



US Climate Report Spells out Coming Challenges



Climate change is leading to increasingly severe weather and disasters, including wildfires and flooding. The 2017 Tubbs Fire (left) caused an estimated \$1.2 billion in damages and destroyed more than 5,000 structures, including 5% of the housing stock in Santa Rosa, Calif. Hurricane Harvey in 2017 caused widespread flooding and knocked out power to 300,000 customers in the area of Port Arthur, Texas (right). | *U.S. Air National Guard*

By Michael Brooks

The Trump administration on Friday quietly released a major report detailing the impact of climate change on the U.S., posing a stark contrast to the president's rhetoric on the phenomenon and his inaction to address the problem.

The 1,656-page [report](#) is the second volume of the latest National Climate Assessment, the fourth released since Congress passed the Global Change Research Act of 1990. It was prepared by the U.S. Global Change Research Program, composed of representatives from

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Military not Waiting for Trump's Resilience 'Solution' On Bases, as off, Distribution is Often Weak Link

By Rich Heidom Jr.

A draft Department of Energy memo leaked in May that sought to justify coal and nuclear plant subsidies cited a 2008 Defense Science Board report that noting off-site generation supplies virtually all the electricity for the nation's more than 500 military installations.

"Backup power at military installations is based on assumptions of a more resilient grid than exists and much shorter outages than may occur and is not sized to accommodate new homeland defense missions," the report said.

But DOE's 40-page [memo](#) failed to note the considerable efforts the military has made to



Nellis Air Force Base is the site of North America's largest solar photovoltaic power plant, a 14-MW site covering 140 acres that meets 25% of the base's electricity needs. | *U.S. Air Force*

improve the resilience of the installations' power supplies in the 10 years since then — or that

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Military Sees Climate Change — Ignored by Trump — as Growing Threat
(p14)

McNamee Advances to Senate Floor on Party-Line Vote

By Michael Brooks



Democrat Maria Cantwell opposed FERC nominee Bernard McNamee while Republican Lisa Murkowski supported him in a party line vote. | *@c RTO Insider*

WASHINGTON — The Senate Energy and Natural Resources Committee advanced FERC nominee Bernard McNamee to the full Senate Tuesday in a 13-10 party line vote, with Democrats opposing him over his pugnacious advocacy of fossil fuels.

Chair Lisa Murkowski (R-Alaska) said she hoped for a Senate floor vote before the

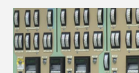
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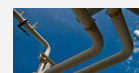
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RTO Insider

Your Eyes and Ears on the Organized Electric Markets
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CAISO/WECC NEWS



FERC Rejects Request for CAISO Capacity Market

By Hudson Sangree

FERC rejected a request to order CAISO to develop a capacity market to ensure traditional independent generators remain financially stable as renewable energy prices continue to fall and drive down wholesale electricity prices.

“As CAISO and several protesters correctly observe, the commission has not required a centralized capacity market as part of a just and reasonable market design,” the commission said in its Nov. 19 order (EL18-177). “Indeed, the commission has consistently rejected a one-size-fits-all approach to resource adequacy in the various RTOs/ISOs due, in large part, to significant differences between each region and also due to the well-established tenet that there can be more than one just and reasonable rate.”

The request was made by CXA La Paloma, the operator of a 1,124-MW gas-fired plant in Kern County, Calif., which began commercial operations in January 2003. It was acquired by its current owner in a bankruptcy proceeding in December 2017. When La Paloma filed for bankruptcy, it cited \$524 million in debt and an “inhospitable regulatory environment.” (See [CAISO Proposal Would Permit Economic Outages.](#))

In June 2016, prior to the bankruptcy, the plant’s then-owner, La Paloma Generating Co., filed a complaint with FERC over CAISO’s denial of a request for an outage for economic reasons. The commission rejected the complaint, finding the ISO had administered its Tariff properly when it denied the outage request.



FERC denied a complaint by CXA La Paloma, owner of a natural gas plant in Kern County, alleging CAISO had facilitated an unjust market by failing to develop centralized capacity procurement. | Kern County, California Public Health Services Department

In its complaint filed in June 2018, CXA La Paloma argued “that regulation of the wholesale power market in California is fragmented and compartmentalized, and that in failing to develop centralized capacity procurement, CAISO has facilitated an unduly discriminatory, unjust and unreasonable market design that is harmful to both market participants and ratepayers,” according to FERC.

But the commission cited a recent MISO case in which they rejected a mandatory centralized capacity market, “despite low capacity prices and concerns that the existing construct was failing to ensure the availability of generation needed for reliability.”

“The commission also recently accepted a proposal for a resource adequacy construct in SPP

based on bilateral contracting,” it noted.

“While the commission has opined on the benefits of specific features of the eastern RTO/ISO centralized capacity markets within the context of those specific regions and market designs, the commission has not imposed a centralized capacity market in an RTO/ISO or found that it is the only just and reasonable resource adequacy construct to attract and retain sufficient capacity. With respect to the eastern RTOs, the capacity markets originated through Section 205 filings or developed through settlements.

“Thus, we find that CXA La Paloma’s reliance on commission precedent pertaining to the eastern centralized capacity markets is inapt here.” ■



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CAISO/WECC NEWS



FERC OKs CAISO Opportunity Cost Adder

By Hudson Sangree

FERC last week conditionally accepted CAISO's Tariff revisions covering how it calculates opportunity cost adders for use-limited resources, such as small hydroelectric projects.

The commission had ordered CAISO to make the changes in June after finding the way the ISO calculated opportunity costs would produce varying results, instructing it "to address this ambiguity."

"We find that CAISO's proposed revisions ... largely comply with the commission's directives," the commission wrote in its Nov. 19 order ([ER18-1169](#)).

However, the commission agreed with NRG Energy's protest that CAISO needed to specify the gas-price indices it would use to calculate the adders and instructed the ISO to submit another compliance filing within 30 days.

The changes FERC accepted last week were

the latest in a series of revisions related to CAISO's [Commitment Costs Enhancements](#) initiative. As part of that initiative, the ISO has tried to revamp the way it compensates resources that have limits on the number of start-ups and runtime hours, or on energy output, over a certain period.

CAISO has contended the changes are needed because of the increase in variable energy resources on its system, making supply more unpredictable and use-limited resources necessary at any given time.

Because the ISO's market optimization software makes unit commitment decisions only one day ahead, it cannot consider that dispatching a use-limited resource may hinder its ability to run later. As a result, the resources' opportunity costs are not reflected in their offers. CAISO sought to change that.

In June, FERC approved a CAISO proposal to allow use-limited resources to attach opportunity cost adders to their bids in its energy



The 3-MW New Hogan Dam in Calaveras County, Calif. Small hydro facilities such as Hogan are automatically classified by CAISO as use-limited resources. | *U.S. Army Corps of Engineers*

market. (See [FERC Partially OKs CAISO Commitment Cost Enhancements](#).)

However, FERC agreed with NRG's protest at that time that argued against CAISO's method for calculating opportunity costs. It ordered the ISO to submit a compliance filing that provided more specificity on calculation methods.

The commission's Nov. 19 order conditionally approved that compliance filing, with the exception of NRG's most recent protest. ■

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Connecticut Likely to OK Millstone for Zero-carbon RFP

By Michael Kuser

Dominion Energy has inched closer to the finish line in a two-year marathon to win state-subsidized energy contracts for its Millstone nuclear plant in Connecticut.

The state's Public Utilities Regulatory Authority issued a draft decision Nov. 16 (Case [18-05-04](#)) categorizing the 2,111-MW plant as "an existing resource at risk for retirement" without ratepayer support, which would allow it to qualify for special consideration in the state's solicitation for up to 12 million MWh of zero-carbon electric power. Resources deemed to be at risk have their bids considered in terms of environmental and grid reliability benefits, as well as price.

The PURA said it will accept comments on the draft decision until Nov. 27, hear oral arguments at its headquarters on Dec. 21 and likely issue a final decision Jan. 2, 2019. The plant in Waterford, on Long Island Sound, supplies approximately 45% of the state's electricity.

ClearView Energy Partners estimates a 75% probability that state regulators will include Millstone's capacity in its zero-carbon procurements, likely limiting the award to no more than half the plant's annual generation.

Ken Holt, Millstone's communications manager, told *RTO Insider* that the PURA had been given access to the company's confidential information, done its own analysis and concluded that Millstone is at risk. He said Dominion is now focused on the zero-carbon procurement by the state's Department of Energy and Environmental Protection.

"We made numerous offers that would both ensure Millstone's continued operations and provide benefits to Connecticut ratepayers ranging from the hundreds of millions of dollars to billions of dollars," Holt said.

Gimme Shelter

Dominion has been following the lead of Exelon, which secured state subsidies for its nuclear plants in Illinois and New York after their profit margins started slipping in competition against low-priced natural gas.

Last year Dominion sought similar legislation in Connecticut, but the General Assembly failed to pass it, prompting Gov. Dannel Malloy that year to order both the DEEP and PURA to assess the viability of the Millstone plant and



Millstone's retirement would not trigger need for new capacity in Connecticut, but it would for new generation capacity in New England as a whole. | *Dominion Energy*

determine whether the state should provide financial support.

The agencies in January issued a [report](#) on the current and projected economic viability of Millstone and signaled support for state procurement of its output under a program reserved for renewable resources such as large-scale hydropower, wind and solar. (See [Conn. Regulators Signal Support for Millstone.](#))

Given the record of opposition to that move by consumer groups and non-renewable resource owners, it is not clear what new information the PURA expects to hear between now and January to justify its decision.

The DEEP last month issued its final [determination](#) on six projects selected for its January request for proposals for Class I renewable energy sources, including one offshore wind project, one anaerobic digestion project, three fuel cell projects and one fuel cell project with combined heat and power.

According to the department, the selected projects total 254 MW and 1,285,360 MWh/year, equal to 4.7% of the state's load, with a levelized 2018 constant dollar load-weighted average price of \$80.04/MWh for energy plus renewable energy credits.

Winners among the approximately 100 projects that responded to Connecticut's

zero-carbon RFP must enter power purchase agreements with either of the state's two leading utilities, Eversource Energy and United Illuminating.

Class Act

In written comments filed with the PURA last year, Eversource contended that Millstone is neither a Class I, II nor III renewable resource and "cannot simultaneously be a competitive merchant generator and receive state-sponsored financial support." The utility argued that any financial remedy "should be based on cost-of-service principles with correspondingly limited returns on equity to reflect the reduction in risk resulting from Millstone's receipt of state financial support that is unavailable to other non-renewable merchant generators."

Under Connecticut's renewable portfolio [standard](#), Class I represents resources such as solar, wind, geothermal, biogas, sustainable biomass, and wave or tidal power, as well as run-of-river hydropower facilities not exceeding 30 MW in capacity. Class II resources include trash-to-energy facilities that have obtained required permits, while Class III covers customer-side CHP systems, electricity conservation and load management programs, and systems that recover waste heat or pressure from commercial and industrial processes.

ISO-NE NEWS



Emissions Costs

The DEEP's analysis showed that while Millstone's retirement would not trigger a need for new capacity in Connecticut specifically, it would for new generation capacity in New England as a whole. Replacement capacity procured through ISO-NE would likely be gas-fired, exacerbating security and system reliability issues because of the region's heavy reliance on gas for power generation.

If Millstone's two units stopped operating, CO2 emissions for the entire New England electric sector would increase by 80 million short tons, or 25%, through 2035, according to the department. Replacing at least 25% of Millstone's output with hydropower, demand reduction, energy storage and zero-emission renewable energy would be necessary for Connecticut to achieve its statutory greenhouse gas emissions-reduction targets, costing the state's ratepayers an estimated \$1.8 billion, the department said.

Even with that investment, regional emissions would increase by 20%. Replacing 100% of Millstone's output with zero-carbon resources would cost Connecticut ratepayers approximately \$5.5 billion, the DEEP said. ■



Millstone reactor unit | Dominion Energy

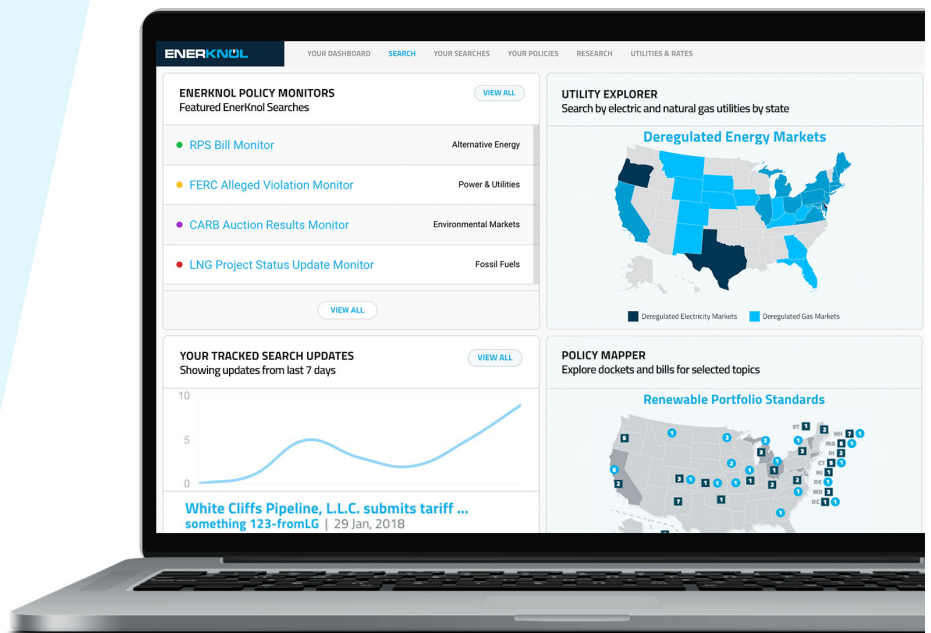
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ISO-NE NEWS



FERC Ends Clear River CSO, Denies Invenergy Waiver

By Michael Kuser

FERC last week granted ISO-NE's request to terminate the capacity supply obligation (CSO) for Invenergy's delayed 485-MW Clear River Energy Center Unit 1, while also denying the developer's request for a Tariff waiver over the matter (ER18-2457).

The RTO said it wanted to terminate the CSO because the combined cycle plant in Burrillville, R.I., will not be operating in time for the beginning of the capacity commitment year starting June 1, 2019. The unit obtained the CSO in Forward Capacity Auction 10, held in February 2016, but is now scheduled to begin commercial operation after June 1, 2021. Invenergy has covered the plant's CSO for the capacity commitment periods beginning in 2019 and 2020. (See [ISO-NE Asks FERC to End Clear River CSO](#).)

The commission denied Invenergy's request for waiver because it "would result in undesirable consequences."

"We find that, on balance, if Clear River is allowed to retain its CSO, or retain its existing capacity resource status, after failing to achieve commercial operation within 63 months after the FCA in which it initially obtained a CSO, it will have undesirable consequences for both system planning and Forward Capacity Market pricing," the commission said.

FERC agreed with ISO-NE that continuing to include Clear River in its planning processes would have negative consequences for multi-



Clear River Energy Center concept art | Invenergy

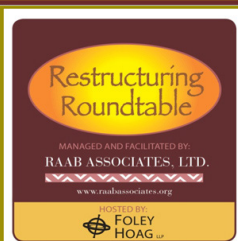
ple aspects of system planning and found that doing so would risk misrepresenting capacity availability for the associated delivery years.

"In turn, the FCA may send incorrect market signals for the value of capacity and therefore procure an economically inefficient quantity of capacity overall and/or in certain capacity zones," the commission said. "Similarly, continuing to account for Clear River as an existing capacity resource may also skew the results of interconnection studies and transmission planning studies."

The commission found that "allowing a resource that is so significantly late in achieving commercial operation to be treated as an existing capacity resource will have undesirable consequences for Forward Capacity Market pricing."

Finally, the commission noted that its order addresses only the CSO termination filing submitted by ISO-NE and the companion waiver request submitted by Invenergy, "and does not address whether the Clear River project is in fact 'needed.'" ■

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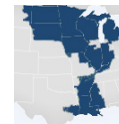
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Report: MISO, PJM Must Change Markets for Renewables

By Rory Sweeney and Amanda Durish Cook

A new report released by the Wind Solar Alliance last week says full market participation for renewables will require revisions to electricity markets, particularly in MISO and PJM, that were not designed with widespread renewable deployment in mind.

"We think it's helpful to have a vision of where we see the market heading, even if we're not going to get all these market changes right away," said Rob Gramlich, founder and president of Grid Strategies, the consulting firm that authored the [report](#). "It was gratifying to see the level of consensus between the wind and solar companies. We've never really had to opportunity to step back like this with the [number] of companies involved."

The report says several market reforms aimed at incorporating renewable generation are needed to keep electricity reliable and affordable. Among the more than 30 market changes it recommends are:

- Creating multiday forecasts for units;
- Compensating reactive power;
- Creating primary frequency response markets;

- Pricing "inflexibility costs" of conventional generation;
- Incentivizing better forecasting from renewable generators;
- Allowing flexible resources to bid without market power mitigation; and
- Furnishing contingency reserves to cover "abrupt" drops in renewable output.

The paper also calls for grid operators to relax a year-round capacity performance requirement and create seasonal capacity procurements while abandoning fuel security requirements unless they have been demonstrated to improve reliability or efficiency. The study says grid operators should also make sure "conventional generators are not awarded excess credit relative to renewable resources."

"Many of the current market rules were originally designed and adopted in the 1990s and early 2000s, based on the grid operations protocols from earlier decades when the grid was dominated by large, slow-moving fossil-fired, nuclear and hydroelectric resources. There were few wind and solar generators, independent power producers and non-utility electricity purchasers," the report said.

"It's helpful to have a vision of where we see the market heading, even if we're not going to get all these market changes right away."

—Rob Gramlich

Modern grid response needs to be faster and cover more megawatts, and today's technology is advanced enough to manage it, the report says, concluding that electricity grids need to be flexible, fair, geographically widespread and free of barriers for entry or exit. It also contends that markets should not inhibit the

Continued on page 10

MISO Gas Study Finds Miniscule Pipeline Risks

MISO's reliability is unlikely to be hampered by gas supply issues, as there is only a very small chance a large natural gas pipeline serving the grid could be affected by fuel delivery issues, according to a recent study from the RTO.

MISO [said](#) that at any given time it faces up to a 2% probability of a fuel disruption event in any given 1-mile section of an interstate pipeline. Of 35 MISO-area pipelines that have experienced events, about 80% have a 0.2% or less chance of an event occurring in any 1-mile section.

Gas generation outages stemming from fuel delivery issues would be 915 MW at most in any operating hour, the RTO said. It also found fuel delivery disruptions reported by gas generators are not usually related to unplanned pipeline outages.

The RTO will not publicly release detailed study findings because they identify specific pipelines.

MISO performed the in-depth assessment to determine whether its previous examinations of pipeline infrastructure failed to foresee additional risks because of physical disruption, but it said the study



Vector Pipeline | DTE Energy

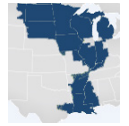
didn't produce any new concerns.

"Over the past four years, MISO has not found any significant reliability impacts in its assessment of gas-related contingencies. ... MISO has found little historical evidence, nor additional contingency risks that are greater than what is currently being evaluated," the RTO said.

Earlier this year, MISO pushed back on a NERC report that said two areas in the RTO would "experience transmission challenges during an extreme event" involving a disruption of natural gas delivery. MISO said the study failed to account for gas-fired generators' access to alternative fuel sources. (See [MISO Rebutts NERC Findings on Gas Risks](#).) ■

—Amanda Durish Cook

MISO NEWS



October Poses Little Challenge for MISO

MISO successfully managed an uneventful October that went from unseasonably warm to unusually chilly.

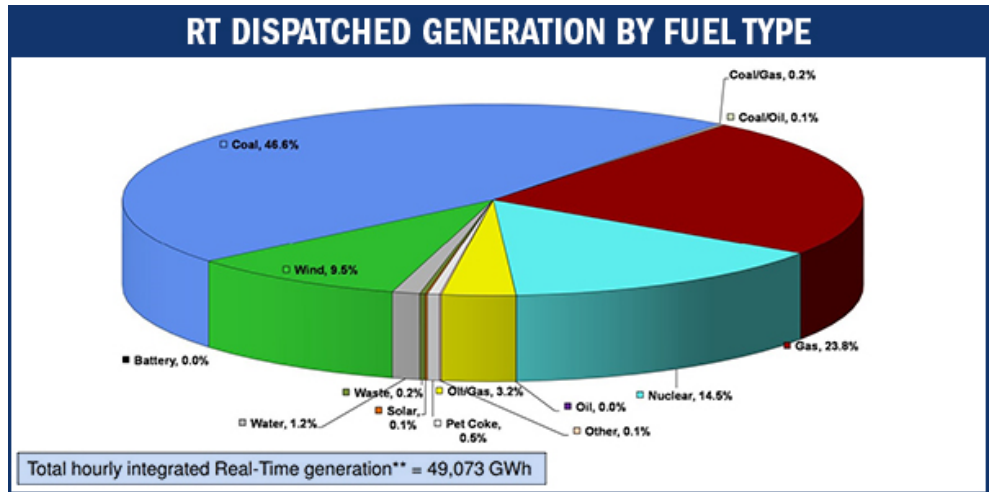
Demand peaked at 96.4 GW on Oct. 3 during an early month heat wave, while average load was 71.5 GW, up from 70 GW a year earlier. However, the average systemwide temperature was 3 degrees Fahrenheit lower than in October 2017. MISO did not call any maximum generation actions during the month.

Executive Director of Market Operations Shawn McFarlane told an Informational Forum on Nov. 15 that the month began with MISO managing warmer-than-usual weather, though it quickly transitioned to cold weather. He remarked that it seemed like Indianapolis transitioned directly from winter to summer this year and said the inverse appeared to be happening for fall in the Midwest.

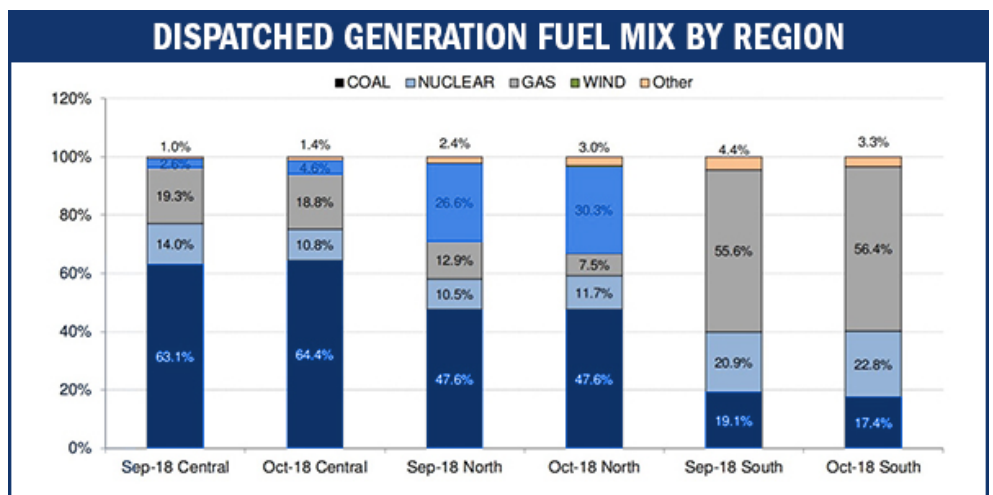
Energy prices in MISO averaged \$30.67/MWh for the month, up 15% from October 2017's average of \$26.68. Day-ahead and real-time peaks averaged \$38.58/MWh and \$34.80/MWh, respectively, while off-peak averaged \$27.54 and \$26.62. The RTO said its natural gas prices increased 16% year over year to about \$3.25/MMBtu.

In real time, MISO on average dispatched a fuel mix consisting of 46.6% coal, 23.8% natural gas, 14.5% nuclear and 9.5% wind. The remainder came from dual-fuel units, solar, hydro and waste-to-energy. Wind output peaked at 14.6 GW, higher than last October's peak of 14.1 GW. ■

— Amanda Durish Cook



MISO October RT dispatched fuel mix | MISO



MISO fuel mix by region | MISO

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6th Annual MISO South Regional Conference
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PJM NEWS



Continued from page 8

ability of states or other authorities to achieve energy-related policy goals.

Gramlich told *RTO Insider* there isn't a specific timeline for implementing the changes, but some are timely because they are part of ongoing discussions about other market revisions. He noted statements of support released by other organizations as examples of "broad agreement" that might signal "some things can move forward relatively quickly."

While the report did not directly address the current national focus on grid resilience, fuel security and unrecognized benefits of large, "baseload" coal and nuclear plants, Gramlich said that has "sidetracked" the discussion from addressing what needs to be done for the grid to handle the current influx of intermittent, seasonal resources and the additional growth that is coming in the future.

He noted that in MISO, the "renewable community" plans to analyze self-scheduling.

In PJM, recommendations to allow resources to avoid the minimum offer price rule (MOPR) through bilateral contracts and to abandon efforts to add a fuel-security component in the capacity market "are important and very timely," he said, although he acknowledged they're "also very controversial right now."

"If you get the right prices during times of stress, maybe that's all the compensation you need in order to get the resources the revenue they want," he said.

Overall, he said RTOs should be "as broad as possible and as seamless as possible" to ensure that renewable generation — which is often sited in remote regions — can be delivered to load where it's needed, though he noted that PJM and MISO are at the top of the list for geographic scope.

"They do pretty well on the geographic breadth score, but there are some seams issues they could work on," Gramlich said, specifically noting the seam between MISO and SPP.

MISO: Working on it

MISO said several of the recommendations in the report are already under evaluation by staff and stakeholders.

"MISO is still reviewing the report — so we can't speak to its conclusions at a detailed level. However, we generally see this report as an affirmation of the major themes we've been working on and talking about with stakeholders for over the last decade," spokesperson



Fenton Wind Farm near Chandler, Minn.

Mark Brown said in an email to *RTO Insider*.

The RTO said it has already rolled out new market designs, including extended LMP, ramping products and a new emergency pricing structure.

"MISO continues to assess new products and designs to get ahead of the evolving needs of the system," Brown said.

It pointed out that it has already successfully integrated more than 18 GW of wind capacity and more than 300 MW of solar capacity.

"Wind and solar resources make up about 11% of MISO's total market capacity. Based on the ongoing discussions, MISO plans to publish a long-term market strategy report next year with key recommendations for accommodating these long-term trends," Brown continued.

MISO is currently in discussions with stakeholders about what market reforms are needed to address the growing mismatch between its changing resource availability and demand. The RTO has decided to separate solutions into the near and long terms, hoping to free up an additional 5 to 10 GW of supply through stricter outage and load-modifying resource rules, giving itself time to come up with bigger solutions. (See [MISO Pivots to Near-term Resource Availability Fixes](#).) The long-term solutions discussion has already included the prospects for a seasonal capacity market and multiday forecasts.

MISO's ongoing renewable integration impact assessment recently found the system will need significant upgrades at a 40% renewables penetration. (See [Study: MISO Grid Needs Work at 40% Renewables](#).)

Conclusions 'Consistent' with PJM goals

In an emailed statement, PJM called the report "thoughtful" and said its conclusions "are consistent with PJM's priorities." The RTO

pointed to its Extended Resource Carve-out proposal for revising its capacity market as an example of respecting state policy choices "while affording a level playing field where renewables and other competitive resources can thrive." (See [PJM Stakeholders Hold Their Lines in Capacity Battle](#).)

"PJM shares the alliance's goals of reducing barriers to entry, properly pricing resources for their reliability and other valued attributes, and allowing the wholesale electricity markets to facilitate competition on a fuel-neutral, technology-agnostic basis," the RTO said. "We continue to seek refinements of our energy market and ancillary services market rules to properly compensate generation sources for the services they provide."

"PJM looks forward to engaging with the Wind Solar Alliance and other stakeholders, including state regulators, renewable resource owners and consumer advocates, on proposals that will help us to maintain and improve PJM's wholesale electricity market," the RTO said. "We believe that the markets can provide far-reaching, regional solutions by pricing attributes and incenting the competition and innovation that have already helped achieve a cleaner, more reliable, less expensive system."

Some of the recommendations tied in with existing stakeholder processes in PJM. For example, the Primary Frequency Response Senior Task Force has been working on revising primary frequency response requirements and measurement standards, as well as considering whether units should be compensated for the service. (See "Primary Frequency Response Moving Forward," [PJM Operating Committee Briefs: Nov. 6, 2018](#).)

Gramlich acknowledged that MISO and PJM have made progress toward the recommendations "in some cases," but said "there are some other areas ... where we have some concerns." ■

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Military not Waiting for Trump's Resilience 'Solution' On Bases, as off, Distribution is Often Weak Link

Continued from page 1

most Defense Department outages are the result of distribution lines or other facilities on its bases. And it makes no mention of climate change, which the military has identified as a concern since at least 1977. (See related stories, [Military Sees Climate Change as Growing Threat](#) and [US Climate Report Spells out Coming Challenges to Industry](#).)

In fact, the military has been among the leaders in the federal government in seeking to make its facilities more resilient and in adding renewable power, energy storage and microgrids to its facilities. DOD is the largest single energy consumer in the U.S., spending \$3.48 billion on installation energy in fiscal year 2017.

At the time of the 2008 Science Board report, the bases' backup power was almost entirely diesel generators. Since then, the department has begun investing in microgrids and solar generation to allow their critical operations to continue operating during grid outages.

For example:

- The Naval Construction Battalion Center in Gulfport, Miss., is leasing part of its land to developer for a 4.3-MW solar PV system. The developer is building a microgrid that connects the PV with diesel generators and energy storage to keep the base operating during blackouts. The project is part of an 11-project, 310-MW PV portfolio in a DOD partnership with Southern Co.
- Otis Air National Guard Base on Cape Cod, Mass., is adding a microgrid that can keep it running for 120 hours using wind power, batteries and diesel generation. Reportedly the first wind-powered microgrid for DOD, it is expected to be fully operational in early 2019.
- Marine Corps Air Station Miramar near San Diego has a microgrid powered by landfill gas, solar energy, storage, diesel generation and natural gas that can power the installation for three weeks.

The military also has been increasingly turning to renewable generation. Nellis Air Force Base, Nev., for example, is the site of a 14-MW solar PV plant covering 140 acres that meets 25% of the base's electricity needs.

In the National Defense Authorization Act



Solar panels at Marine Corps Air Ground Combat Center, Twentynine Palms, Calif. | U.S. Navy

of 2010, Congress ordered DOD to produce 25% of facility energy from renewables by FY 2025. As of FY 2017, DOD was producing or procuring 8.74% of its total facility energy from renewables, below its intermediate goal of 10%.

The military has made more progress in its energy efficiency efforts, reducing its energy intensity (British thermal units per gross square foot of facility space) by almost 50% since FY 1975.

Defense Production Act

The DOE memo proposed payments to "fuel-secure" generators under the Defense Production Act, a Korean War-era law that allows the president to intervene in the economy to protect strategically important resources. In October, however, numerous news outlets reported that the White House had declined to act on DOE's response following opposition from the National Security Council and National Economic Council. (See [Chatterjee Dodges as DOE Spins on Coal Bailout](#).)

In a [commentary](#) in August, former Navy Secretary Ray Mabus (2009-2017) said President Trump's proposal "would do nothing to improve grid resilience."

Mabus cited a Brattle Group study that esti-



Then-Navy Secretary Ray Mabus with President Barack Obama in 2010 | *The White House*

mated the cost of Trump's plan at \$34 billion over two years. "That money would either come from America's ratepayers — showing up on the monthly bills of millions of households and businesses — or from a Pentagon budget that the military needs for the real business of national security. Invoking DPA authority to spend tens of billions of dollars [to] prop up failing companies without a valid strategic reason would set a dangerous precedent, potentially undermining support for the future use of that authority in a real emergency."

Instead, Mabus called for investments "in new technologies like distributed generation, battery storage and microgrids. Those will help keep the lights on and the mission up and running at our bases, even if the grid goes down."

Those technologies have been central to the

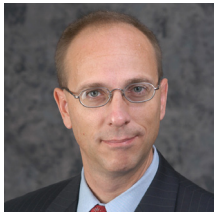
FERC & FEDERAL NEWS

military's success in increasing its resilience over the past decade.

Four Sources of Risk

The 2008 Science Board report identified four sources of risk of grid outages: overloads, weather (natural disaster), sabotage/terrorism and cyberattacks, and fuel-supply interruptions.

It cited coal as an example of the last risk, noting that transportation routes that move coal from mines to generating plants "are sometimes remote and lacking in alternatives. Critical rail lines or bridges could be taken out by determined saboteurs. For example, in May 2005, 43 rail cars came off the tracks. The disruption to coal deliveries caused prices to spike and raised electricity prices by 6% nationally, according to the Bureau of Labor Statistics. The 100-mile length of rail line through Wyoming that carries the output of the Western coal belt to power plants is the most heavily traveled in the nation."



Frank Rusco, GAO | GAO

Frank Rusco, who oversees the Government Accountability Office's work on a variety of federal government energy programs, says a disruption of coal rail lines is "probably about as likely as you having a long-term disruption in a natural gas pipeline."

"I'm not sure that there's a problem that this is the answer to," he said of the DOE proposal. "It's not clear there is a fuel diversity problem currently, and DOE hasn't produced a study that shows that conclusively. ... It's more of an assertion."

The biggest challenge to the resilience of the military's electric supplies is not fuel logistics but its own infrastructure.

Most Outages On-base

The military has been reporting outage data for their facilities since FY 2012, but until recently, the data were inconsistent and incomplete. DOD changed its reporting after a 2015 GAO report that the data were unreliable and ignored that most outages occur on department-owned facilities ([GAO-15-749](#)).

Between FY 2012 and 2014, the facilities reported 150 disruptions lasting eight hours or longer — 87% of which were outages of DOD-owned facilities.

"Our research indicates that DOD-owned in-



Marine Corps Air Station Miramar has a microgrid powered by landfill gas, solar energy, storage, diesel generation and natural gas that can power the installation for three weeks. | U.S. Marine Corps

frastructure, which DOD controls, may play a larger role in disruptions than indicated by the energy reports, which only address external, commercial disruptions involving equipment over which DOD has little control," GAO said.

For FY 2017, DOD *reported* about 1,205 utility outages that lasted eight hours or longer, 72% of which were electrical disruptions. Equipment failures were responsible for 43% of the outages, 35% were planned maintenance and 15% were caused by storms or other acts of nature.

Because DOD's energy reports do not discuss specific examples of utility disruptions and their impacts on installation operations, GAO's auditors collected additional information on disruptions from 18 installations inside and outside the continental U.S.

Brian Lepore, GAO's director of defense capabilities and management, said DOD officials are making progress.

They "have taken the concerns seriously that were the grids to go down, or were they to lose access to assured power, there are going to be mission capability problems," he said in an interview. "While our reports have identified things we think they should do to help enhance their progress ... it's also fair to say they that have genuinely been willing to implement the recommendations."

Reporting on outages to DOD infrastructure is important "because it gives the department a better sense of where they need to invest their resources," he added. "It is more than just sort

of an accounting exercise."

Alternatives to Diesel Generators

In October 2016, the Massachusetts Institute of Technology's Lincoln Laboratory published a study providing a methodology for comparing the cost-effectiveness of competing resilience options and concluded that the military could often obtain better resilience at a lower cost by using alternatives to the traditional reliance on backup diesel generators.

The study's authors visited four installations where backup power sources were primarily small, building-scale diesel generators — the number ranging from 50 to more than 350 at a single installation.

"The reliability of these generators is typically below industry standards; the maintenance and failure rates of generators during start-up and operation is not always recorded," said the study, which found that bases' departments of public works were "often understaffed, leading to uneven testing and maintenance of the equipment despite their best efforts."

The study found that other options could reduce life-cycle costs and increase resilience for critical mission operations. Among the ideas: larger distributed and centralized generation in combination with PV and uninterruptible power supplies for critical energy loads that cannot tolerate any unserved energy.

"The study found that often, critical energy loads were clustered at a limited number of electrical distribution feeders, providing an

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opportunity to increase resilience and lower costs by centralizing generation. Consolidating generation into a smaller number of 1-MW or larger diesel, natural gas or other cost-effective fuel source generators at the substation eliminates a large number of smaller generators at the building level. Centralizing generation also allows for revenue-generating opportunities with the local utility or participation in demand response, where these opportunities are available.”

The study found that while an on-base centralized energy solution can provide more resilience, bases should first consider improving the reliability of their existing electrical distribution system.

“Currently, a primary cause of outages on some military installations is the lack of reliability of the existing base electrical distribution system. ... Critical missions will continue to experience outages if the reliability associated with the base’s electrical distribution system is not addressed. In some cases, a base receives a high level of reliability from the commercial electric system, only to see it degrade as the power makes its way onto the base and to the critical energy load.”

Batteries Still Costly

The analysis concluded that, at existing prices, large batteries (>1 MWh) sized for peak critical energy loads are not cost-effective for the military.

“The challenge with a renewable energy source plus energy storage system is that the energy storage system needs to be sized for the longest expected outage duration at the worst time of the year for solar production (and one that provides continuous power through nighttime operations). This could mean sizing batteries for multiple days, weeks, or months. This leads to a system design severely oversized for the critical energy load to ensure the remediation of outage risks. As battery prices continue to become competitive, however, the DOD could use the modeling and simulation tool to reassess energy storage as a cost-effective energy resilience option.”



Ariel Castillo | Ariel Castillo

Among the authors of the Lincoln Lab study was Ariel Castillo, a Ph.D. engineer now on a Brookings LEGIS Congressional Fellowship who has been among the leaders of DOD’s resilience efforts since 2012.



The Otis Air National Guard base, in Cape Cod, Mass., is deploying the Defense Department’s first wind-powered microgrid. | EPA

“It’s a very valuable engineering tool,” said Castillo, who emphasized that he was not representing Congress or DOD in his comments.

Castillo said DOD officials are now working to integrate mission requirements with the tool. “It just so happened for those four bases that we reviewed that solution worked well but ... you could go on to a base and your redundancy actually looks pretty good, but your distribution system may not be great.”

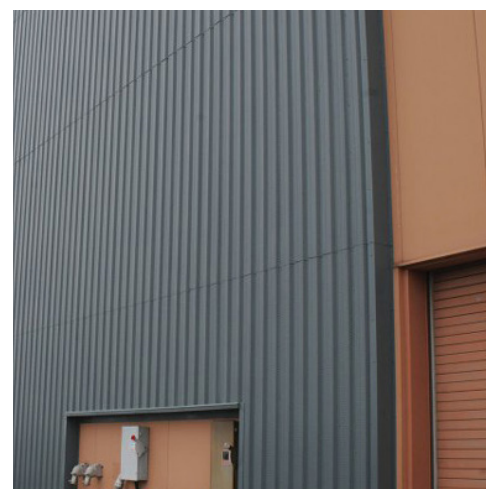
Funding Challenges

DOD generally uses congressional appropriations to fund small-scale distributed generation projects and partners with non-governmental third parties to develop large-scale projects, including renewables.

GAO reported in 2012 that DOD was not always getting the best terms in obtaining financing for energy security investments ([GAO-12-401](#)). Auditors also found inconsistent reporting on the results of investments, with only eight of 35 projects sampled having documented cost savings or reduced energy use ([GAO-16-162](#)).

In a 2016 study, GAO reported on complaints that energy security projects do not compete well against energy conservation efforts based on returns on investment ([GAO-16-164](#)).

A later study said better guidance was needed for analyzing costs and benefits ([GAO-16-487](#)). Some of the 17 projects GAO reviewed advanced DOD’s renewable energy and energy security goals by, for example, providing power during an outage on the commercial grid. “But project documentation was not always clear about how projects did so,” the report said. “The primary reason ... is that DOD has not



Solar wall at Fort Drum, N.Y. | U.S. Army

issued guidance on how to document projects’ contributions to its energy security objective.”

DOD concurred with GAO’s recommendations.

The military is increasingly privatizing its utilities as a solution to underinvestment. Since FY 2012, DOD has signed more than \$2.9 billion in energy performance contracts. As of January 2017, it had privatized almost one-quarter of its 2,574 utility systems, according to a GAO report released in September ([GAO-18-558](#)).

GAO recommended DOD develop metrics to track the performance of privatization contracts, noting that while the military branches estimated cost savings when awarding contracts, they failed to determine whether the savings were being realized. DOD concurred.

Systems Engineering

Castillo said he sees resilience as “a product of systems engineering” and that solutions must be subject to rigorous analyses such as the Lincoln Lab tool that consider both life cycle costs and mission requirements.

“I don’t think we can predict the threats the way we used to. If they are asymmetric ... threats, I think resiliency is a good way to approach the problem. Because you don’t want your adversary to know how you will adapt and recover. But if they believe that you have vulnerabilities and all of the sudden you are adapting instantaneously, you’re outcompeting your adversary,” he said.

“I care about national security. I care about doing it the right way. I care about doing it in a way that protects the taxpayer at the same time.” ■

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Military Sees Climate Change as Growing Threat

Rising Seas, Drought, Storms Cited as 'Threat Multipliers'

By Rich Heidom Jr.

When Hurricane Michael's 130-mph winds flattened a swath of the Florida Panhandle in October, Tyndall Air Force Base saw its marina destroyed, power lines downed and all of its hangars and 17 of the base's \$339 million F-22 Raptors damaged.

With the base facing potentially several years of repairs, the 95th Fighter Squadron's F-22s and 36 airmen were moved to bases in Virginia, Alaska and Hawaii, at least temporarily.

The hurricane was the latest example of the severe weather that scientists say will occur increasingly in the future because of climate change. Although Commander in Chief Donald Trump has dismissed climate change as a threat, the Defense Department has been planning for it since at least 1977, when the Army Corps of Engineers' Institute for Water Resources conducted its first study. The first National [Conference](#) on Climate Change and Water Resources Management, which the corps took part in, was held in 1991. (See related stories, [Military not Waiting for Trump's Resilience 'Solution'](#) and [US Climate Report Spells out Coming Challenges to Industry](#).)

Frank Rusco, who oversees the Government Accountability Office's work on a variety of federal government energy programs, credited the department's "mission-readiness focus."

"In terms of resilience and responding to climate change, they're definitely a leader. They have been thinking about these things deeply and for a long time because they want to [protect] their supply lines, their fire capacity, their infrastructure," he said in an interview. "Other agencies, if that's their business, like [the Federal Emergency Management Agency], of course, they're thinking about it. ... And [for] a lot of other agencies probably that's pretty far from their radar screen."

October's hurricane wasn't the first severe storm to damage DOD facilities. In 2012, storm surge from Hurricane Sandy destroyed almost 8 miles of water and sewer piping at Naval Weapons Station Earle, N.J., resulting in a one-month disruption of service and causing an estimated \$24 million in damage.

In 2013, Fort Irwin, Calif., experienced three power outages within 45 days as a result of flash floods from extreme rain events.



Hurricane Michael tore the roof off a chapel at Tyndall Air Force Base in Florida in October. | U.S. Air Force

In at least two instances — Homestead Air Force Base, Fla., after Hurricane Andrew (1992) and Langley Air Force Base, Va., after Hurricane Isabel (2003) — storm damage has been severe enough to cripple operational missions for a time.

In addition, thawing permafrost, melting sea ice and rising sea levels have increased erosion at several Air Force radar early warning and communication installations on the Alaskan

coast, damaging infrastructure, including utilities. As one example of the potential costs, the Air Force spent \$46.8 million to repair erosion to the Cape Lisburne Long Range Radar Station's 5,450-linear-foot rock seawall, which protects the base's airstrip from waves.

Melting Arctic sea ice also has created a new venue for potential international conflicts, opening the region to shipping, oil and gas drilling and mining. Russia has increased its

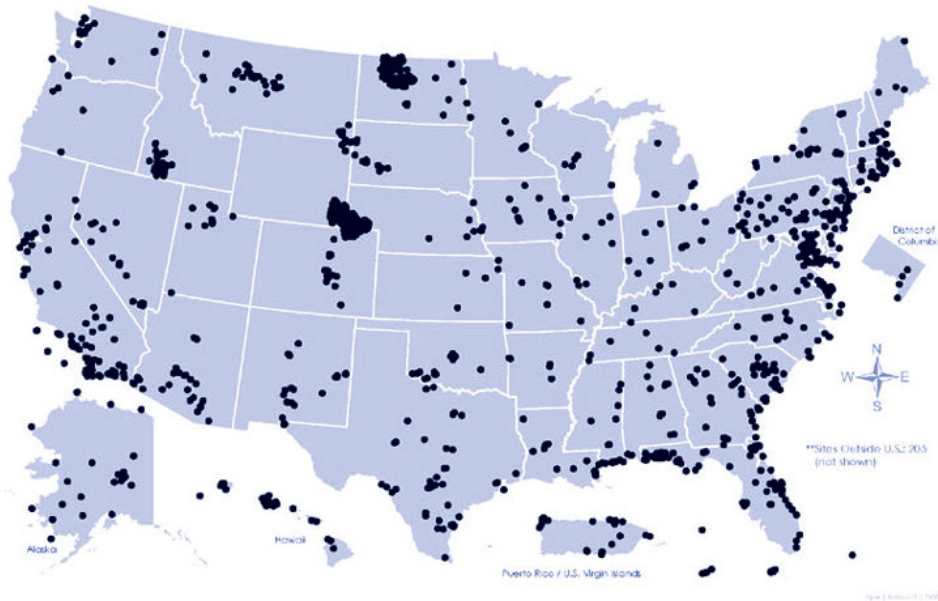


In 2013, Fort Irwin, Calif., experienced three power outages within 45 days as a result of flash floods from extreme rain events | U.S. Army



The Air Force spent \$46.8 million to repair erosion to the rock seawall at the Cape Lisburne Long Range Radar Station, Alaska, which protects its airstrip from waves. | U.S. Air Force

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Defense locations facing multiple risks from climate change | Department of Defense

military presence in the region.

More ominously, DOD strategists say climate change could exacerbate regional tensions, with conflicts over scarce water resources and climate-driven mass migrations leading to increased terrorism and other conflicts.

“Climate change is impacting stability in areas of the world where our troops are operating today,” Defense Secretary James Mattis told the Senate Armed Services Committee in written testimony early this year. “It is appropriate for the combatant commands to incorporate drivers of instability that impact the security environment in their areas into their planning.”

Retired U.S. Marine Brig. Gen. Stephen Cheney said a four-year drought that caused crop failures was one of the contributors to the Syrian Civil War.

“Syria’s civil war is a poster child for climate change as a national security threat,” Cheney, CEO of the national security think tank the American Security Project, **told** Congressional Quarterly.

Congress Balks

Members of Congress have resisted Trump administration efforts to downplay the threats. In July, 34 Democratic and 10 Republican members of Congress signed a **letter** to Mattis expressing concern over a Washington Post report that the administration was attempting to scrub references to “climate change” from DOD’s annual, congressionally mandated report on the subject. The Post **reported** that all

but one of 23 references to “climate change” contained in a December 2016 draft were deleted or changed to “extreme weather” or “climate” in the final report submitted to Congress in January.

In its 2018 defense bill, Congress required each service to report their 10 bases most vulnerable to climate change.

For the climate change **report** released in January, DOD surveyed more than 3,500 defense installations worldwide on whether they had experienced effects from climate risks. More than half said they had, with many citing multiple risks. Drought was the most cited impact (782) followed by wind (763) and non-storm surge related flooding (706). Others cited extreme temperatures (351), flooding from storm surge (225) and wildfires (210).

One of the biggest concerns for military planners is the world’s largest naval base in



Crews repair power lines at Tyndall Air Force Base after Hurricane Michael hit the Florida Panhandle in October. | U.S. Air Force

“Climate change is impacting stability in areas of the world where our troops are operating today. It is appropriate for the combatant commands to incorporate drivers of instability that impact the security environment in their areas into their planning.”

– Defense Secretary James Mattis

Norfolk, Va., where most of the land surrounding the installation is less than 10 feet above sea level. The U.S. expects sea level in the region to rise to between 2.5 and 11.5 feet by 2100. The Navy is concerned about a loss of military readiness when sailors and other employees living off-base are unable to reach work because of flooding. Norfolk city officials estimate improving storm water pipes, flood walls, tide gates and pumping stations will cost hundreds of millions; some residents may have to abandon their homes.

GAO Findings

A 2014 GAO report said that while DOD had begun developing sea-level-rise scenarios for 704 coastal locations, it had not set milestones for completing the tasks (**GAO-14-446**). It also reported that department planners lacked guidance beyond current building codes for how they should incorporate climate change into construction and renovation programs. It said base officials rarely propose climate change adaptation projects because the services’ funding processes did not include climate change in the criteria used to rank potential projects.

In November 2017, GAO reported that DOD had implemented one recommendation and had taken steps toward implementing the remaining two recommendations from its 2014 findings (**GAO-18-206**).

The new report added six more recommendations, “including that DOD require overseas installations to systematically track costs associated with climate impacts; re-administer its vulnerability assessment survey to include all relevant sites; integrate climate change adaptation into relevant standards; and include climate change adaptation in host-nation agreements.” The department agreed with all but two of the recommendations. ■

FERC & FEDERAL NEWS

US Climate Report Spells out Coming Challenge

Continued from page 1

13 federal agencies, including EPA, the Department of Energy and the Department of the Interior. More than 300 experts, from both the public and private sectors, contributed to the report.

The first volume, released in October last year, focused on how human activity is causing changes to the planet and detailed the scientific evidence for the phenomenon. The second volume focuses on the effects of those changes.

"The impacts of climate change are already being felt in communities across the country," the report begins. "More frequent and intense extreme weather and climate-related events, as well as changes in average climate conditions, are expected to continue to damage infrastructure, ecosystems and social systems that provide essential benefits to communities."

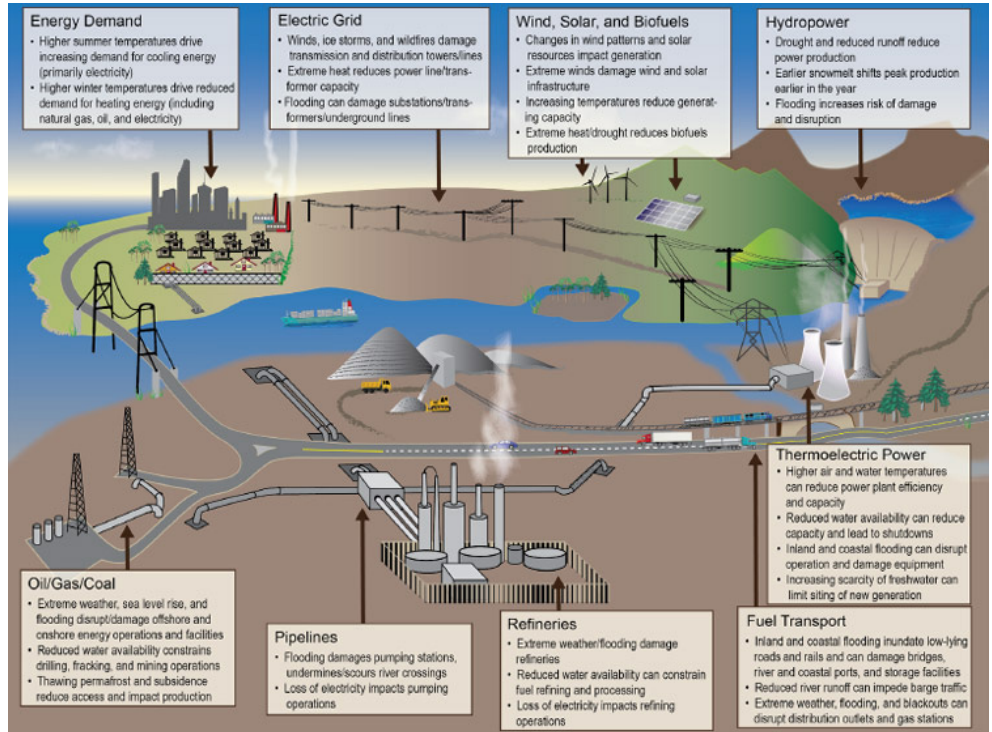
Work on the fourth assessment began in the final days of Barack Obama's presidency. Its release alone is significant in that it directly contradicts President Trump's stance on climate change. But it also doesn't appear to have been altered or edited in any way to downplay its findings, as some scientists had feared.

"This report makes it clear that climate change is not some problem in the distant future," said Brenda Ekwurzel, the director of climate science for the Union of Concerned Scientists and one of the report's authors. "It's happening right now in every part of the country. When people say the wildfires, hurricanes and heat waves they're experiencing are unlike anything they've seen before, there's a reason for that, and it's called climate change."

Trump has repeatedly called climate change a hoax. Just two days before the report was released, he [tweeted](#), "Brutal and extended cold blast could shatter ALL RECORDS. Whatever happened to global warming?"

"The report is largely based on the most extreme scenario, which contradicts long-established trends by assuming that, despite strong economic growth that would increase greenhouse gas emissions, there would be limited technology and innovation, and a rapidly expanding population," White House Deputy Press Secretary Lindsay Walters said in a statement.

The 1990 law required the administration to



Extreme weather and climate change can potentially impact all components of the nation's energy system, from fuel (petroleum, coal and natural gas) production and distribution to electricity generation, transmission and demand. | *Fourth National Climate Assessment Vol. 2*

prepare an assessment every four years. But the first assessment was not released until 2000, and the George W. Bush administration was sued for missing the deadline for the second, which was eventually released in 2009.

Impacts on the Energy Sector

The report consists of 29 chapters and five appendices. Twenty-five chapters focus on climate change's impacts to a particular sector or region of the U.S.

Chapter 4 is entitled "Energy Supply, Delivery and Demand."

The energy sector "is projected to be increasingly threatened by more frequent and longer-lasting power outages affecting critical energy infrastructure and creating fuel availability and demand imbalances," according to the report.

As with other sectors' infrastructure, energy facilities across the U.S. are threatened, though in different ways depending on the region. Structures along the country's coasts are threatened because of rising sea levels. Increased precipitation will lead to flooding in

the Northeast and Midwest, while drought in the West will lead to lower snowpack levels and, thus, reduced hydroelectric capacity.

Perhaps the most unique challenge posed by climate change to the electricity industry, however, is a reduction in generation capacity for thermoelectric power plants, which rely on surface water for cooling.

"Most U.S. power plants, regardless of fuel source (for example, coal, natural gas, nuclear, concentrated solar and geothermal), rely on a steady supply of water for cooling, and operations are projected to be threatened when water availability decreases or water temperatures increase," the report says. Some plants would potentially need to shut down until their water cools enough to comply with federal discharge temperature regulations.

Rising average temperatures and heat waves will also drastically increase electricity demand for cooling, leading to congestion on transmission and distribution lines and reducing their efficiency.

The reports notes that two major trends in the industry — increased reliance on natural gas

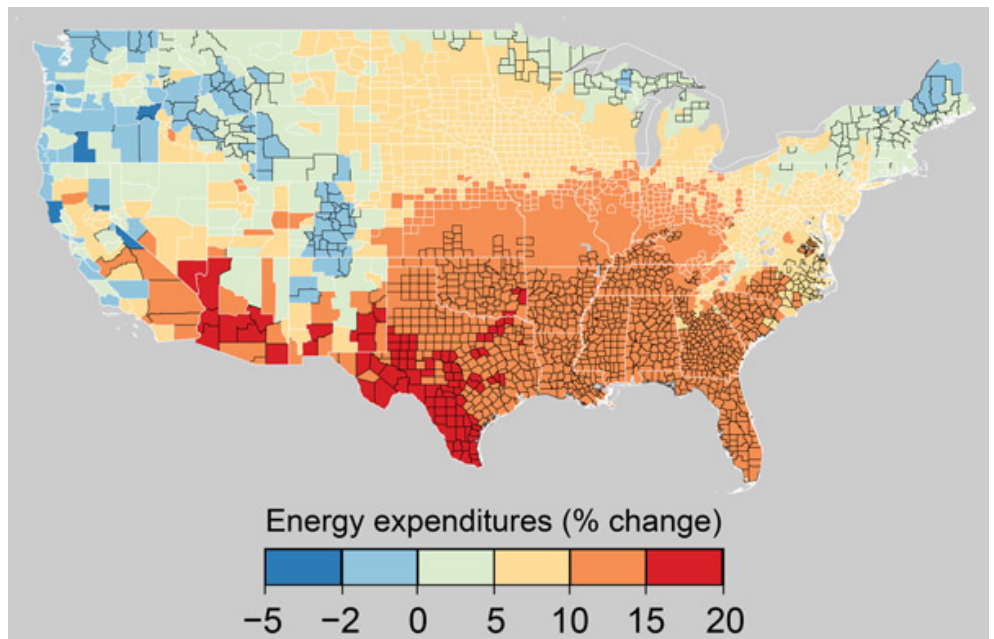
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and increasing penetration of renewables – provide diversity and flexibility. But reduced water availability will also affect fracking capability, as “during droughts, hydraulic fracturing and fuel refining operations will likely need alternative water supplies (such as brackish groundwater) or to shut down temporarily.”

It also notes that while most service interruptions are caused by transmission and distribution line outages, increased fuel supply disruptions could also affect reliability. “Coal facilities typically store enough fuel on-site to last for 30 days or more, but extreme cold can lead to frozen fuel stockpiles and disruptions in train deliveries,” the report says. “Capacity challenges on existing pipelines, combined with the difficulty in some areas of siting and constructing new natural gas pipelines, along with competing uses for natural gas such as for home heating, have created supply constraints in the past.”

Solutions

The last two chapters of the report are devoted to reducing risks through adaptation and emissions mitigation. Many of the measures spelled out are similar to those recommended by the U.N.’s Intergovernmental Panel on Climate Change in a report released last month, most notably by quickly reducing the use of coal for generation and drastically increasing renewables’ share of the generation mix. (See [IPCC: Urgent Action Needed to](#)



County-level median projected increases in energy expenditures for average 2080-2099 impacts relative to additional change in climate. | *Fourth National Climate Assessment Vol. 2*

Avoid Climate Trigger.)

For the electricity industry, the report says infrastructure will need to be hardened against extreme weather by:

- “adding natural or physical barriers to elevate, encapsulate, waterproof or protect equipment vulnerable to flooding;

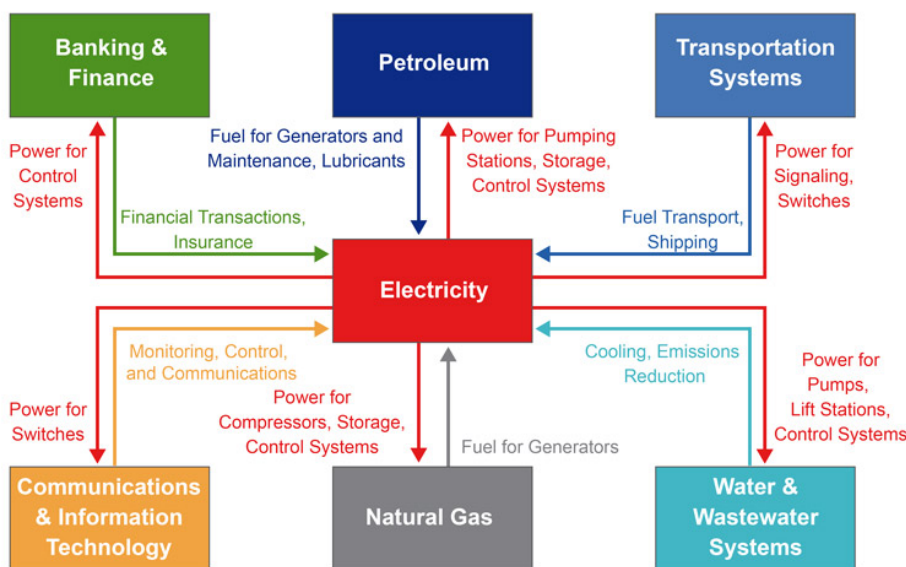
- reinforcing assets vulnerable to wind damage;
- adding or improving cooling or ventilation equipment to improve system performance during drought or extreme heat conditions;
- adding redundancy to increase a system’s resilience to disruptions; and

- deploying distributed generation equipment (such as solar, fuel cells or small combined-heat-and-power generators), energy storage and microgrids with islanding capabilities (the ability to isolate a local, self-sufficient power grid during outages) to protect critical services from widespread outages.”

It also lauds energy efficiency as a means for controlling costs to consumers, which it says will inevitably rise from all the changes.

Like the IPCC, the report urges expediency.

“The current pace, scale and scope of efforts to improve energy system resilience are likely to be insufficient to fully meet the challenges presented by a changing climate and energy sector,” it says. “Without substantial and sustained mitigation efforts to reduce global greenhouse gas emissions, the need for adaptation and resilience investments to address the impacts of climate change on the energy sector is expected to increase if the most severe consequences are to be avoided in the long term.” ■



“The interdependence of critical infrastructure systems increases the importance of electricity resilience, as disruptions to energy services are projected to affect other sectors,” the report says. | *Fourth National Climate Assessment Vol. 2*

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McNamee Advances to Senate Floor on Party-Line Vote

Continued from page 1

end of the year for McNamee, the executive director of the Energy Department's Office of Policy.



Bernard McNamee |
© RTO Insider

Ranking member Maria Cantwell (D-Wash.) said she could not support McNamee because of his role in crafting DOE's controversial Grid Resiliency Pricing Rule proposal. At his Nov. 15 confirmation hearing, Democrats

had pressed McNamee to recuse himself from FERC's proceeding on resilience, which the commission initiated in January after rejecting the DOE proposal. (See [Democrats Urge McNamee's Recusal from Resilience Docket.](#))

Democrats had also raised concerns about McNamee's work earlier this year for the Texas Public Policy Foundation's Center for Tenth Amendment Action and its Life: Powered initiative, described as a project to "reframe the national discussion" about fossil fuels.

These concerns were heightened after a [video](#) of a speech McNamee made in February at the TPPF's 2018 Policy Orientation — apparently taken down after he was nominated — was leaked and posted to YouTube by the Energy and Policy Institute, a liberal advocacy group, last week.

In the speech, McNamee touted fossil fuels as "the key not only to our prosperity [and] quality of life, but also to a clean environment. What do you think powers the sanitation system, the clean water systems, that runs things that clean our air? It's energy, it is 24-hour energy and it is energy that is produced from a very concentrated source in coal, oil and natural gas."

He also attacked "an organized propaganda campaign against fossil fuels."

"We see that the green movement is always talking about more government control because it's the constant battle between liberty and tyranny. It's about people who want to say, 'I know what's better for you.' It's the thing where groups are saying, 'I want to be the one in charge, I know what's good for you, and I'm going to ration it.'"

Cantwell said before Tuesday's vote, "I would

have liked to take Mr. McNamee at his word" that he would not be a partisan on generation fuels.

"But after the video has surfaced ... I find it hard to believe that he is going to be the impartial reviewer of these issues," she said. "His words revealed a very strong bias in favor of fossil fuel and against renewable energy."

She noted that FERC nominee Ron Binz withdrew from contention in 2013 because some Senators accused him of being too supportive of renewables and critical of coal.

Speaking to reporters after the hearing, Murkowski said, "I don't know if there was ever a 'Binz Test' ... We didn't have him before us as a committee vote, if you'll recall."

Murkowski said McNamee's comments on the video were "unfortunate."

"I believe that we continue to need [fossil fuels], but we also recognize their role in the changes we're seeing in our climate," she said.

In an apparent reference to McNamee's complaint on the video that renewables "screw up the whole physics of the grid," she added, "It's more appropriate to think of renewables as ... a technical challenge for the grid, one that we can. and one that we will, overcome."

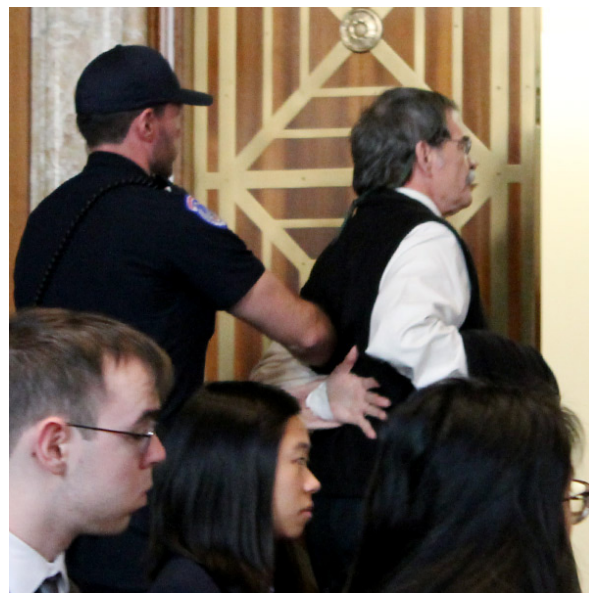
Nevertheless, Murkowski said she would support McNamee based on his commitment to uphold FERC's independence. "I will expect that he be fuel-neutral and not a champion for one resource over another," she said.

After the vote, Sen. Martin Heinrich (D-N.M.) expressed disappointment that McNamee is "the best we can do" at FERC.

"I think he is indicative of the dividedness in this country right now — our inability to have a realistic conversation about climate. And I find both the video and his background to suggest that he is going to have a very difficult time being fair, objective or anything close to impartial."

Ari Peskoe, director of Harvard Law School's Electricity Law Initiative, [tweeted](#) Monday that McNamee's comments could be problematic if he joins FERC.

"His participation in any docket that includes comments from the 'green movement' — and



Ted Glick of Beyond Extreme Energy is escorted from the committee meeting after shouting opposition to McNamee. | © RTO Insider

especially any docket started with a complaint filed by an enviro group — creates a legal vulnerability," Peskoe said. "There's a chance a court would invalidate FERC's order solely due to his participation."

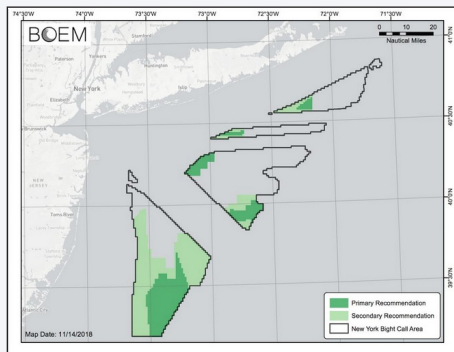
"Case law does not establish a hard line with regard to bias. Challenging McNamee's decision not to recuse himself from a docket based on filings from enviro groups is certainly not a slam dunk. But he's a procedural liability for FERC. All risk, no gain."

Murkowski said she did not know whether his nomination would be part of a vote on a package of other nominees. She also said she had "no idea" how long the Senate would be in session beyond Dec. 7, when its continuing resolution runs out. "Beyond that we're operating in the great unknown."

But she also said that as far as she knew, McNamee is not being considered along with another nominee to replace Commissioner Cheryl LaFleur, who term ends June 30, 2019, as some outlets have speculated. "All I can tell you about that is that I know as much about that as you do. ... I have been given no indication that there's going to be any early nomination, or how we will vote" on McNamee's nomination. "It's arduous enough to go through the vetting process and the length of time it takes" to go through the nomination process. "It's important to [the nominees] that we try to get these wrapped up." ■

Briefs

BOEM Offshore Map Confuses Port Authority



A map released by the Bureau of Ocean Energy Management earlier this month regarding proposed areas for offshore wind facilities in the New York Bight left the Port Authority of New York and New Jersey confused, and acting bureau Director Walter Cruickshank clarifying it to a local newspaper.

The map featured the four sections designated for development, but each was partially shaded as “primary” and “secondary” recommendations. Port officials said the bureau had not specified what these labels meant.

Speaking to *The Standard-Times*, Cruickshank explained that the shaded areas are where there is the least amount of conflict among fishermen, wind developers, the Department of Defense and environmentalists. He explained, however, that they are only recommendations.

More: [The Standard-Times](#)

Holden to Introduce Legislation to Grandfather Camp Fire



California State Assemblyman Chris Holden is expected to introduce legislation as early as next week that would give Pacific Gas and Electric a way to pay its potential liabilities from the Camp Fire.

The cause of the fire, which state fire officials announced had been fully contained last week, is still unknown, but PG&E's

equipment is suspected of causing the blaze. In September, the State Legislature passed, and Gov. Jerry Brown signed, SB 901, which allows the state's investor-owned utilities to issue bonds to pay for fires their equipment caused in 2017 and beginning next year, leaving utilities exposed for fires this year. Holden's legislation would grandfather the Camp Fire into SB 901. (See [Camp Fire Prompts Talk of PG&E Bailout or Breakup.](#))

The legislature reconvenes Dec. 3, but any legislation passed during this session would need to be approved by the governor-elect, Gavin Newsom, whose term begins Jan. 7.

More: [Bloomberg](#); [The Mercury News](#); [Los Angeles Times](#)

Mont. PSC, NorthWestern Energy Sued over Renewable Law

Environmental group the Montana Environmental Information Center last week sued the Montana Public Service Commission and NorthWestern Energy for not developing community renewable energy projects (CREPs) as required by state law.

State utilities are required to buy energy from CREPs or develop their own under the 2005 law. But for the past five years, the commission has given NorthWestern a waiver from the requirement. But MEIC says that waivers are only allowed if utilities tried and failed to obtain CREPs, which it says NorthWestern has not done.

The group is asking the Cascade County District Court to order NorthWestern to obtain CREPs and require the PSC to fine the utility for its failure to do so.

More: [Billings Gazette](#)

Vineyard Wind Denied Consent by RI Fishers

The Rhode Island Coastal Resources Management Council's Fishermen's Advisory Board last week declined to consent to Vineyard Wind's latest layout proposal, jeopardizing the developers' request for an extension for the agency's review of the 800-MW, 94-turbine offshore wind project.

The developers, Copenhagen Infrastructure Partners and Avangrid Renewables, already received additional time and wanted a seven-week extension from Tuesday's deadline to settle objections from fishers, who want wider lanes between turbines. They have

also offered to pay fishers for lost income.

The CRMC said it was open to another extension if the developers could obtain approval from the board.

More: [ecoRI News](#)

Va. SCC: Ratepayers on Hook for Facebook Solar Projects

Virginia State Corporation Commission staff last week said Dominion

Energy ratepayers would bear all of the risks of a proposal to build two solar power facilities in Surry County to offset the electricity demand for the data center Facebook plans to build in eastern Henrico County.

Staff estimate that customers would pay an additional \$1 million a year if the two plants don't perform at the 28% capacity factor assumed by Dominion. Staff noted that five other Dominion solar projects have capacity factors between 15 and 20%.

The commission may be forced to ultimately approve the projects anyway under the Grid Transformation and Security Act, which declared the development of 5,000 MW of new renewable resources to be in the public interest.

More: [Richmond Times-Dispatch](#)

FERC Grants NYISO, PJM M2M Waiver

FERC last week granted NYISO and PJM a temporary waiver of their joint operating agreement in order to add the East Towanda-Hillside tie line as a market-to-market (M2M) flowgate.

The move enables PJM to conduct redispatch operations to control flows based on the more restrictive rating on the New York side of the line without violating its Tariff while allowing the two grid operators time to develop a permanent solution.

The waiver became retroactively effective Sept. 19 — a day after the filing — and will expire upon commission approval of JOA revisions or Sept. 17, 2019, at the latest.

Permitting the line to act as a flowgate in the JOA would allow PJM to redispatch generation to address constraints on the NYISO side of the line. M2M coordination currently is limited to only those times when the non-monitoring grid operator's market flow is greater than its M2M entitlement for the constrained flowgate.

More: [ER18-2442](#)

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