



## ENERGY MATTERS

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

Volume 2(3); January 23, 2017

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## — HEADLINE NEWS —

### Conventional

#### Petroleum

- AES original content: **The global average GDP that comes from [revenues generated by oil](#) is 2.5 percent.** However, this is the *arithmetic mean* average. More significantly but less known, the *range* of this arithmetic mean has never been greater: in Venezuela, oil contributes one quarter of the national GDP; in some Gulf states, it approaches 50%; in Russia, oil and gas together make up 25% of GDP. These petro-states are [vulnerable](#) because they do not have the technological advantages enjoyed by the major oil producers in North America. Petro-states that failed to adopt new innovations are paying a terrible price. For instance, in Venezuela, the country with the most oil, inflation is forecast to top 1,600% this year.

#### Gas

- **The North America LNG export rush is on** - there are 50+ proposed LNG export projects in the U.S. and Canada, but only [six will likely receive a positive final investment decision](#): Lake Charles LNG and Pacific NorthWest LNG, as well as expansions at Corpus Christi Liquefaction LLC, Cameron LNG, Freeport LNG Development LP, and Sabine Pass LNG.

#### Coal

- AES gets the story right: **coal production has declined slightly since 2008, but the ratio of workers to mined coal has fallen off dramatically.** Which begs the question: does the industry have any reason to take on unnecessary labor expenses? [AES Members have access to the graph](#) that charts this remarkable change.

#### Nuclear

- Nuclear developer NuScale Power LLC has submitted to the US Nuclear Regulatory Commission the **first-ever design certification [application](#) for small modular reactors.** Rumor suggests that the NRC is considering this as a "favorable" application. AES Members can view the [special summary](#) on small nuclear reactors (SNRs) published in *Energy Matters*.

## Renewables

- In an ironic twist, **Saudi Arabia has launched a “massive” [renewable energy push](#)**, spending as much as \$50 billion to reach a goal of at least 10 GW of electricity from solar and wind as well as a nuclear reactor program that will produce about 2.8 GW of new electric capacity.

- The **top 3 states for corporate access to clean energy** are: Iowa, Illinois, and New Jersey. AES Members have access to the [Top 10 list](#) and to the original report.

- An easy to miss but powerful statement hidden in Apple's *Environmental Responsibility* report: "When it is not feasible to power our facilities with onsite renewable energy, we match our load with renewable energy generated by Apple-owned projects." Put another way, **the utility power company for Apple is ... Apple**. AES Members have access to Apple's [report](#).

- **Perhaps it will be corporate America that leads renewables?** Twenty-two of the Fortune 100 companies have committed to procuring 100 percent of their energy from renewables, and 71 have a public target for sustainability or renewable energy. Two groups of companies stand out among those who have signed the so-called [RE100 pledge](#). The first is the early adopters, and they tend to be technology companies from Silicon Valley, like Google. The second notable group is the manufacturing stalwarts - companies that may be viewed as less progressive and more risk-averse than their Silicon Valley counterparts. These companies may ultimately drive a broader long-term private-sector commitment. The group includes Coca-Cola Enterprises, General Motors, Johnson & Johnson and Proctor & Gamble.

- **State solar spotlights: California and Florida**

\* California - emissions from EVs powered by America's electricity grid are higher than those from highly efficient petrol engines ... [except in California](#).

\* Florida - SolarCity's entrance into the Sunshine State could be a [turning point](#) for the industry.

## Policy

- **In the final hours of the Obama Presidency the departing administration completed a few last minute tasks ...**

\* **Response:** the US DoI finalized the Stream Protection Rule (aka, US Water Rule), drawing [scorn](#) from critics - "this action is outrageous!" David McKinley, R-W.Va., chair of the House Coal Caucus.

\* **Retreat:** the US EPA [walked away](#) from efforts to finalize the draft model trading rules associated with the Clean Power Plan; instead, the EPA is posting the working draft as is.

\* **Rejection:** a deadline for comments on fuel efficiency standards, which allowed regulators to finalize the standards before President Obama left office. This "[decision](#)" keeps in place the 54.5 mile-per-gallon fuel economy target for vehicles in the 2025 model year.

\* **Release:** Phase II CAFE Standards – 14 months ahead of schedule. (When does the EPA ever release a report so far in advance?) AES Members have access to the [midterm EPA standards](#).

\* **Refusal:** the EPA [denied](#) 38 petitions for review of the Clean Power Plan, and 22 petitions for an administrative stay of the rule.

\* **Replenished:** transferred \$500 million into the UN's [Green Climate Fund](#).

- **The Obama regulations [most disliked](#) by the Heritage Foundation:**

\* The UN Green Climate Fund.

\* Energy conservation standards on washing machines, ceiling fan lights, freezers, and furnaces.

\* Department of Defense spending on renewables.

\* The SuperTruck [initiative](#).

\* All special envoys for climate change.

\* Ambient air quality standards.

[Honorable mentions](#): regulation of methane emissions; restriction of coal mining near streams.

- It is customary for departing federal agency secretaries to write an Exit Memo as a reference for the incoming administration, for policy-makers, for media.... AES Members have access to outgoing **Secretary of Energy Ernest Moniz's [Exit Memo](#)** that summarizes past accomplishments, current transition requirements, and future expectations. At the same time, the incoming Trump administration has posted its "[America First Energy Plan](#)" on the White House website.

- **An interesting case of NIMBY: Maryland has petitioned the EPA**, claiming that 36 electric utilities in Indiana, Kentucky, Ohio, Pennsylvania and West Virginia are emitting air pollutants that are in violation of the 2008 and 2015 ozone national ambient air quality standards. AES Members have access to the [petition](#).

- **Editorial note**: Partisanship aside, it is unclear and uncertain what the new Trump administration expects of the DoE, EERE, ARPA-e, etc., or whether their budget requests will match their "[fluid](#)" rhetoric. Of course, the American Energy Society will keep a very close eye on all developments.

## [Climate](#)

- Featured resource: AES recommends a [new financial tool](#) that tracks companies' efforts to prepare for climate change. (The app is used by the United Nations, among others.) *Energy Matters* recommends users start with "Methodology" and then "Toolkit."

- A new [time-lapse video](#) shows smog rolling into Beijing, offering a new perspective on the pollution that plagues the capital city.

- The region that is heating the fastest in the world? **The [US Northeast](#)**, which will reach the critical 2-degrees Celsius warming threshold about two decades before the rest of the world. AES Members have access to the [peer-reviewed paper](#).

- **Scientists have mapped the [peatland of the Congo Basin](#) in Central Africa** (an area larger than New York State). Peat - which consists of slowly decomposing vegetation in swamp forests and has been accumulating for more than 10,000 years - is a natural storehouse of carbon taken from the atmosphere. The peatland of the Congo Basin stores about 30 billion metric tons of carbon, or the rough equivalent of two decades of carbon fuel emissions in the United States.

- On the one hand ... **carbon dioxide emissions** from energy use in the US for the first half of 2016 were the *lowest* since 1991. (AES Members have access to the [EIA report](#).) On the other hand, global atmospheric **methane emissions have risen** sharply, particularly in the last two years. Many scientists are focusing on methane emissions from agriculture. AES Members have access to a recent [peer-reviewed paper](#) on methane emissions.

- The rusty-patched bumblebee (once common and abundant across 28 states from Connecticut to South Dakota) is now on the **endangered species list** for the first time in a "race against extinction." AES members have access to the US Fish & Wildlife Service [statement](#).

## [Electricity, Utilities and Power](#)

- **Recommended resources for AES Premium Members:**

- *Featured report*: The Quadrennial Energy Review Task Force released the second

installment, *Transforming the Nation's Electricity System*. [QER 1.2 summary](#): the electricity system desperately needs modernization, and offers 76 recommendations.

- "[How solar energy can \(finally\) create value](#)," by Frankel, D., Perrine, A., and D. Pinner, of McKinsey & Company, 2016; pp. 1-5.
- Energy efficiency isn't as popular a topic as stories about generation, but if you care about energy, then you really ought to care about the IEA report on "[Energy Efficiency](#)."
- "Scaling Success; Recent Trends in Organizational Energy Management," a [longitudinal study on energy management](#)," by EDF.
- The US DoE "[Guide for Climate Change Resilience Planning](#)," (100 pages).

- **The warmer climate is having a negative effect on power company revenues.** The US had its second-warmest year in the 122-year period of record, which reduced natural gas consumption in the residential and commercial sectors by 7% and 4%, respectively, from the previous year. AES Members have access to EIA [Current Issues](#) and [Trends](#) reports.

- **Office buildings with data centers use significantly more power than office buildings without data centers**, and the difference between the two is substantial ... depending on the size of the building and/or data center, sometimes 87% or more.

- [By the numbers](#)... The nation has 7,700 power plants (ranging from coal-fired to nuclear) and 55,800 substations. Some 707,000 miles of high-voltage transmission lines link the two and 6.5 million additional miles of local lines spread out from the substations.

- At its current rate, **the US will become a major exporter of energy by 2040**, while using only about 5 percent more energy

### *From Basic Research to Tech-to-Market*

- Researchers at Stanford recorded **real-time scans of self-healing nanoparticles** at near-atomic-scale resolution - another step toward building a better battery. AES Members have access to the [peer-reviewed paper](#).

- Researchers at Oak Ridge National Lab were conducting research on contaminants in water when they [found another way to remove carbon dioxide from ambient air](#).

- [Ford is building 13 new electric cars](#), including models like an F-150 Hybrid pick-up, a 300-mile electric SUV, and a hybrid Mustang.

- **Carbon taxes don't have the best track record.** Norway set a reasonably high carbon tax way back in 1991, yet the country's emissions fell by just 2.3 percent from 1990 to 1999. In British Columbia, where a tax was implemented in 2008, modest emissions reductions have been traced back to the fallout from the Great Recession rather than the tax itself.

- Natural gas is becoming a more widely used fuel for generating electricity, but it has also made strides as a **transportation fuel**. There are now more than 160,000 [NGVs in the US](#); the worldwide figure is approximately 15.2 million. AES Members have access to DoE [summary](#) of NGVs from the Alternative Fuels Data Center, and more for [Members of AES](#).

- The US OEM will hold a **lease sale of more than 48 million acres offshore** Alabama, Louisiana and Mississippi for oil and gas exploration and development. The agency will [livestream](#) the lease sale on March 22, 2017.

- There is a new energy market developing in **California**: [electric vehicle charging infrastructure](#). Right now, two models are competing to build the adopted EV charging station network: one model projects that a single entity will own all charging stations; the other model allows independent providers to own individual charging stations.

## — FEATURES —

### *Features: What We Are Reading*

- [Can Saudi Arabia Survive With Oil Below \\$60?](#)
- [The Irreversible Momentum of Clean Energy](#)
- [Is 2017 the Year an Electric Car Breaks onto the USA's Top 20 Best-Selling Cars List?](#)
- [What to Expect in Energy in 2017](#)
- [Obama Makes the Case for His Clean Energy Legacy](#)

### *Quotes*

"Disregard' for the consequences of its actions has become the trademark of the EPA for the last eight years.... I look forward to ushering in wholesale change at the EPA."

- John Barrasso, incoming head of the EPA.

"We tried to change the outreach and messaging in rural America in a number of ways, but ... has it changed the rhetoric that people hear? It hasn't."

- Gina McCarthy, outgoing Director of the EPA.

"If we're doing something that's cost-effective, that's increasing readiness and increasing resiliency, I cannot comprehend a new administration that would come in and say, 'Increase your costs, consume more energy and water, be less resilient and don't be ready to deploy your troops. That is counterintuitive to me."

- Katherine Hammack, Assistant Secretary for the Army, for installations, energy and environment.

"You will never reach your destination if you stop and throw rocks at every dog that barks."

- Winston Churchill