

Energy Matters

The energy news you need to know.

October 14, 2019

The official e-newsletter of ...



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Headline News

Fossil Fuels

Oil, Special report: Recent geopolitical instability in the MENA (Middle East North Africa) region has created new pressures throughout oil markets. For instance:

- [Turkey](#) launched a military offensive into northeastern Syria, and has begun drilling offshore of [Cyprus](#) despite ongoing disputes;
- The drone attack on [Saudi Arabia](#)'s oil supply might be the beginning of a trend;
- Protests in [Iraq](#) continue heating up with casualties now close to one hundred;
- [Iran](#) is being squeezed by export restrictions, which is leading to local protests and companies like CNPC are leaving the region.

Disruptions such as these have had a schizophrenic effect on various oil sectors, like the oil-tanker market. Stock-prices for the oil tanker industry have skyrocketed 55% recently and 425% higher than last year; yet, stock-prices for the sector have been in free-fall for the past ten years (*side-by-side comparison insert*).

Short-term oil-tanker stock prices for:
Teekay, Nordic American, Frontline, and Scorpio



Long-term oil-tanker stock prices for:
Teekay, Nordic American, Frontline, and Scorpio



Natural gas, spotlight, [Naftogaz](#) (the company at the center of the Ukraine/Trump-impeachment/Biden controversy):

- The Ukraine's state-owned midstream gas company is a key transporter of natural gas from Russia to the European Union (Note: the EU receives 40% of its natural gas from Russia, most thru Naftogaz pipelines in Ukraine.)
- Russia has used natural gas as a political weapon, occasionally shutting off gas to intimidate Ukraine and EU countries; the state-owned Russian firm Gazprom also targets Naftogaz directly, often withholding billions of dollars in payments.
- The contract between Gazprom, Naftogaz, and the EU expires in January.
- The Trump White House is asking Ukraine to allow US energy products into their market, arguing that US companies are better trading partners than Russians.
- The US is asking for market access because US natural gas production has reached record levels — about 92.8 billion cubic feet per day (more than the US consumes domestically).

Coal: Global coal demand grew 1% in 2017 and in 2018. (Note: coal is necessary to create heat to make steel, which means coal is used to manufacture wind turbine towers and blades. Also, 440 lbs of coal is used to produce 1 ton of cement ... which would cover about 25 linear feet of a one lane highway surface.)

Carbon capture: Qatar is building carbon capture-and-storage plants beside all new liquefied natural gas (LNG) facilities; its industry is also using more carbon in Enhanced Oil Recovery ("EOR" - a method to improve O&G production by pumping gas - in this case, carbon - into a field to increase depleting pressure).

Low-Carbon Energy

- **Spotlight: the state of [nuclear power](#) in the US:**

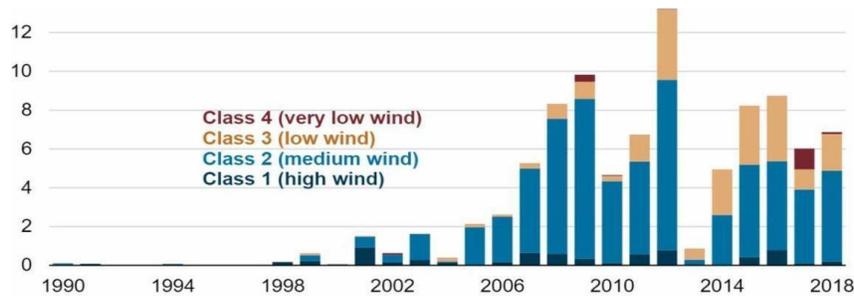
- There are 59 nuclear power plants with 97 nuclear reactors in 29 US states.
- Nuclear power provides 20% of US electricity and half of all carbon-free electricity.
- Five nuclear power plants have retired in the past five years and 12 reactors will retire ahead of schedule.

- **The state of [renewables](#) in 2018:**

- 28% of global electricity was generated from renewable energy sources.
- 96% of all renewable energy came from hydropower, wind, and solar technologies.
- Solar's share of renewable energy generation is growing fastest; hydroelectric's share is growing slowest.

- Because there is little consensus in Congress right now, policies that have bipartisan support have a greater chance to succeed. For instance, it appears that **Congress will pass any bill that offers [clean energy tax credits](#)**, such as the [solar Investment Tax Credit](#) that will extend benefits for five years at its full 30 percent value.

- **Most [wind](#) turbines in the US are designed for medium wind speeds** (in gigawatts):



- *Insights from Silicon Valley: The sectors that benefited from PG&E's unprecedented rolling blackout policy: back-up power and battery storage.*

Policy

- **The US Supreme Court is now in session - three key energy-related cases:**

- [Atlantic Richfield Co. v. Christian](#). Can people who live near Superfund sites use state laws to force site owners to conduct additional clean-up work beyond what the company agreed to do under federal EPA regulations?
- [Petitions for writs of certiorari](#). Do multiple federal agencies have the authority to review planned pipelines? (FERC ruled in favor of a 2,200-mile pipeline thru the Appalachian Trail, which is under the jurisdiction of the National Park Service.)
- [Maui County v. Hawaii Wildlife Fund](#). Does the Clean Water Act regulate water pollution originally discharged underground but which has eventually reached above-ground into rivers, streams or lakes?

- *Politics makes for strange bedfellows* - more than 25 organizations including the Chamber of Commerce and environmental groups are **urging the US House and Senate to fund energy and climate RD&D**. The 5 bills with the most support:

- [S. 383](#), the Utilizing Significant Emissions with Innovative Technologies (USE IT) Act, which would support CO2 utilization and direct air (carbon) capture.
- [S. 903](#), the Nuclear Energy Leadership Act (NELA), which would support development of next-gen nuclear energy resources.
- [S. 1201](#), the Enhancing Fossil Fuel Energy Carbon Technology (EFFECT) Act, which would support cleaner and more efficient coal and natural gas.
- [S. 1602](#), the Better Energy Storage Technology (BEST) Act, which would fund research on behalf of battery storage for the electric grid.
- [S. 1685](#), the Launching Energy Advancement and Development through Innovations for Natural Gas (LEADING) Act, which would support commercially-viable carbon capture technologies for natural gas-fired electric generation.

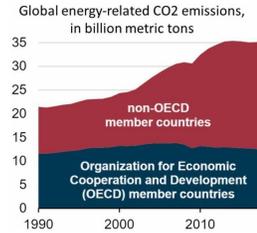
- *Beltway Buzz* - **The US Department of Energy Secretary Rick Perry is expected to resign**, although the agency continues to deny that a departure is imminent.

- *State energy policies* - **Five states have policies that provide public funding to support nuclear power** (by state, number of units, and gigawatts supported):

1. [New York](#) (3.4 units; 5.6 gigawatts)
2. [Illinois](#) (2.4 units; 11.7 gigawatts)
3. [Connecticut](#) (1 unit; 2.1 gigawatts)
4. [New Jersey](#) (3.5 units; 3.7 gigawatts)
5. [Ohio](#) (2.1 units; 2.1 gigawatts)

Climate, Emissions and Sustainability

- *Special Report:* Annual global energy-related emissions continue to increase; however, the growth is not evenly distributed across the world. Relatively developed economies have had no emissions growth, while **energy-related CO2 emissions are increasing among the group of countries outside the Organization for Economic Cooperation and Development (OECD)**. (*Editor's note:* because population totals in economically developed regions are flat or declining, OECD emissions per-capita are increasing.)



- **Some diseases may be worse during prolonged and unseasonably warm periods:**

- [Eastern equine encephalitis](#) - a rare brain disease, transmitted by mosquitoes.
- [Dengue Fever](#) - severe joint pain and hemorrhaging, transmitted by mosquitoes.
- [West Nile Virus](#) - brain inflammation, transmitted by ticks and mosquitoes.
- [Kidney Stones](#) - the US southeast is considered the "kidney stone risk belt."
- *Vibrio vulnificus* - "flesh-eating" [bacteria](#), lives in warm brackish water.
- Naegleria fowleriis - "brain-eating [amoeba](#)" thrives in warm soil.
- Lyme disease, Rocky Mountain Spotted Fever - expanding into higher altitudes.

- In the last 50 years, **one in four birds species in North America have died off and there has been a dramatic decline in remaining species.** Bird populations, by region and rate of decline:

- Eastern Forest birds (-17%)
- Arctic Tundra birds (-23%)
- Western Forest birds (-29%)
- Boreal Forest birds (-33%)
- Shorebirds (-37%)
- Grassland birds (-53%)



- **Thirty large cities have met their pledge to halt the rise of greenhouse gas emissions.** Visit the [AES Daily Dose](#) to see the list.

Research and Markets

- **The Nobel Prize in chemistry was awarded to John Goodenough, Stanley Whittingham and Akira Yoshino for their work in the development of rechargeable lithium-ion batteries** that power everything from mobile phones to electric cars. See the biography on Prof. Goodenough in AES e-magazine, [Energy Today](#).

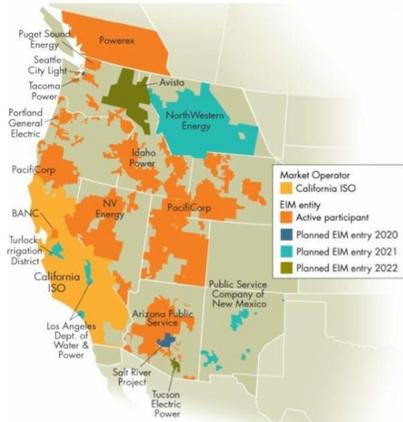
- *Special report:* Heavy industry (e.g., steel, cement, petrochemicals) produces about 22% of global CO2 emissions because many of the industries' processes require very large amounts of thermal energy at very high temperatures (often more than 800°C). However, **there are a few lower-carbon alternative options.** AES provides Premium Members access to a [study](#) on industrial heat decarbonization processes. (*Editor's note:* much more research is needed in this field.)

- **Baker Hughes has dropped the GE logo** and has exchanged its former blue letters for dark green ones. The new brand does not reference the 2017 merger of Baker Hughes and GE Oil & Gas (\$22.8 billion earned revenues in 2018) into a single company.



Electricity, Power and Efficiency

- *Special report:* [new developments in electricity markets](#). With the rise of wind and solar, the supply-side of electricity markets is getting less predictable. For instance, California often produces an excess of carbon-free electricity during the day, but struggles with shortfalls at night. In order to coordinate efficient “last minute” trading, the Western Energy Imbalance Market was formed in 2013 in order to help generators exchange power in a manner that balances supply and demand on short time scales (5 and 15 minutes). In 2013, the EIM began with just the California ISO and PacifiCorp; however, the Western EIM has since grown to include parts of 8 western states. AES Premium Members have access to a [presentation](#) on the EIM by AES Member Mark Rothleder.



- The Federal Energy Regulatory Commission (FERC), the 5-person agency that regulates all interstate energy transactions, has been struggling to meet in quorum for decades. The Commission currently has 3 Members (barely a quorum) but **leading Commissioner Richard Glick signed a two-year pledge to recuse himself from any regulatory issue that involves his former employer Iberdrola (now Avangrid)**.

Why this is important: One case on the FERC docket right now, the ISO-New England, which manages the entire electricity market for the US Northeast, has proposed a number of reforms that will help them cover electricity shortages this winter; however, because ISO-NE has worked with Avangrid in the past, Richard Glick had to recuse himself from the hearings, which left FERC without a quorum and unable to vote on the reforms - so New England faces an uncertain electricity future this winter and maybe longer.

- **PG&E, California's biggest utility, is cutting electricity to induce rolling blackouts** in an attempt to minimize the likelihood of extreme wildfires that have been common the last few years. Meanwhile, the US Bankruptcy Court (SF) will allow for [rival Chapter 11 plans](#), which strips PG&E of the sole right to propose its own Chapter 11 plan.

Cyber Spotlight Special

- The US GAO determined that the US electric grid faces significant cybersecurity risks and is becoming more vulnerable to cyberattacks by threat actors and criminal groups. The GAO also determined that **the policies of the Department of Energy (DOE) and the Federal Energy Regulatory Commission (FERC) are "insufficient."** AES Premium Members have access to the [GAO report](#).

- AES is co-hosting a special conference on cybersecurity solutions for the power sector. [Contact us](#) for discounts to the conference, an assigned personal concierge, and targeted introductions to attendees.

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Cyber-insecurity: the Biggest
Problem to the U.S. Power Grid

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Features

Spotlight: [The Denmark Innovation Centre in Silicon Valley](#)

The American Energy Society is proud to announce its new Partner-Sponsor, the [Denmark Innovation Centre of Silicon Valley](#). As partners, the Society will help the Consul General and the Centre:

- Provide services to Danish companies, research and educational institutions, public stakeholders and citizens and society.
- Assist Danish entrepreneurs in navigating Silicon Valley's innovation ecosystem.
- Facilitate collaboration between Danish and California research institutions.
- Partner with California authorities on water and energy.
- Attract investment to Denmark.
- Disseminate insights into trends, technological developments and new business models to stakeholders in Denmark.

Energy Quotes: Sometimes all you can do is laugh.

The best jokes related to climate change, according to AES experts:

4th place: You know global warming is real when hot water comes out of both taps.

3rd place: Climate change is such a joke, even Antarctic glaciers are cracking up.

2nd place: I haven't always believed in climate change, but I'm warming to the theory.

And the winner: Remember when glaciers were cool?

In case you missed it (vol. 19.6)...

Energy Matters

- It appears that **China is nearing [completion](#) of its own Strategic Petroleum Reserve**, capable of holding enough inventory to last 45 to 80 days (depending on consumption rates), or about 700 million barrels.

In case you missed it (vol. 17.3) ...

[The Cyber Security issue - Part II](#)

The logo for 'ENERGY TODAY' features the word 'ENERGY' in a large, bold, blue font with a white grid pattern. Below it, the word 'TODAY' is written in a smaller, solid blue font.

Contacts

- [The American Energy Society](#)
- American Energy Society [LinkedIn Group](#)
- American Energy Society introductory [video](#)
- **Contact us** with comments about the Society or this issue of *Energy Matters*.

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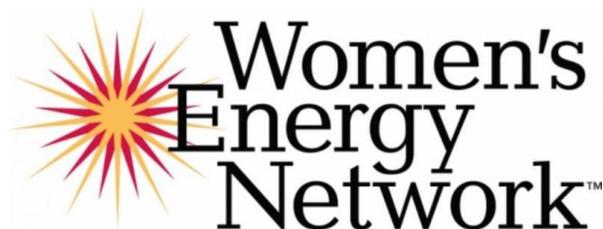
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