

Energy Matters

The energy news you need to know.

November 11, 2019

The official e-newsletter of ...



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SOCIETY**

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Headline News

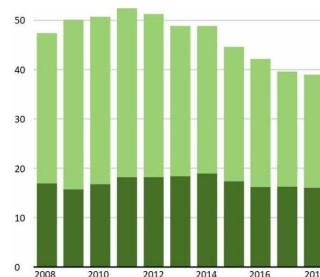
Fossil Fuels

Oil: Conventional oil discoveries have been [declining](#); however, there were **three large oil discoveries in 2019**:

1. [Russia](#) - 1.5 billion barrels of oil equivalent (Bboe) in the Arctic Kara Sea.
 2. [Guyana](#): - 6 Bboe in the Stabroek Block, the first major discovery in Guyana. (To put this discovery into perspective, this is one barrel of oil for every person in Guyana every day - pop. 750,000).
 3. [Cyprus](#): The discovery is so large, Turkey has started sending its own drill ships to the region.
- (Note: expect massive discoveries in [Suriname](#) and the Gulf of Mexico in 2020.)

Natural gas: Russia's gas giant Gazprom will open its "Power of Siberia" pipeline to China by the end of 2019; at capacity, this pipeline will supply China with 9.5% of its total natural gas demand.

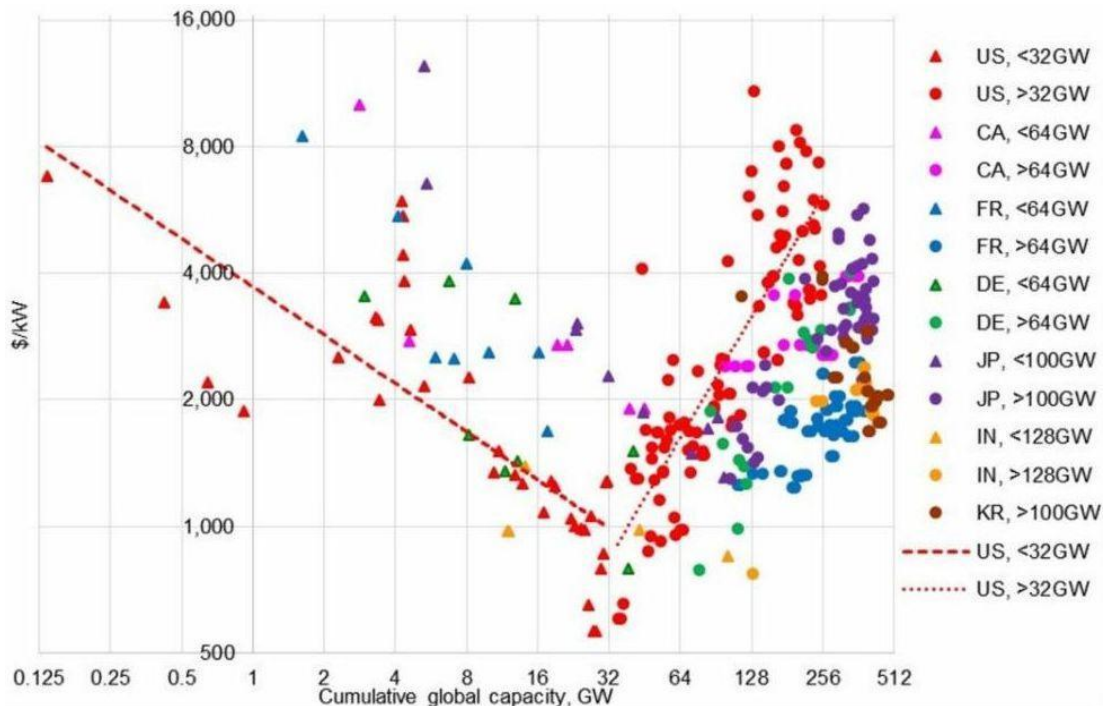
Coal: Comparing the wholesale cost of coal from 2008 - 2018, as the **commodity** vs. **transport**, in USD/ton of coal:



Carbon Capture: About 88% of all current carbon capture efforts are used to extract more fossil fuels via "enhanced oil recovery" methods ([EOR](#)).

Low-Carbon Energy

Nuclear: Much like all technological innovations, which become more cost-competitive over time, **from 1954 to 1967 the cost to build a nuclear power plant decreased about 25% per doubling of global nuclear power capacity.** But then cost-efficiencies reversed course; thereafter, costs increased 22% to 94% per capacity doubling (except in South Korea). Many experts have attempted to answer the question "why?", but none offer a compelling explanation. [Contact us](#) with suggested interpretations, or is the data wrong?



- For the first time this century, **net renewable capacity additions did not increase** YoY.

- **A comparison of Wisconsin vs. Minnesota**, by changing capacity since 2015:

Source	Wisconsin	Minnesota
Solar	+ 5%	+ 175%
Wind	+ 3%	+ 55%
Coal	0% (no change)	- 35%

Policy

- President Trump submitted a notice to the United Nations to formally withdraw the United States from the Paris Climate Agreement. Since the process takes one year to complete, the US won't officially exit the agreement until Nov. 4, 2020, the day after the next presidential election.

- The military's Nevada Test and Training Range encompasses much of the southern Nevada desert originally set aside for bighorn sheep, desert tortoises and other wildlife; however, the US Fish and Wildlife Service retains primary authority over this National Wildlife Refuge, meaning it has some power to halt military drills. **The US Air Force has submitted a bill to expand the Nevada Test and Training Range in the Range by over 1.1 million acres.** AES Premium Members have access to a [draft](#) version of the bill.



- Special report: In May, the White House [approved](#) summertime sale of E15 gasoline containing up to 15% ethanol, a fuel made from corn and other crops. That move offered the promise of a surge in year-round sales. But while 30 states now have gas stations selling E15 year-round, **the total number of stations offering ethanol blended gasoline nationally is below 2,000, and most are located in Minnesota and Iowa.** In Texas, for instance, gas stations that offer no ethanol blend whatsoever are growing faster (+283 stations YoY) than stations that offer E15. (*Note: it costs about \$250,000 USD to retrofit pumps for E15 ethanol blended gasoline.*)

- The US Department of Agriculture has a generous crop insurance program that protects farmers (a \$144 billion budget); **0.3% of that total is earmarked to help farmers adapt to the changing climate.**

- [OurEnergyPolicy.org](#) is holding an [online discussion](#) this month with former Secretary of Energy, **Ernest Moniz**. The topic is the principles of the "Green Real Deal." Register for the forum to join the discussion. If you have any questions or comments please email [Alicia Moulton](#), OEP Communications Director.

Climate, Emissions and Sustainability

- **Cities and metro-areas where emissions per person are [decreasing](#) :**

- Atlanta
- Las Vegas
- Los Angeles
- San Francisco

Cities and metro-areas where emissions per person are increasing:

- Boston
- Charlotte
- Chicago
- Houston
- New York City

- **The company responsible for the most carbon emissions: Saudi Aramco.** Visit the [AES website](#) to see the top-20 companies involved (production, transmission and/or consumption) in about one-third of all carbon emissions in the world.

- **The top-4 countries that produce the most [trash](#) per person per day:**

1. Monaco (7 pounds/person)
2. Puerto Rico (6.2 lbs/person)
3. Bermuda (6.1 lbs/person)
4. Moldova (5.7 lbs/person)

- A new peer-reviewed paper suggests that **sunlight degrades plastic [faster](#) than previous research suggested;** the researchers also claim that some of the degraded plastic may effectively disappear from the environment.

- **In October, the Keystone Pipeline [leaked](#) 300,000 gallons of oil in North Dakota.**

Research and Markets

- Scientists at San Jose State University's Fire Weather Research Laboratory have made adjustments to Doppler radar to [predict how fires spread](#), much like the way weather conditions are forecast.

- *Special AES retrospective: a comparison of hybrid car sales, 2004 vs. 2005:*

<u>Make/Model</u>	<u>2004</u>	<u>2005</u>
Honda Hybrid Accord	1,000	17,000
Honda Hybrid Civic	13,000	26,000
Toyota Hybrid Highlander	0	18,000
Ford hybrids (all)	3,000	20,000
Lexus RX400h	0	20,000
Toyota Prius	50,000	100,000+

- For " **8 suggestions on how to recession-proof your energy start-up**," from Expert Member, Kirk Coburn, Investment Director at Shell Ventures, visit the [AES website](#). (*Note*: recessions typically last about 11 months.)

- [EnergySource](#) , a geothermal energy company, is testing a variety of methods to extract lithium from the Salton Sea in California — the location of one of the world's most powerful natural geothermal hot spots.

- China, the world's biggest EV market, has **8:1** more public chargers than the US.

- Researchers at Chalmers University of Technology in Gothenburg, Sweden are testing an **energy-trapping liquid laminate molecule** made up of carbon, hydrogen, and nitrogen to see if it is capable of storing energy and/or heat.

Electricity, Power and Efficiency

- The typical US household uses about **.025 megawatt-hours** of electricity per day.

- In the US, heating homes and businesses produces about 560 million tons of carbon dioxide per year, or about 10% of all emissions.

- *Spotlight*: [Heat pumps](#).

- An all-in-one heating and cooling unit.
- The most common extract warmth from the air, which requires a lot less energy than traditional heating systems like boilers, furnaces and electric radiators that work by warming up the air inside the home.
- Heat pumps reduce heating costs and carbon footprint (about \$950 a year for a 4-bedroom home in the Midwest or Northeast).
- Heat pumps become less efficient in extreme cold temperatures, 80% efficiency down to minus 13 F, and they shut-off at minus 18 F.

- There is an ambitious proposal to develop a new and improved interconnected grid in Southeast Europe. **Project Managers are seeking software developers who can lead/support the development of "Grid Distribution Software."** Please [contact AES](#) if interested (the deadline to apply was Nov. 4, but AES can submit applicants who have exceptional coding skills).

Cyber Spotlight Special

- It is estimated that **about 56%** of all US utilities faced a cyberattack in the last year.

- CyberCon is **fully subscribed and registration is now closed**. (Nov. 19 - 21, Anaheim, California).

Features

Spotlight: Richard Oliver and Aplethora

Past spotlights have recognized and celebrated the commitment of young people to energy, especially those who participated in the AES e-internship program.

This Spotlight shines on experienced professionals who have made lasting contributions to energy, especially those who seek ways to continue adding value over the course of their careers. As President of [Aplethora Energy Services](#), **Richard Oliver** has been providing technical and commercial advisory services to the fossil fuel sector for more than forty years. He continues to build his knowledge and broaden his skills, adding new expertise in once-unfamiliar fields like waste-to energy, biomass conversion, and gasification.

Thank you Richard for all your contributions - you have probably forgotten more about energy than many of us will ever know.

Energy Quotes - Environmental Stirrings

"Stop us if you've heard this one before ... 2019 is certain to be one of the warmest years on record." - European Union's Copernicus Climate Change Service, on changes in climate conditions.

"I really didn't want to sit on the sidelines." - Gina McCarthy, former EPA chief under President Obama, on why she accepted the offer to lead the Natural Resources Defense Council (NRDC).

"Scientists have a moral obligation to tell it like it is; therefore ... Earth clearly and unequivocally faces a climate emergency." - A [paper](#) published in *Bioscience*, signed by 11,258 scientists from 153 countries.

In case you missed it (vol. 21.6)

Energy Matters

- *Featured story*: The Federal Reserve Bank of San Francisco completed a study of the financial "death spirals" caused by the changing climate. An example of the study: "Without proactive investments in adaptive capacity and resilience, **low- and moderate-income (LMI) communities will be disproportionately affected by climate change-related events.**" AES Premium Members have [access to the report and its data](#).

In case you missed it (vol. 18.3) ...

[The Fuels issue](#)

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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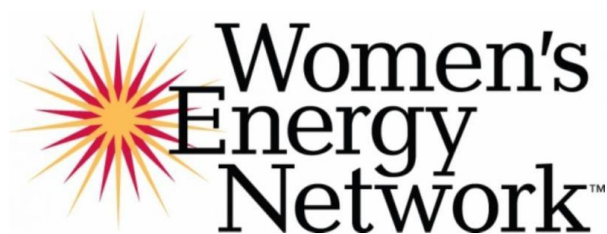
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