



## ENERGY MATTERS

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

Volume 16(2); August 8, 2016

### Table of Contents:

#### [Headline News](#)

Conventional, Renewables, Policy, Climate, Electricity and Power

#### [Features](#)

Peter Lyons, Donald Hoffman, Sarah Novose, and Richard Kauffman

## — HEADLINE NEWS —

### Conventional

#### Petroleum

- **The oil price rally [ended](#) before it really began.** Major players ([like](#) Exxon, Shell, ConocoPhillips, Chevron, etc.) are announcing record losses; Canada has had its worst GDP growth in years; oil cities like Dubai are in [crisis](#); even [ISIS](#) is feeling the pressure as oil revenues continue to collapse. What happened? Oversupply. [OPEC](#) oil output is going to reach another record high: Iraq is pumping more, Saudi Arabia has not adjusted its production levels; Nigeria has resumed exports after stopping the terrorist attacks on its pipelines; the US is speeding up permits for drilling on federal and Indian lands; and the number of rigs in operation is starting to rise again. Some AES thought-leaders are preparing for oil to drop below \$40/barrel for an extended period.

- In volume 15, *Energy Matters* reported that Saudi Arabia is now producing oil at an unheard of cost of about [\\$10/barrel](#). However, some US companies have said new fracking innovations will allow them to **produce at [\\$2 per barrel](#)** and remain profitable.

#### Natural Gas

- The [Bakken pipeline](#) - through North Dakota, South Dakota, Illinois, and Iowa - has received its final state permit from the US Army Corps of Engineers and is now under construction. When completed, the **Bakken pipeline will be as long as the proposed Keystone XL**. AES Premium Members have access to the Army Corps [report](#).

- Natural gas futures are [rising](#) on speculation that supplies are finally falling. However, **production numbers tell a different story** as forecasts show output climbing, explorers outpacing their own projections, and some producers ramping up output.

#### Coal

- In the last four years, 346 US coal-burning plants have shuttered or [closed down](#) and Central Appalachia has suffered the most, producing [half](#) of what it once did just a few years ago. But it seems that **the US coal industry has [hit bottom](#)** - there are now signs of an [improving market](#).

#### Nuclear

- **The proposal to include zero emission credits (ZEC) as a component of New York's clean energy standard could be a [lifeline for nuclear power](#)**; this important incentive mechanism has the potential to stave off the early retirement of three nuclear power plants in upstate New York and could serve as a model for other states with nuclear power in their energy mix.

## Renewables

- **Breaking news:** Rocky Mountain Institute (RMI), in partnership with ROCSPOT, a Rochester, New York-based community organization, has issued a [Request for Proposals \(RFP\)](#) to **develop at least 16 megawatts (MW) of solar generation in Rochester.**

- Of much greater impact or import than *Pokemon Go!* is the [M-Kopa solar power kit](#) in **Africa**. The \$200 (£150) device comes with two LED bulbs, an LED flashlight, a rechargeable battery, and a phone adaptor, all charged by a small solar panel. More than 300,000 M-Kopa devices have been sold to consumers in East Africa, many of whom are not connected to an electricity grid.

- **There are about 49,000 operating [wind turbines](#) in the US**, capable of producing 74,821 megawatts of power. [Ranking](#) of installed wind power capacity, by state:

1. Texas
2. Iowa
3. California
4. Oklahoma
5. Illinois
6. Kansas

- **Pumped storage is making a comeback.** This is a process in which large volumes of water are pushed uphill when there is surplus electricity, and then gravity moves it back down through turbines to generate hydroelectric power when extra kilowatts are needed. FERC has authorized [24 total pumped storage projects](#) in the last year; in the year prior, FERC issued 2 licenses.

- **[Solar prices: historical, current and future goals](#)**, in \$USD/W:

	<u>2010</u>	<u>2015</u>	<u>2020</u>
Residential	\$6.20	\$3.10	\$1.60
Commercial	\$5.00	\$2.20	\$1.30
Utility	\$4.10	\$1.80	\$1.10

## Policy

- **The Buzz Inside the DC Beltway:** Congress almost always takes a recess in August. Not coincidentally, it is also the month when federal agencies typically roll out new regulations. **AES will track new regulations on its [website](#), as well as the pending DC Circuit Court decision** regarding the Clean Power Plan in September.

- Breaking news: It appears as if the criminal case against PG&E for the 2010 San Bruno pipeline blast is over. US federal District Court Judge Thelton Henderson [cut nearly all](#) of the \$562-million penalty against PG&E - he did not explain his reasoning. Speculating, just prior to the decision the company had submitted a flurry of filings that disputed the proposed fines' legitimacy, while *the prosecution had given the jury no way of connecting the felony charges to specific*

*financial terms.* **Jurors had no concept of an appropriate fine under the guidelines established by the federal Alternative Fines Act, so the judge stepped in.**

- EPA scientists decided that hydraulic fracturing does "not present a [widespread systemic](#) threat" to the nation's drinking water supply.

- The Congressional Budget Office, a studiously non-partisan US federal agency, has **warned lawmakers about the fiscal [risks of climate change](#)**. The agency also recognized that humans are playing a role in fueling rising temperatures and a shifting climate. AES Premium Members have access to the CBO report.

- Even though the Clean Power Plan has been opposed by 23 states and been "stayed" by the Supreme Court, there is a smaller provision within the Plan that is enthusiastically supported: the **Clean Energy Incentive Program (CEIP)**, a voluntary measure that helps states meet CO2 reduction goals by removing barriers to investment in energy efficiency and solar in low-income communities. AES Premium Members have access to the CEIP [goals](#).

- **Featured story: The Renewable Fuel Standard (RFS)**, established in 2005, requires transportation fuel, home heating oil, and/or jet fuel to use a particular volume of renewable biofuels each year. Producers can use actual "wet" gallons, or they can purchase credits from other obligated parties - **these credits are known as [RINs](#)**. (Note: this provision was originally requested by the petroleum industry so they could over-complying in certain markets and apply the "extra credits" to other areas of the country.) RIN prices are scheduled to increase from \$172 million in 2015 to \$300 million in 2017, and consumers are using less fuel, increasing RIN credit prices even more. The inflation of RINs has hit smaller producers hard - they cannot blend their own gasoline and they cannot afford the higher RIN costs. As a result, investors are unloading their equity in small merchant refiners and have [downgraded](#) the entire segment, increasing the likelihood of [sector-wide bankruptcies](#) and significant market disruption.

## Climate

- **Methane and carbon dioxide** have two things in common: they are both composed of carbon, and they both heat the atmosphere. The [differences](#)? Carbon dioxide accumulates in the atmosphere and stays there for 500 years or more; methane only 12 years. On the other hand, emitting methane into the atmosphere is akin to throwing kerosene on a fire - it [warms the atmosphere](#) a lot over a very short period of time before dissipating. AES Premium Members have access to the [abstract](#) of the peer-reviewed study.

- Coal produces about 45 percent of the greenhouse gas emissions that contribute to climate change, and methane a bit less than half that total. However, **scientists may have significantly [underestimated](#) the amount of sulfur dioxide emissions** — a pollutant that can cause multiple harmful health and environmental impacts and even exacerbate global warming. Sulfur dioxide pollution can come from a variety of sources, both natural and industrial, including volcanoes, oil refineries and the burning of fossil fuels. AES Premium Members have access to the [article](#).

- China, the world's biggest polluter, more than tripled its burning of coal from 2000 to 2013. But **China's coal consumption [peaked](#)** when the economy began to slow in 2014. Now, CO2 emissions are beginning to fall, putting the country way [ahead](#) of its carbon reduction targets.

- **Featured story: The Antarctic ozone "hole" first identified in the mid-1980s is beginning to "heal."** A separate study has found that **sea ice in the Antarctic is [increasing](#)** in spite of a warming. And, the tip of **the Antarctic peninsula is starting to [cool](#)**. AES Premium Members have access to these peer-reviewed abstracts.

- The Royal Botanic Gardens at Kew in the UK has conducted the "State of the World's Plants." The conclusion: 1 in 5 plants face extinction. AES Premium Members have access to the [report](#).

- The Marshall Islands are made up of five main islands and 29 coral atolls spread across three-quarters of a million miles of ocean, but they amount to just 70 square miles of actual land. As the seas rise, the land disappears. Among the many problems for island residents is that **international law [does not recognize people displaced by climate change as refugees](#), which leaves them without legal protection or rights ... or property, for that matter.**

### *Electricity, Utilities and Power*

- Following a **sudden rise of cyber hacking of utility companies**, the White House released a guide outlining how the federal government will coordinate with the private sector in the event of a significant cyber incident. AES Premium Members have access to the [Presidential Policy Directive](#).

- A number of power companies are exploring the possibility of **[turning old wind farms into "new wind farms"](#)** in order to take advantage of federal production tax credits per the guidance of the revised code recently issued by the Internal Revenue Service.

- Google, Facebook, and Microsoft are in a [legal battle](#) with Berkshire Hathaway Energy subsidiary MidAmerican Energy Co. over the development of a large wind farm in Iowa. The tech companies have threatened to hold up the development of the project until there is a **guarantee of cheaper rates for customers**.

- The same FERC administrative law judge who just six months ago said the base return on equity for members of the Midcontinent Independent System Operator Inc. (MISO) should be lowered from 12.38% to 10.32% has now recommended that it be **[dropped even further](#), to 9.7%**.

- About 21,357 MW of coal, gas and nuclear capacity is **["at risk"](#) of retirement** in the next 3 years.

- Utilities operate complex, interconnected networks and are collecting significant amounts of data about how their networks perform and how their customers use their services. But, [industry insiders](#) believe that **utilities are woefully behind other industries** in terms of knowing what to do with that information or how to take advantage of the "cloud" to communicate with their customers.

### *From Basic Research to Technologies and Markets*

- Apple and Starbucks have issued **green bonds**, a new financing mechanism that raises money to pay for a range of private environmental and sustainability initiatives. Both companies said that their notes were **["significantly oversubscribed"](#)**.

- Germany's Daimler will [unveil](#) a prototype of an **electric-powered Mercedes car and an SUV**, both with a 500-kilometre (310 miles) range.

- **Californians bought [more](#) electric cars in June than the rest of US combined**. However, outside of California, nearly 75 percent of all drivers who had leased hybrid or electric cars have [swapped them](#) for all-gas cars this year.

- Some of the largest shale firms in the US [stepped up their hedges](#) against a drop in oil prices— locking in prices for around \$10 a barrel below both current prices and break-even levels.

- The global **energy storage market is [doubling this year](#)**, a growth rate that surpasses the most optimistic forecasts. The primary reason for the growth: the cost of batteries continues to decline.

- Google is now using its [DeepMind artificial intelligence technology](#) (DeepMind AI recently trounced one of the world's best human players of the notoriously difficult game "Go") to **cut electricity bills at its energy-guzzling data centers**. Using the AI algorithms, researchers found efficient ways to distribute electricity throughout Google's network of servers, the digital backbone of the Internet.

## — FEATURES —

### *Featured Individuals*

- **Peter Lyons** (former Assistant Secretary of Nuclear Energy for the Department of Energy)
- **Donald Hoffman** (past President, American Nuclear Society)
- **Sarah Novosel** (Calpine senior vice president for government affairs)
- **Richard Kauffman** (Chairman of Energy & Finance for New York)

On June 2, 2016, the situation for nuclear power in the US did not look good: two nuclear plants in New York had been selected for shutdown in advance of their license expiration dates, and many others around the country were rumored to follow. But on that date a number of key officials put aside their differences and came together to work out a compromise. Their solution? [Zero Emission Credits](#) - in short, a guaranteed revenue stream that will cover costs associated with basic operation and maintenance.

In this age of political disunity, the AES would like to recognize what has become rare in American politics: consensus. Representative among all those who contributed: **Peter Lyons** and **Don Hoffman** from the nuclear sector, **Sarah Novosel**, who represented the renewables sector, and **Richard Kauffman**, Chairman of Energy & Finance for New York of Governor Cuomo's energy team. These individuals and many others put aside their own professional aspirations and found common ground. Perhaps this will be the template that inspires other states in search of their own unique energy solutions.

### *Quotes*

- "People are worried. There's talk of oil prices going south of \$40."  
Michael Lynch, president of Strategic Energy & Economic Research

- "The move from \$26 to over \$40 in crude oil, and natural gas from less than \$2 to \$3 was easy, but the reality is these prices simply don't work. The market is not in balance. The next time prices move will be a key indicator for the world as to what US producers can and will do."  
A. James Teague, Enterprise Partners, on the prospect of another decline of oil prices.