



ENERGY MATTERS

The trusted source for objective sound-bite summaries of the energy news you need to know

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— HEADLINE NEWS —

Conventional

Petroleum

- OPEC has reached a (precarious) [agreement](#) - it will limit oil output (from 33.24 million bpd to [32.5 million bpd](#)). **But the new OPEC agreement has started to unravel.** A deal looked possible when Saudi Arabia agreed to cut 500,000 bpd and allowed Iran a temporary exemption from a production cap. But Iran wanted an ironclad exemption, and then Libya and Nigeria demanded (and received) a similar [exemption](#). Iraq responded by categorically opposing exemptions for any country, especially Iran. Russia is so frustrated that it is threatening to [withdraw](#) completely. **Saudi Arabia might have the most at stake:** its finances are a mess; the kingdom has the highest budget deficit among the world's 20 biggest economies; its first international bond issue has been delayed; and, the US Congress just voted to allow Americans to [sue](#) the country for its citizens involvement in 9/11.

- **The US continues to produce [more oil per day than any other country](#).** Its increase in output is [more than](#) the sum of the collective increase for the whole of OPEC.

Natural Gas

- **The export of LNG by the US is full of surprises.** Some export destinations have been unexpected, such as the UAE, Jordan and Kuwait; or, exports to Asia - originally expected to be a primary destination - have been slow. The biggest surprise is that more than 57 percent of total exports are going from Cheniere's Sabine Pass terminal in Louisiana to South America. AES Premium Members have access to the LNG Monthly 2016 [report](#).

Coal

- When coal companies get a permit to mine, they also have to put up some sort of financial assurance like a surety bond or letter of credit to cover the projected cost of cleaning up the land, as required by federal regulations. But some states allow a coal company to cover these cleanup costs with a provision called [self-bonding](#), a financial promise to use their own funds to pay for cleanup. In reality, it provides an escape mechanism that allows a company to avoid payment.

- **The top 4 states that allow self-bonding by coal companies** (in thousand tons):

1. Wyoming (321,019)

2. West Virginia (80,345)
3. Illinois (47,125)
4. Pennsylvania (44,560)

Note: Kentucky and Montana do not allow self-bonding.

Note II: The US Office of Surface Mining Reclamation and Enforcement is starting the rule-making process to "strengthen the regulations of self-bonding" in response to "the increased market volatility in the coal industry." AES Premium Members have access to the OSMRE [statement](#).

Nuclear

- **31 countries have nuclear power plants** and they [produce about 11 percent of total global electricity](#). About a dozen countries depend on nuclear for at least a third of their power, including France (75 percent), Hungary and Ukraine (50 to 55 percent). Nuclear produces about 20 percent in the US and Britain (not counting the new Hinkley Point plant, set to come on line in 2025.)

Renewables

- **Recommended: The DoE has released its 2016 "Revolution...Now" report.** This report highlights the progress of five clean energy technologies: wind turbines, solar technologies for both utility-scale and distributed photovoltaic (PV), electric vehicles and light-emitting diodes (LEDs). [Visit your AES account](#) for access to this valuable (and free) report.

- **The top 5 states that produce electricity with renewable sources** plus hydro (as a percent of the total; first half of 2016):

1. Iowa (48%)
2. Vermont (44%)
3. Kansas (39%)
4. Oklahoma (39%)
5. California (36%).

Note: Texas has increased its renewables production by the largest absolute amount, but only 17% of its electricity is produced with renewable sources.

Note II: States with the lowest production electricity by renewable sources (2% or less): Ohio, Missouri, Delaware, Kentucky, Tennessee, New Jersey, Massachusetts, Rhode Island and Florida.

- **Renewables on the retreat:** In California, sales of new EV hybrid automobiles account for about 4.5 percent of all new-vehicle sales statewide. That's [down](#) from nearly 7 percent in 2013; rooftop solar, which has surged more than 1,000 percent since 2010, will barely grow next year. Residential installations are expected to increase by 21 percent this year, but in 2017 that [rate is expected to drop](#) to about 0.3 percent. The change comes as utilities push back against mandates to buy the electricity and shifting tax policies curb demand.

- **No one knows if automated vehicles will reduce or increase energy consumption** related to transportation. A respected study by NREL says that it will reduce consumption by about 90% or could increase it by about 200%. AES Premium Members have access to the [NREL report](#).

- A new study on the **true costs of solar** energy has found that costs associated with the [variability](#) inherent in solar energy (i.e., the unpredictability of when the sun shines) is not as costly as installation of solar panels. AES Premium Members have access to the peer-reviewed [abstract](#).

Policy

- **Featured:** At root, the case against the Clean Power Plan is about [whether](#), not how, power plants can be regulated by the EPA for carbon dioxide emissions. So far, arguments have centered on one

issue: **are the changes mandated by the CPP "transformative?"** If so, then such changes can only be required by Congress, thus making the CPP unconstitutional.

- Of the 27 states challenging the EPA Clean Power Plan, Arkansas, North Carolina, Oklahoma and South Dakota are **already [on track to meet the CPP targets.](#)**

- **PRESIDENTIAL MEMORANDUM:** for the Heads of Executive Departments and Agencies

SUBJECT: Climate Change and National Security

DATE: September 21, 2016

MESSAGE: By the authority vested in me as President by the Constitution and the laws of the United States of America, I hereby direct the following:

SECTION 1. Purpose. This memorandum establishes a framework and directs Federal departments and agencies (agencies) to **perform certain functions to ensure that climate change-related impacts are fully considered in the development of national security policies, and plans.**

SECTION 2. Background. **Climate change poses a significant and growing threat to national security, both at home and abroad.**

AES Members have access to the full [memorandum.](#)

- Inside the Beltway: US Department of Energy Secretary Ernest Moniz is [talking to Congress](#) about passing **tax credits for utilities that [burn coal more cleanly](#)** and allowing **private companies to [dispose](#) of the growing stockpile of nuclear waste** at US power plants. Previous attempts to store nuclear waste on public lands have been blocked.

- California regulators have established the first **mandatory [energy efficiency](#) standards for computers and monitors** - gadgets that account for 3 percent of home electric bills and 7 percent of commercial power costs.

Climate

- **The most sustainable city in the world?** Zurich. **The most sustainable city in North America?** Vancouver. **The most sustainable city in the United States?** New York City. AES Premium Members have access to the [full report and rankings.](#)

- A coalition of 25 military and national security experts, including former advisers to Ronald Reagan and George W. Bush, have warned that **climate change poses a "significant risk to US national security and international security"** and requires more attention. AES Premium Members have access to the [Briefing Book](#) by the Climate and Security Advisory Group.

- The chemical hexavalent chromium, also known as chromium-6, gained notoriety as the carcinogenic water contaminant that Erin Brockovich sued a utility over in California. **Water supplies in a number of US cities appear to [contain unsafe levels of chromium-6.](#)** The worst offenders: City of Phoenix, Missouri American Water (St. Louis County), City of Houston, City of Los Angeles Department of Water and Power, and Suffolk County Water Authority in New York.

- About 5,600 animal species and about 30,000 plant species receive some sort of endangerment protection. The upcoming Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) 17th Conference of Parties (CoP17) in Johannesburg, South Africa, held through October 4, **will [decide which new species will receive protection and which will not.](#)** About 500 species, ranging from tropical timbers like rosewood and agarwood to marine species like corals, nautilus, sharks, and rays to iconic mammals like African elephants and lions, and lesser-known ones like pangolins, are up for review.

- **About 100,000 [beetle-infested trees die every day](#) in Wyoming ... and also in Colorado, Montana,**

Idaho, and especially California.

- **[Obama is getting a new namesake](#) — a species of fish.** Discovered 300 feet deep in the waters off Kure Atoll, the fish reminded scientists of Obama's campaign logo. The dorsal fin coloration of the male is a circular red spot ringed with blue. It's the one fish known to live only within the Papahānaumokuākea Marine National Monument that President Obama set aside for protection.

Electricity, Utilities and Power

- **Utilities are collecting more data** about how their networks perform and how their customers use their services, but the industry is woefully behind other industries in terms of knowing what to do with all that information or how to take advantage of the "cloud." At the same time, the data is vulnerable to security risks. AES Members have complimentary access to the [publication](#), "*Guilty Knowledge, What the Government Knows About the Vulnerability of the Electric Grid, But Refuses To Fix.*"

- **[A number of Nevada casinos](#)** - including MGM Resorts, Wynn Resorts, Mandalay Bay, and the Peppermill - are seeking to separate from NVEnergy. So far, **only MGM** (which owns most of the Las Vegas strip) has broken ties and will rely entirely on the independent production and procurement of energy. **MGM was Nevada Power's biggest customer**, accounting for 4.86 percent of total power sales in the state, and had to pay about \$87 million to end its service.

- **[FERC has decided to reevaluate](#) the way it looks at market power** when considering requests for merger approvals or for the authority to sell power and ancillary services at market-based rates.

- In China, [coal-fired power stations](#) have priority to supply power to the grid over all other options.

- **Tesla just won a bid** to supply 20 megawatts (80 megawatt-hours) of [grid-scale energy storage](#) Powerpacks to Southern California Edison to help prevent electricity shortages that are resulting from the Aliso Canyon natural gas storage leak.

Basic Research and Tech-to-Markets

- **The promise of zeolites:** [a team of chemists](#) at Stanford University and at the University of Leuven (KU Leuven) in Belgium have found a more energy-efficient way of making methanol, an important industrial chemical used in products such as paints, plastics and glues. AES Premium Members have access to the article [abstract](#).

- **Featured story:** After extensive testing, it appears that the manufacturers of [the best selling TV's](#) in the US - Samsung, LG, and Vizio - installed software manipulation devices that overstate energy-savings by about 45%. This software appears similar in function to the devices installed by Volkswagen to override the exhaust systems. The TV software seems to switch off power-saving features as soon as consumers make routine changes to their main picture menu during installation.

- The clock is winding down (12/31/2016) to **start construction** of new wind, geothermal, biomass, landfill gas, incremental hydroelectric and ocean energy projects to qualify for federal tax credits.

- Shell Canada says the first [carbon capture](#) project in the oil sands has **successfully stored one million tons of carbon dioxide** deep underground after a year of operation. The company developed the \$1.35-billion Quest project with the help of \$745 million from the Alberta government and \$120 million from Ottawa.

— FEATURES —

Online Professional Development Courses

- **Recommended:** [Solar Executive MBA Training](#) - **Rigorous, hands-on business training for solar professionals.** Learn all of the skills to finance the commercial solar projects in your pipeline. Includes \$25k worth of legal contracts and modeling tools.

Recommended: [Electric Industry Overview](#) (online course) - The course provides students with a **basic understanding of electricity and power**; the components of the physical electric system and how it delivers power; how and why the electric industry is regulated; areas of the electric industry that are competitive and how this affects markets; and how electric markets function. AES Members can use or share the coupon code (energysociety20) for a 20 percent discount when they [register](#) for this course, or for anything at Energy Dynamics.

- **[Advanced Solar + Storage](#): Master residential, commercial, and utility-scale solar-plus-storage systems from battery and solar PV expert Wes Kennedy.**

- [A Career in Engineering](#) (aka, 'An Introduction to Engineering'). This course takes students through all the different types of engineering and their specialties. (8 hours of total instruction and work.)

- [Chemical Engineering for Non-Engineers](#), by Octagon Management. This course offers an introduction to some of the main subject areas involved in chemical engineering.

Quotes

"Net metering was just an artifice set up to provide some payment to people that represented the value that they were contributing back to the system. We now need to get to a much more transactive system that has more market-based values incorporated into it."

- SolarCity Corp. Chief Policy Officer Jon Wellinghoff

"If you invest in policy that creates a great outcome for a whole industry, ... what you'll do is you'll very quickly stop focusing on smaller issues."

- Solar Energy Industries Association Chair Nat Kremer

"When it comes to some of the beliefs about the challenge of the energy transition, which may be founded on less than solid fact, our industry should not shy away from being the contrarian in the room.... With our knowledge, we have some indispensable — and you could say, contrarian — insights to offer."

- Ben van Beurden, chief executive of Royal Dutch Shell