

ENERGY FACT CHECK: THE IMPACT OF RENEWABLES ON ELECTRICITY MARKETS AND RELIABILITY

May 16, 2017

On April 14, 2017, Energy Secretary Rick Perry issued a memorandum directing a study to “explore critical issues central to protecting the long-term reliability of the electric grid.” The memo raises questions about the electricity sector and the impact from increasing amounts of renewable energy generation.

HERE ARE THE FACTS ABOUT RENEWABLE ENERGY AND THE GRID:



CLAIM: Grid experts have expressed concerns about the erosion of critical baseload resources.



FACT: America’s biggest grid operators and reliability coordinators are reliably integrating large amounts of renewable energy today and have said they can continue to integrate even more renewables while lowering costs for consumers.

- PJM modeling found that its system could accommodate 30% variable generation with no loss of reliability (notably, it did not model higher amounts of renewable generation).
(PJM, September 2016, <http://www.pjm.com/committees-and-groups/subcommittees/irs/pris.aspx>)
- The Southwest Power Pool (SPP) found that its system could reliably operate with wind generation comprising 60% of its generating capacity.
(SPP, January 2016, [https://www.spp.org/documents/34200/2016 wind integration study \(wis\) final.pdf](https://www.spp.org/documents/34200/2016%20wind%20integration%20study%20(wis)%20final.pdf))
- The California Independent System Operator (CAISO) found that with modern controls, renewables ability to provide a range of grid reliability services was “comparable to, or better than, conventional resources.”
(CAISO, December 2016, <https://www.caiso.com/Documents/UsingRenewablesToOperateLow-CarbonGrid.pdf>)



CLAIM: There is a diminishing diversity of generation resources that is negatively impacting baseload power and grid resilience.



FACT: Renewable energy diversifies the nation’s generation resources and is making the power system more reliable, secure and economic. As we’ve seen in the past, an overreliance on any single one energy source puts reliability and affordability at risk.

- DOE has studied renewables providing at least 25-50% of electricity and found no concerns on any reliability metric, and could go as high as 80% with existing technology.
(DOE/NREL, 2012, http://www.nrel.gov/analysis/re_futures/)
- NERC has identified that reliance on a single fuel, “such as coal or natural gas in some markets, increases vulnerabilities, particularly during extreme weather conditions.”
(North American Energy Reliability Council, December 2016, [http://www.nerc.com/pa/RAPA/ra/Reliability Assessments DL/2016 Long-Term Reliability Assessment.pdf](http://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/2016%20Long-Term%20Reliability%20Assessment.pdf))
- DOE’s own Quadrennial Energy Review reaches similar conclusions about increasing diversity and outlines concrete steps for modernizing our grid infrastructure to increase resilience, reliability, safety and energy security. (DOE QER, 2015/2017, <https://www.energy.gov/epso/quadrennial-energy-review-qer>)



CLAIM: Regulatory policies and subsidies are destroying jobs and economic growth in the electricity sector.



FACT: Within the power sector, renewable energy employs over 550,000 people – more than double oil, gas, coal and nuclear combined – with wind and solar growing at a rate 12X faster than the rest of the U.S. economy.

- Renewable energy employs over 550,000 people in the U.S. (DOE 2017 U.S. Energy and Employment Report, January 2017 <https://energy.gov/downloads/2017-us-energy-and-employment-report>)
- In 2016, one out of every 50 new U.S. jobs last year came from the solar industry, with growth in that industry outpacing the overall U.S. economy by 17 times (Solar National Solar Jobs Census 2016, February 2017, <http://www.thesolarfoundation.org/national/>)
- The fastest-growing job in the U.S. between 2012 and 2016 was for a solar photovoltaic installers (SmartAsset, May 2017, <https://smartasset.com/retirement/fastest-growing-job-in-each-state>)
- Wind turbine service technicians will grow 108% between 2014 and 2024, making it the nation's fastest growing profession over the next decade (U.S. Bureau of Labor Statistics, December 2015 <https://www.bls.gov/news.release/pdf/ecopro.pdf>)



CLAIM: Regulatory burdens, mandates, tax and subsidy policies are responsible for forcing the premature retirement of baseload conventional power plants.



FACT: All energy sources receive federal and state support, but the reality is that increased competition from cheap natural gas, decreased electricity demand, and rising costs for nuclear and coal generation are primarily responsible for the majority of power plant retirements

- Wind and solar energy account for less than 5% of total federal cumulative energy incentives, while nuclear and fossil fuels have accounted for over 85% (as of December 31, 2015, combined research of [Treasury](#), [JCT](#), [DOE](#), [CRS](#), [NEI](#), & [DBL Investors](#))
- Only four major energy tax preferences are permanent: three are for fossil fuels and one is for nuclear energy (Congressional Budget Office, March 2012, <https://www.cbo.gov/publication/43032>)
- "Increased competition from cheap natural gas is responsible for 49 percent of the decline in domestic US coal consumption. Lower-than-expected demand is responsible for 26 percent, and the growth in renewable energy is responsible for [only] 18 percent." (Columbia University, April 2017, [http://energypolicy.columbia.edu/sites/default/files/energy/Center on Global Energy Policy Can Coal Make a Comeback April 2017.pdf](http://energypolicy.columbia.edu/sites/default/files/energy/Center%20on%20Global%20Energy%20Policy%20Can%20Coal%20Make%20a%20Comeback%20April%202017.pdf))
- In today's electricity markets, natural gas almost always sets the market clearing price -- meaning renewable incentives are rarely factored into market prices. (EIA Monthly Update, January 2017, <https://www.eia.gov/todayinenergy/detail.php?id=29512>)

About ACORE & Energy Fact Check

The American Council on Renewable Energy (ACORE) is 501(c)(3) organization dedicated to accelerating the transition to a renewable energy economy. Developed by ACORE in 2012, Energy Fact Check is a resource for journalists, policymakers and others engaged in the debate over renewable energy. The ongoing series is designed to help ensure both sides of the story are told by responding to inaccuracies with the facts on an industry that is popular, productive, growing and essential to our economy, energy independence and national security.