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US Coal On Track For Record Capacity Decline, Closing 15.4 Gigawatts



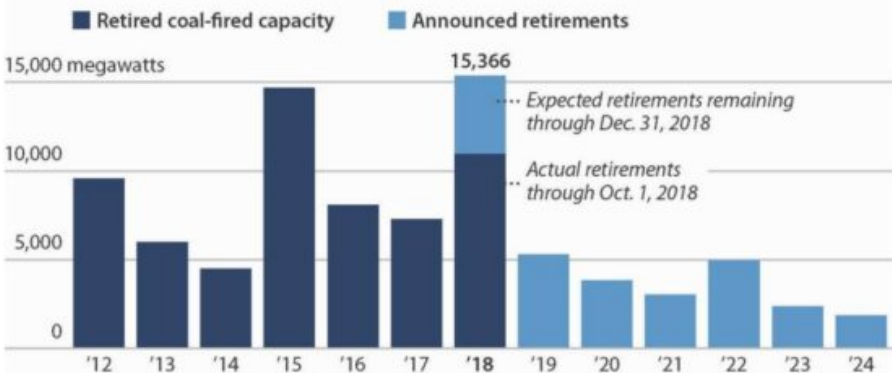
October 29th, 2018 by [Joshua S Hill](#)

The closure of coal-fired power plants across the United States is currently on track to set a new record this year, with at least 22 plants in 14 states worth 15.4 gigawatts (GW) going dark, according to a new report published by the Institute for Energy Economics and Financial Analysis.

The Institute for Energy Economics and Financial Analysis (IEEFA) currently expects a total of 15.4 GW of coal-fired capacity to close during 2018 — made up of 44 units at 22 plants in 14 states across the United States. Already this year 11 GW has been closed, and IEEFA expects the trend to continue through to the end of the year, “easily” exceeding the record 14.7 GW worth of coal-fired generation capacity which was closed in 2015.

Coal-Fired Electric Generation Retirements

2018 is likely to tally a record level of coal-fired capacity retirements, two-thirds of which were only announced in 2017, and new announcements keep adding to the list of closures expected over the next six years.



Sources: EIA; S&P Global; IEEFA research (2017-2024)

“The competitive environment for coal-fired power in the generation marketplace is becoming ever more challenging as the price of renewables continues to fall and as natural gas prices are expected to remain low for the foreseeable future,” said Seth Feaster, and IEEFA data analyst and author of the report.

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Further, the IEEFA expects an additional 21.4 GW of coal-fired capacity closing over the next six years. This will bring the total coal-fired capacity closed between 2018 and 2024 to 36.7 GW — made up of 117 units. This will cut the country's 246 GW coal-fired power fleet by 15% through to 2024.

In 2018, coal plant closures have taken place or are expected to take place in Florida, Indiana, Kansas, Kentucky, Maryland, Minnesota, Missouri, Ohio, Pennsylvania, Tennessee, Texas, Virginia, West Virginia, and Wisconsin.

Among those expected to be particularly hard-hit by the transition away from coal-fired generation are coal-plant economies in the Ohio River Valley, with employees from FirstEnergy Solutions, Murray Energy, and Westmoreland Coal expected to be among those affected — although this is just a snapshot from a particular region, and not restricted solely to this region or these companies.

What's interesting — especially if we look at the reality for the coal industry on the ground, as compared to the political hot-air that takes up so much space — is that there is an incredible dichotomy between what politicians are saying and who is actually in control, and the decisions they are making. I spoke to the report's author, Seth Feaster, via email about this discrepancy between political promises and on-the-ground reality.

"The power markets are a vast, largely economic-based system run with several levels of state and federal involvement and many, many financially-interested players with tremendous clout and deep pockets — from utilities and transmission companies; companies providing the fuel — including the oil and gas industry — to the public ratepayers, commercial enterprises, and public entities that pay for power," Feaster explained. "Such a system is not easily changed because of a policy whim that would inflict great economic costs to the vast majority of the players, including the public that most state governments have some fiduciary duty to in regulating electric rates.

"Meanwhile, the coal industry, while it may loom large in the imagination and in some small regions of the country, is actually quite small, both in terms of jobs and its overall economic contribution nationally."

This last is potentially the most telling reality for the coal industry. As can be seen by the government's own numbers [leaked in January](#), swings and shifts in coal employment is measured in the hundreds of people, nothing more.

Which raises the question — who is eating coal's lunch? A [report from May](#) by researchers from North Carolina State University and the University of Colorado Boulder showed that, rather than putting the blame for coal's decline at the feet of the renewable energy industry and the attendant government support it received, it is actually the declining price of natural gas which is primarily responsible for coal's reversal in the US energy mix.

However, for Seth Feaster, he believes "This is a false dichotomy because the short answer is: it's both" renewable energy and natural gas causing coal's decline. Feaster continued, highlighting three parts to a longer answer that explains coal's decline and the rise of natural gas and renewables.

"It's renewables and gas, each independently undercutting the economics of coal generation," Feaster explained.

"In some parts of the country, like in the Ohio Valley, it's low-cost gas from fracking. Nationally, as we say in the report, the Energy Information Administration (EIA) expects natural gas' share of electric generation to be 35% in 2018 and 2019, up from 28% just



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five years ago. The technology disruption that is fracking (a combination of horizontal drilling and hydraulic fracturing, really) only started to have a meaningful impact about 10 years ago, so this has been a rapid change. Utilities are building new gas-fired plants — they expect gas prices to remain low for years; the plants are relatively inexpensive to build and run.

“In other parts of the country, especially the Great Plains states, it’s wind (mostly), but the impact of solar generation is starting to grow. Wind generation has been growing fast in states from Texas to North Dakota (where the best wind resources are), and wind undercuts coal on price in the power markets, so almost all the wind generation is used, and its market share has been surging. In at least four states (Iowa, Kansas, Oklahoma, and South Dakota), wind now accounts for 30% or more of each state’s annual electric generation.”

This last was highlighted **in April** by the American Wind Energy Association (AWEA) in its **U.S. Wind Industry Annual Market Report 2017** report. Overall, wind power generated 6.3% of US electricity in 2017, but in these four states — Iowa, Kansas, Oklahoma, and South Dakota — wind was generating over 30% of capacity, while 14 states are generating over 10% of their electricity from wind. Earlier this month, however, **new figures from** the US Government’s own Energy Information Administration (EIA) showed that wind and solar generation combined for at least 20% of total generation in a total of 10 US states.



The EIA highlighted more specifics about wind generation in the US, including the fact that Iowa acquired 36.8% of its electricity from wind in 2017. Further, in some months during 2017, wind accounted for more than 50% of in-state electricity generation in both Iowa and Kansas.

“It’s renewables and gas working together undercutting the economics of coal,” Feaster continued.

“Wind and solar are a lot less “intermittent” than most people think, especially when spread across large areas and at large, utility-scale projects. But they do ramp up and down — and gas generation happens to be well suited to ramp up or down across the day to complement the output of renewables. Coal (and nuclear power) are simply not able to ramp up and down across the day the way gas turbines can; they work best when run continuously — and coal plants in particular suffer greater wear and tear, especially since many are already decades old, when run this way.”

“Longer-term, renewables and storage are a threat to gas,” Feaster concluded.

“When renewables are paired with storage to smooth out the ups and downs, it not only undercuts the economics of coal, it’s starting to undercut the economics of natural gas generation in some places too. It’s already starting at the marginal cases: some analysts say that there will be few if any natural gas “peaker” plants — those only used at times of maximum demand during the highest demand times of the year — built west of the Colorado, because the cost of solar plus storage has fallen so fast. Renewables and storage have other benefits for the grid as well, including fast response and grid resiliency, increasing the value of adding them beyond just the simple economics of low-cost generation.

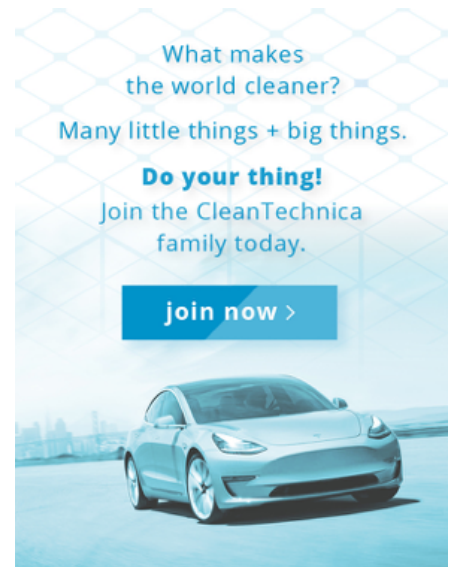
“The cost of wind, solar and storage continue to fall, a trend that means they will only be getting more competitive against coal and gas in the future.”

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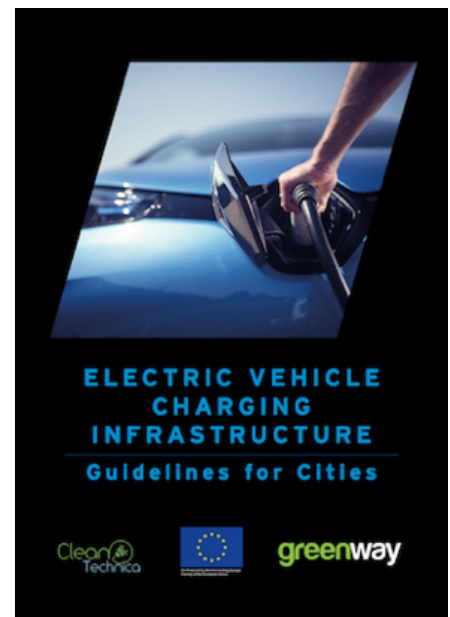
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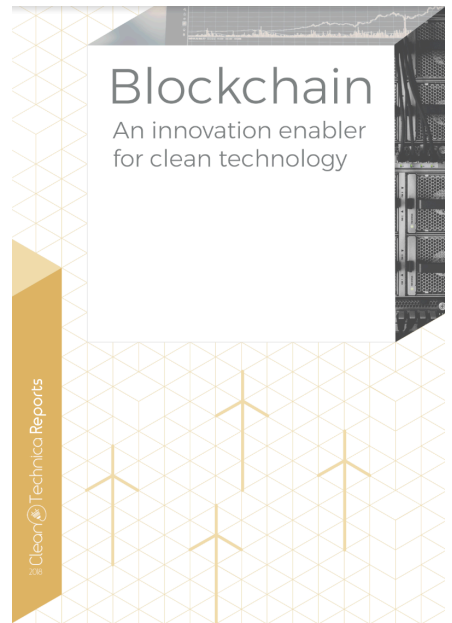


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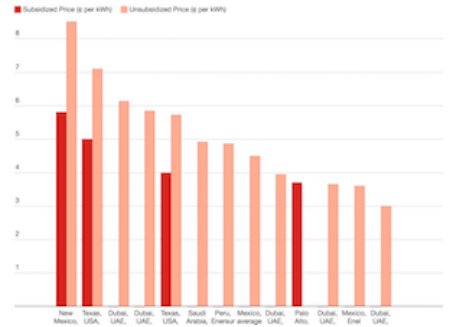
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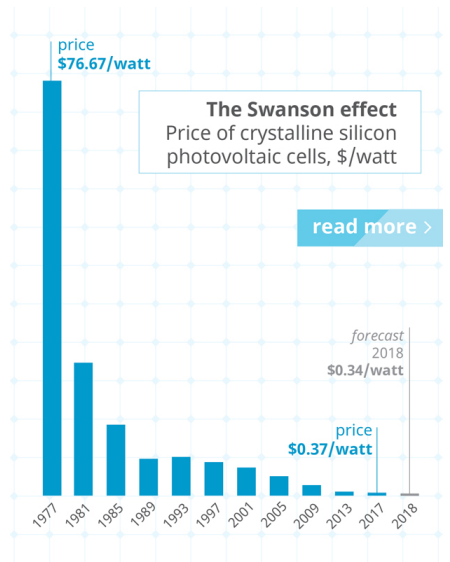
Wind & Solar Prices Beat Fossils

Low Solar Bids (2013-2016)

Prices agreed to under 20- and 25-year power purchase agreements. Note that the low bids in Texas are actually lower than the amounts represented in the chart... but exact figures have not been revealed.



Cost of Solar Panels Collapses






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