit gases blamed for climate change.

Whether the full Senate will debate the bill or if it will be absorbed into broader energy legislation is unknown.

More: [Reuters](#)

Smith Wants Vote on Bill to Open EPA Climate Research

The chairman of the House Science Committee is hoping the House will vote on a bill within the next few weeks that would require EPA to open to the public any research used to justify climate change regulations.

The bill was passed by Rep. Lamar Smith (R-Texas)'s committee earlier this month over objections from Democrats who said EPA's research already needs to be peer reviewed and that the bill unnecessarily requires independent scientists to be able to replicate the studies.

The committee has a hearing scheduled Wednesday in which four climate scientists,

three skeptics and a scientist who has warned of climate change's potential effects, will testify.

More: [Morning Consult](#)

9th Circuit Rejects 2 Cases on Navajo Generating Station



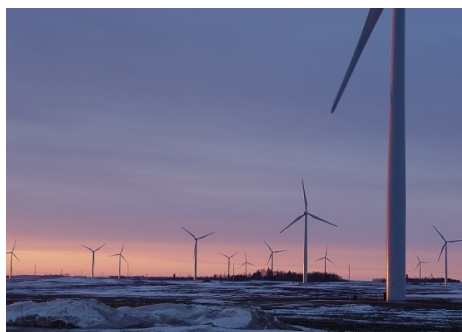
The 9th U.S. Circuit Court of Appeals last week rejected two cases related to the coal-fired Navajo Generating Station. The plant's owners announced last month it will cease operations after 2019.

A three-judge panel rejected an argument by environmental groups that EPA cut corners when it developed its plan to regulate nitrogen oxide emissions from the plant to reduce regional haze.

The court also rejected a separate claim by the Hopi Tribe that it was excluded from discussions on the federal emissions plan, which calls for the plant to close by 2044.

More: [Cronkite News](#)

Moody's: Cost-Effective Wind Threatening Coal Plants



Cost-effective wind energy is threatening to force gigawatts of coal plants into early retirement, according to a report released last week by Moody's Investors Service.

The report, "Rate-Basing Wind Generation Adds Momentum to Renewables," suggests market forces and state-level action may

dull the impact of removing environmental regulations.

According to Moody's, average wind PPA prices in the Great Plains are now around \$20/MWh compared with an operating cost of \$30/MWh for most coal plants.

More: [Greentech Media](#)

Nuclear Subsidies Could Cost US Ratepayers \$3.9B



Davis-Besse

If plant owners for 28 GW of nuclear power across the northeast and Mid-Atlantic states win subsidies at the same level as New York, ratepayers may see a \$3.9 billion hike, according to a report by Bloomberg Intelligence.

In August, New York regulators approved subsidies totaling \$500 million a year for Exelon's R.E. Ginna and Nine Mile Point nuclear plants, and the James A. FitzPatrick plant it is purchasing from Entergy. Illinois approved subsidies of about \$235 million for 10 years for Exelon's Quad Cities and Clinton reactors.

Exelon now wants aid for its three Pennsylvania reactors and one New Jersey plant, according to Bloomberg Intelligence. FirstEnergy is seeking subsidies in Ohio to keep its Davis-Besse and Perry reactors open.

More: [Bloomberg](#)

Trump Says 'No' to Carbon Tax to Fight Global Warming

The Trump administration is not considering a carbon tax to fight global warming, a White House official said last week.

In February, Trump administration officials met with a small group of elder Republican statesmen who pitched a \$40/ton tax on carbon emissions. The Republicans' 2016 party platform rejected global warming taxes, arguing they would increase energy prices.

More: [Reuters](#)

STATE BRIEFS

CALIFORNIA

Bill to Stop Aliso Canyon Injections Pulled from Senate Agenda

A bill to stop natural gas injections from resuming at Aliso Canyon was not heard as scheduled last week after the chair of the Senate Energy, Utilities and Communications Committee pulled it from the agenda.



Hueso

Sen. Ben Hueso, who opposed SB 57, pulled it from the agenda at about 9:30 p.m. March 20. Between 20 and 30 Aliso Canyon residents came to Sacramento the next morning to testify on the impact of the gas leaks, according to the office of Sen. Henry Stern, who co-authored the bill.

The bill, which had bipartisan support, would have required the Public Utilities Commission and the Department of Oil, Gas and Geothermal Resources to complete an analysis to determine the cause of the Aliso Canyon leak before considering whether to lift the moratorium on natural gas injections.

More: [The Signal](#)

Governor Requests Federal Help for Oroville Dam Repairs



Gov. Jerry Brown requested a presidential major disaster declaration last week to help repair the Oroville Dam's damaged main spillway, which began to collapse on Feb. 7.

Bill Croyle, acting director of the Department of Water Resources, said the costs of repairing or replacing the spillway are likely to be "much higher" than early estimates of between \$100 million to \$200 million, when other expenses, such as debris removal, are considered. So far, the crisis has cost \$100 million through the end of February. Estimates for March weren't immediately available, but Croyle said the daily average

cost at the dam in February was \$4.7 million.

Dam operators have begun releasing water down the damaged main spillway for the first time since flows were halted there Feb. 27.

More: [Chico Enterprise-Record](#); [Bay City News](#)

MARYLAND

Senate OKs Fracking Ban; Hogan to Sign

Lawmakers gave final approval Monday to a ban on fracking for oil and natural gas, making it the third state to do so.

The Senate voted 35-10 to approve the ban, which was already approved by the House of Delegates, sending the bill to Republican Gov. Larry Hogan, who announced his support earlier this month. A moratorium on fracking expires in October. (See [Gov.'s Support Puts Md. on Track for Fracking Ban.](#))

The state will become the first with proven gas reserves to ban fracking by legislative action, according to the Chesapeake Climate Action Network. New York banned the drilling process by executive order. Vermont, which has a statutory ban, has no frackable gas reserves, the organization says.

More: [The Associated Press](#)

MINNESOTA

84% of State Residents Support Funding for Renewables Research

Eighty-four percent of the state's residents support funding for renewable energy research, according to The Yale Project on Climate Communication.

The study also shows 71% of Minnesotans "trust climate scientists about global warming" and that the Twin Cities area has the highest understanding rate of accepted climate science, with 77% of residents in Hennepin and Ramsey counties believing "global warming is happening." Sixty-three percent of Hennepin County residents said global warming is caused by human activities.

Sherburne County ranked lowest for the number of climate change believers, coming in at 61%.

More: [MPR News](#)

MISSISSIPPI

Tubing Leak Creates Another Delay in Kemper Plant Opening



After a March 9 tubing leak, Southern Co. subsidiary Mississippi Power said last week that it is unsure when the \$7.1 billion Kemper County Power Plant, which is already three years behind schedule, will be finished. The plant, most recently, was scheduled to come online in mid-March.


The company has started repair work, and spokesman Jess Shepard said it is still evaluating how much longer this latest setback will take. A month's delay would force the company to absorb another \$25 million to \$35 million in losses on top of \$2.8 billion in losses that have already been absorbed by Southern shareholders.

Public Service Commissioner Sam Britton said that a \$2.88 billion cap on capital costs for the plant, which was instituted in a deal reached with Mississippi Power and the PSC, doesn't mean the utility will necessarily get to charge ratepayers for that full amount.

More: [Mississippi Watchdog.org](#); [The Associated Press](#)

NEVADA

Industry Asks PUC to Extend Deadline for Net Metering

 **NVEnergy** NV Energy and rooftop solar installation companies are asking state regulators to extend the deadline to July 1 for eligible customers to opt-in to grandfathered net metering rates. They have requested an expedited decision.

Last year, the Public Utilities Commission grandfathered in residential customers to

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STATE BRIEFS

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the more favorable net metering rates for 20 years if they had already installed systems or had an active and approved application pending prior to Dec. 31, 2015. To obtain the rate, the customers with pending applications had to opt-in by notifying NV Energy by Feb. 28. Fewer than 30% of almost 8,000 eligible customers did so.

More than 23,000 customers who already had installed systems were automatically grandfathered in.

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

Resolution Restates Opposition to Yucca Mountain

As the Trump administration last week announced a \$120 million budget request aimed at restarting efforts to license Yucca Mountain as a high-level nuclear waste burial site for 77,000 metric tons of spent nuclear fuel, a resolution was introduced in the Legislature restating opposition to the effort.

Gov. Brian Sandoval and Attorney General Adam Laxalt have endorsed Assembly Joint Resolution 10, which was heard last week by the State Assembly Commerce and Labor Committee's subcommittee on energy. The committee did not take immediate action on it.

The state is objecting to the project on multiple grounds, including site suitability, the disposal concept, groundwater impacts and transportation issues. Laxalt has requested \$7.2 million over the next two years to fight the proposal. Additionally, last week the state Agency for Nuclear Projects presented to a panel of lawmakers a budget of \$1.9 million in the first year and \$1.85 million in the second year to continue the fight against the project.

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

NEW MEXICO

El Paso Electric Wants to Delay 2017 Rate Case Filing

El Paso Electric announced Wednesday it plans to seek a delay of its 2017 rate case filing, saying its revenue deficiency does not justify the expense of proceeding with a rate case using dates previously ordered by the

Public Regulation Commission.

When the commission authorized the utility to sell its interest in the Four Corners Power Plant, it required EPE to make a general rate case filing in the second quarter of 2017 using a historical test year ending on Dec. 31, 2016.

"While recovery of our significant investments like Montana Power Station Units 3 and 4 is important and will be pursued at a later time if the delay is approved, we don't expect the postponement of this rate case to significantly impact our financial performance," said CEO Mary Kipp.

More: [KRWG](#)

NEW YORK

\$11M Awarded in Latest Round of Microgrid Development Competition

Gov. Andrew Cuomo announced Thursday \$11 million in funding for 11 microgrid projects across the state as part of the second stage of the NY Prize Community Microgrid competition.

Each of the 11 winners will receive \$1 million through the New York State Energy Research and Development Authority, which administers the prize, to conduct detailed engineering designs and business plans for a microgrid. Winners who advance to the third stage will have access to financing for microgrid construction through NY Green Bank.

The competition began with the selection of 83 communities, out of almost 150 that applied, to receive a share of \$8 million to conduct microgrid feasibility studies.

More: [New York State](#)

NORTH CAROLINA

Bill Calls for Study on How Wind Farms Impact State's Military Ops

Three senators filed a bill in the General Assembly last week that would bring permits for new wind farms to a standstill while an independent study is conducted on the effects that building wind turbines could have on the state's military operations.

The Military Operations Protection Act of 2017 would ensure there are no conflicts with the state's six existing installations before additional projects are developed,

said Sen. Harry Brown, who has fought renewable energy development in the state. "It's unfortunate that taxpayer-subsidized incentives to the renewable energy industry are resulting in higher energy costs to N.C. consumers, but at the end of the day, this bill isn't about the merits or lack thereof in subsidizing wind energy," he said.

In 2016, Brown introduced a similar bill that he said was necessary to keep the state from losing its military installations. However, Pentagon officials said there wasn't a problem.

More: [Coast Review Online](#)

OHIO

DP&L to Close 2 Coal-Fired Plants



Killen plant

J.M. Stuart plant

Dayton Power & Light said last week it will shut down its J.M. Stuart and Killen plants by June 2018 because they would not be "economically viable beyond mid-2018."

DP&L, the Public Utilities Commission and other stakeholders had been negotiating over whether the utility should be allowed to raise electricity prices to pay for upgrades to keep the plants open.

The plants generate about 3,000 MW of power from coal.

More: [KWTW](#)

OREGON

Business Groups, DEQ Dispute Effects of Cap and Trade

A study commissioned by state business groups found that a cap-and-trade program would cause the state to lose \$4.5 billion in GDP and 16,900 jobs by 2050, contradicting a recent study by the Department of Environmental Quality finding the impact of such a program on the state's economy

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STATE BRIEFS

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would likely be small.

The study, commissioned by Associated Oregon Industries and the Oregon Business Association, which forecast allowance prices rising from \$13 per metric tonne in 2021 to \$84 in 2035, then to \$464 in 2050. It also found that in 2016 dollars, retail electricity rates would increase 65 to 118% for most consumers and average retail natural gas prices would experience a 179% hike.

The DEQ study, which only looked at a moment in time, said that in 2035 cap and trade would lead to a change in GDP somewhere between a \$282 million gain and a \$203 million loss. The business group study forecast a loss of more than \$1.2 billion.

More: [Portland Business Journal](#)

TEXAS

LP&L Signs Transition Contract with Xcel

As part of its efforts to integrate into the ERCOT market, Lubbock Power & Light has signed a power purchase agreement with

Xcel Energy subsidiary Southwestern Public Service that will provide 400 MW of capacity and energy scheduling from June 1, 2019, through May 31, 2021. LP&L's current total requirements contract with SPS is scheduled to expire on May 31, 2019.

In addition to the 400 MW transition contract with SPS, LP&L will replace the total requirements service with a 170-MW partial-requirements wholesale contract signed with SPS in 2010; a 100-MW wind contract through its membership with West Texas Municipal Power Agency; and 114 MW of LP&L-owned generating plants.

Lubbock, which is currently participating in the regulatory approval process to join ERCOT, will transfer approximately 70% of its load to the ERCOT market if approved.

More: [Lubbock Power & Light](#)

WASHINGTON

Senate Passes Bill Allowing Credits for BPA Customers

The State Senate last week held a public hearing on a bill that would allow state utility customers who pay for energy improvement projects at federally owned dams in the Columbia River Basin to save money on their utility bills.

Under SB 5232, passed earlier this month 32-17, electricity produced by the dams, which are operated by the Bonneville Power Administration, would qualify as a renewable resource under the state's Energy Independence Act created by the 2006 voter-approved Initiative 937. The current renewable goal is 9% or more every year until Dec. 31, 2019. After that, total energy use must be 15% or more from renewable resources by Jan. 1, 2020, and every year after that.

Under current law, customers from 17 public utility districts who purchase power from BPA and pay for hydro upgrades as part of their purchase costs can't use that hydropower as a renewable resource toward meeting their EIA goals because the dam system is federally owned.

More: [Lens](#)



A BPA dam on the Columbia River

Calif. Bill Would Introduce 'Clean Peak Energy Standard'

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new market mechanisms" that would allow CAISO to manage the impacts of increasing renewable penetration on the grid.

"As more renewables are built toward the 50% [renewable portfolio standard] goal, more fossil fuel power plants will be built to provide flexibility and reliability, which is incompatible with the GHG reduction and cost-effective goals," Mullin said in a statement.

The legislation defines a four-hour "peak load" time period that includes the hour leading up to, and two hours following, the hour of peak demand.

The law would require the California Public Utilities Commission to determine by Dec. 31, 2018, the percentage of "clean peak resources" — renewables and storage —

being used by each of the state's utilities to serve demand during the peak load period.

Each utility would have to meet increasing clean peak targets every three years beginning in 2020 and reaching 40% in 2029. The first year of the program would entail a 5% increase in such resources. Utilities would be required to meet the minimums for at least 15 days every month.

The rules would also apply to the state's publicly owned utilities, which are not subject to CPUC oversight.

Use of clean peak resources would be subject to CAISO-approved measurement standards, while the CPUC would be charged with devising an "appropriate mechanism" for determining compliance with the clean peak standard, which could include a program of tradeable credits.

The bill also requires the PUC to consider developing other targets that would

encourage the use of clean peak resources to provide additional flexibility and ancillary services.

A similar but less comprehensive bill has been introduced into the State Senate.

[SB 338](#) would require the CPUC and California Energy Commission to consult with CAISO and "establish policies or procedures to ensure that electrical service providers meet net-load peak energy and reliability needs while minimizing the use of fossil fuels and utilizing low-carbon technologies and electrical grid management strategies."

Under the Senate bill, "net-load peak energy" is defined as a daily period of three hours in which the last hour represents the interval of highest demand. The bill would permit the use of demand response and energy efficiency measures, in addition to renewables and energy storage.



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