Keep the Texas Energy Market Clean

Why coal subsidies are bad for business

Executive Summary

"Trump Digs Coal" became one of the most recognizable slogans of the 2016 U.S. presidential campaign, and candidate Trump's promises to slash the controversial Clean Power Plan (CPP) and bring back coal jobs struck a chord in midwestern mining states. The vision of an unfettered, resurgent U.S. coal industry resonated with working class voters in key swing states like Pennsylvania and Ohio, helping tilt the electoral map Trump's way.

The Trump Administration is following through on its promise to scuttle the CPP, withdraw from the Paris Agreement on carbon emissions, and abolish other environmental regulations that are odious to the coal industry, such as the moratorium on new coal leases on federal lands and the Stream Protection Rule. However, the coal industry has continued to struggle against strong economic headwinds, primarily market competition from sustained low (sub-$4/mmBtu) natural gas prices and the ageing fleet of coal plants.

As the longed-for coal recovery has been slow to materialize, policy discussions in Washington, D.C. and in Appalachian coal country have moved beyond loosening environmental controls and into the previously disfavored arena of direct market intervention in the form of taxpayer-funded coal subsidies.

Ill-conceived policies like coal subsidies or taxpayer bail-outs for coal plants would distort the U.S. energy market and interfere with the well-functioning Texas electric market, delaying or derailing our state's market-driven transition to clean energy. Texas-specific research commissioned by the Texas Clean Energy Coalition (TCEC) and conducted by The Brattle Group in 2016 found that if natural gas prices remain low (<$4/MMBtu) and solar PV prices continue to drop, over the next 20 years market forces will likely result in a cleaner Electric Reliability Council of Texas (ERCOT) electric grid that relies on Texas-produced natural gas, wind and utility-scale PV solar power. As the low natural gas price drives ERCOT away from coal and toward Texas-produced clean fuels, annual CO_2 emissions in ERCOT will drop by an average of 28% below 2005 levels – an average of 61 million tons less of CO_2 in Texas air every year. And wholesale electricity prices will remain virtually flat in real dollar terms.

A follow-up report by TCEC and Brattle in December 2016 found that coal plant retirements are unlikely to impact ERCOT's grid reliability. ERCOT is currently oversupplied with power and the forecasted additions of natural gas, solar, and wind generation should balance out the anticipated coal retirements.

This market-driven transition away from coal is playing out in Texas much as the TCEC-Brattle report predicted. Luminant has announced plans to close three coal-powered plants – Monticello, Sandow and Big Brown – in early 2018. In addition, CPS Energy in San Antonio says it plans to close the J.T. Deely coal plant in early 2018, and Austin Energy will phase out of its share of the coal-fired Fayette Power Project starting in 2020.

Thanks to past actions by state leaders, including the deregulation of the Texas electric market, our state is well into a market-driven transition to clean energy – as long as the Texas electric market is allowed to

function. The Texas congressional delegation, our state leaders and fiscal conservatives should reject attempts to manipulate the energy markets by using taxpayer dollars to prop up older, uneconomic plants that burn coal at the expense of cleaner, cheaper electricity from Texas-produced natural gas, wind and solar power.

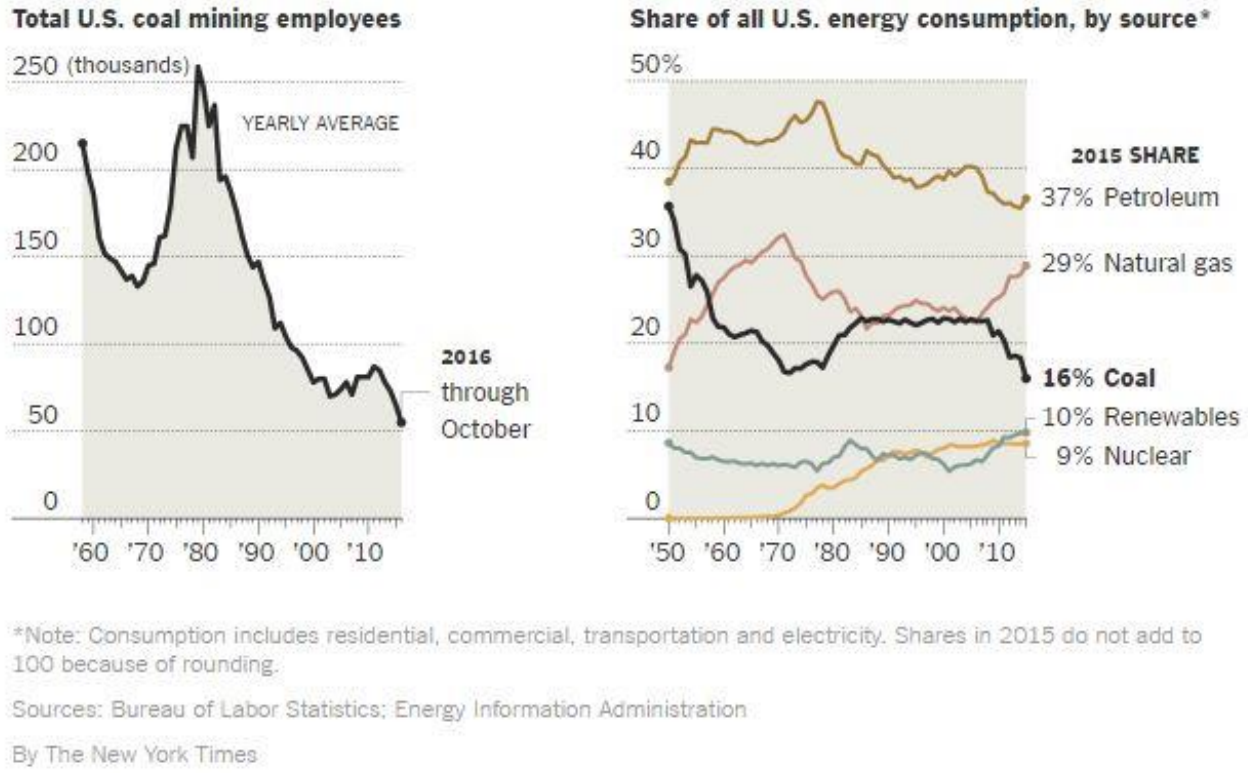
"Bring Those Miners Back"

Rehabilitating domestic coal production, and thereby restoring coal jobs in key Midwestern states, was a frequent theme of the Trump presidential campaign. "If I win, we're going to bring those miners back. These ridiculous rules and regulations that make it impossible for you to compete – so we're going to take all that off the table, folks," candidate Trump promised at a West Virginia campaign rally in May 2016.[1] In an August 2016 economic policy speech, Trump said that he would lift restrictions on energy production to "put our coal miners and steel workers back to work."[2] Blue collar voters and Wall Street alike took note, midwestern mining states supported Trump, and coal stocks soared in the days after the November election.[3]

During the transition, President-Elect Trump's website continued the campaign's strong pro-coal message, promising "[w]e will end the war on coal, and rescind the coal mining lease moratorium, the excessive Interior Department stream rule, and conduct a top-down review of all anti-coal regulations issued by the Obama Administration."[4] Since taking office, the revamped White House website contains a more muted statement that, "The Trump Administration is also committed to clean coal technology, and to reviving America's coal industry, which has been hurting for too long."[5]

The long-term trends of the U.S. coal industry have proven more stubborn. The U.S. coal industry has been declining for generations. Coal mining in the US has lost 200,000 jobs in the last 40 years, and now employs just over 50,000 Americans;[6] last year coal production in Wyoming's Powder River Basin, which produces most of the coal used in Texas coal-powered electric plants, plummeted 78 million tons to its lowest output in nearly 20 years.[7]

[1] "Why Trump Can't Make Coal Great Again," National Geographic, November 29, 2016.
[2] "Donald Trump's economic speech, annotated," Washington Post, August 8, 2016.
[3] "A Donald Trump Presidency: Energy's Trump Card of Trumped-Up Good News for the Industry?", Doyle Trading Consultants, November 15, 2016, p. 4 (DTC Deeper Dive).
[4] "Energy Independence," on https://greatagain.gov/, accessed January 17, 2017.
[5] "An America First Energy Plan," at https://www.whitehouse.gov/america-first-energy, accessed September 14, 2017.
[6] "A Bleak Outlook for Trump's Promises to Coal Miners," New York Times, November 19, 2016.
[7] "Wyoming produces record-low levels of coal in 2016," Associated Press, January 30, 2017.



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Wyoming leads the nation in coal production, accounting for more than 40% of the national total in 2015. In recent years, Wyoming coal has been used at power plants in more than 30 states across the country including Texas.[9] Texas is the biggest coal importing state in the country, importing 55.2 million short tons of coal from Wyoming in 2015. In contrast, none of the low-efficiency lignite coal mined in Texas is exported to other states.[10] Texas coal has been losing out to coal imported from the Powder River Basin in recent years. The Jewett coal mine in East Texas recently shut down after NRG announced that they would no longer buy lignite from the mine. Instead, NRG now imports Wyoming coal for its power plants.[11]

"It will be tough for President Trump to move against market forces." [12]

Wall Street analysts and other commentators agree that long term economic forces are working against any federal effort to rehabilitate the U.S. coal industry. Analysts identify the advanced age and inefficiency of many coal-fired power plants; long term regulatory uncertainty that disfavors investment in new coal plants; reduced demand from countries that import U.S. coal; and most importantly, sustained price competition from cheap natural gas as the major economic factors that make a U.S. coal renaissance highly unlikely, if energy markets are allowed to function freely.

[8] "A Bleak Outlook," New York Times, November 19, 2016.
[9] "Today in Energy," U.S. Energy Information Administration, July 31, 2017.
[10] "Texas relies heavily on other states' coal, and keeps all its own," Fuelfix, November 15, 2016.
[11] "The trouble with Texas: The Lone Star State's waning coal consumption," Casper Star-Tribune, May 22, 2016.
[12] DTC Deeper Dive, p. 14.

One negative factor that hampers the coal industry is the advanced age of the coal-powered generating fleet. Nationally, the coal plant fleet has an average age of 38.6 years, near the age at which older plants are often retired in favor of newer technology. In addition, generation margins on coal plants are poor, and margins for older coal plants are even worse. As these older coal plants retire, new plants powered by natural gas and renewables will satisfy all new electric needs.[13]

Regardless of Trump Administration moves to undo environmental regulations, longer term uncertainty over carbon regulations could depress investment in building new coal plants. "[P]lanning a 30-year coal plant would still be [a] risky proposition (given the risk of policy uncertainty under future administrations) compared to deployment of renewables (which are starting to become competitive and have no fuel risk)."[14]

Several utilities operating in Texas have announced plans to deploy more electric power from renewable energy regardless of changes in federal regulations. [15] As AEP CEO Nick Akins told the Wall Street Journal after the November 2016 election, "We're moving to a cleaner-energy economy and we're still getting pressure from investors to reduce carbon emissions. I don't see that changing. [Retired AEP coal plants] are not coming back."[16]

Luminant announced in early October that it will close the Monticello coal plant in Titus County and the Sandow coal plant in Milam County in January 2018, and the Big Brown coal plant in Freestone County in February 2018, once ERCOT signs off on the decision. Speaking about the Monticello closure, Allan Koenig, a spokesman for Vistra, Luminant's parent company, told the *Dallas Morning News* that it was Texas' highly competitive electricity market, rather than environmental regulations, that drove the decision. "It's purely economic," he said. "The plant guys tried everything they could to keep it open, but it was a money loser. In a competitive market, you've got to take these steps. This is a coal plant operating in a market that's flooded with cheap natural gas." Luminant has been transitioning to a cleaner energy mix with the purchase of a 1 GW natural gas plant and an 182 MW solar plant.[17]

CPS Energy in San Antonio has long planned to mothball the JT Deely coal plant by the end of 2018, and reiterated their decision after President Trump's Executive Order in March on the CPP. "The city and CPS are already way ahead of the requirements of the Clean Power Plan in terms of carbon reduction and CPS is still committed to shutting down the Deely plant early in 2018," said Doug Melnick, chief sustainability officer for San Antonio.[18] In a recent meeting discussing the future of CPS' generation fleet, CPS' Vice President of Power Generation Benny Ethridge said, "I don't see us ever building another coal plant."[19]

The Austin City Council voted in 2014 to begin phasing out of the city's share of the coal-powered Fayette Power Project starting in 2020, with the goal of getting out of the project altogether by 2022.[20]

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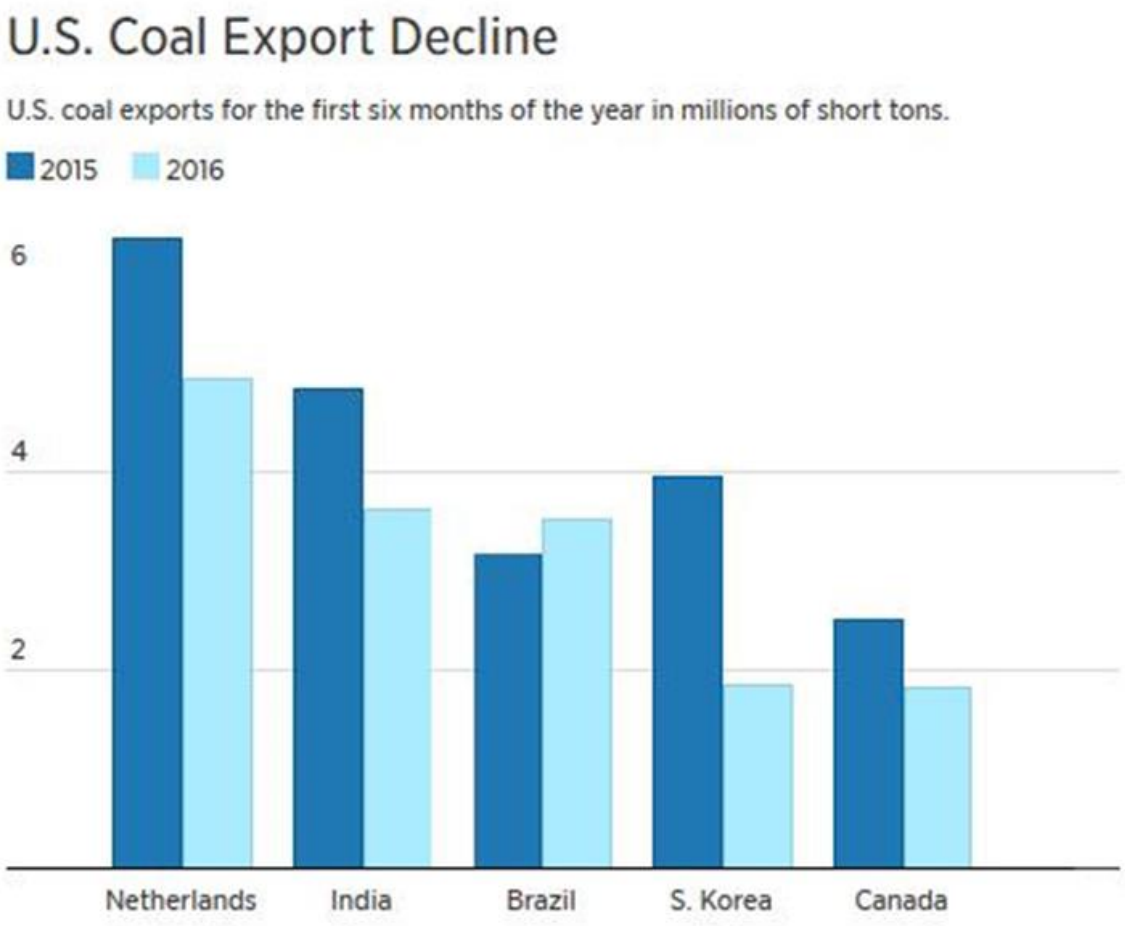
[13] "President-elect Trump's new direction for US energy policy," Deutsche Bank Research, November 17, 2017, p. 4 (DB Commodities Report); DTC Deeper Dive, p. 14.
[14] "What does it mean for Clean Energy Sector?" Deutsche Bank Markets Research, November 13, 2017, p. 1 (DB Markets Report).
[15] DB Commodities Report, p. 4.
[16] "Cheap Gas Tests Trump's Promise to Revive Coal," Wall Street Journal, November 13, 2016.
[17] "East Texas coal plant, once a big polluter, snuffed out by cheap natural gas," Dallas Morning News, October 6, 2017.
[18] "CPS Energy pursues clean energy plans despite Trump environmental order," mysanantonio.com, March 28, 2017.
[19] "Coal plant south of San Antonio off chopping block for now," San Antonio Express News, August 4, 2017.
[20] "City Council Approves New Energy Plan for Austin Energy," http://www.austinenergy.com/wps/portal/ae/about/news/press-releases/2014/city-council-approves-new-energy-plan-for-austin-energy/!ut/p/a0/04_Sj9CPykssy0xPLMnMz0vMAfGjzOINjCyMPJwNjDzdzY0sDBzdnZ28TcP8DC19jfSDU4v1C7IdFQH5wDpn/, December 12, 2014.

In international markets, coal faces more difficulties. Canada (the 5th largest importer of U.S. coal in 2016) announced shortly after the November 2016 election that it will take policy steps to accelerate the transition of its power generation sector from coal to clean energy.[21] Our northern neighbor is a major importer of U.S. coal, so new clean energy policy there could likely reduce export markets for U.S. coal in the medium to long term. U.S. coal exports to the Netherlands and India (the top two markets for U.S. coal exports) are down as well, and U.S. coal exports fell 24% overall in 2015 and fell another 32% in the first half of 2016.[22]

In addition, efforts to expand West Coast coal export facilities have run aground on what environmental activists call a "Thin Green Line" of state and local opposition in Washington, Oregon and California.[23] California Gov. Jerry Brown signed legislation in August 2016 that prohibits the California Transportation Commission from providing money for any new bulk-coal terminals in the state, and he urged cities with ports to take action to reduce such shipments.[24]



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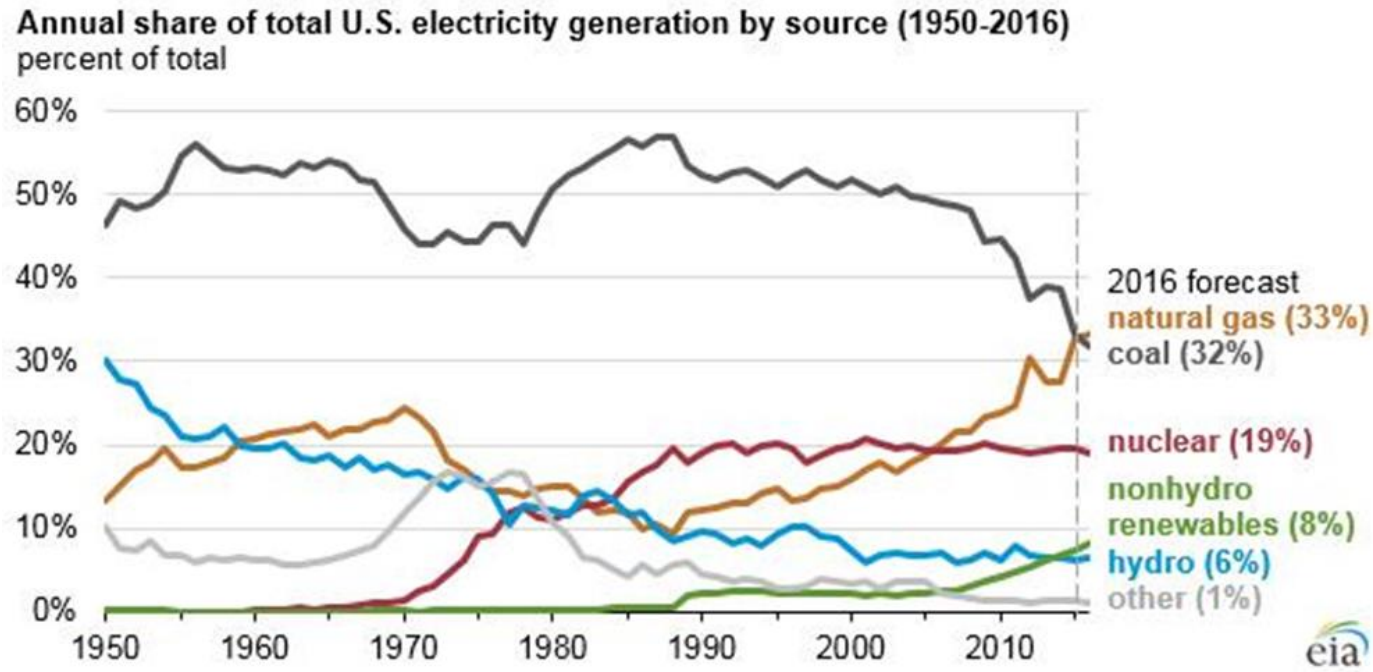
Since U.S. coal producers have over 10 years of reserves at current production rates, President Trump's March 2017 Executive Order abolishing the Obama Administration's 3-year moratorium on new coal leases on federal

[21] "Canada speeds up transition to clean energy while Trump sees a future for fossil fuels," CNBC, November 22, 2016.
[22] "Why Trump Will Be Unable To Save The American Coal Industry," Oilprice.com, November 30, 2016 (Oilprice.com).
[23] "Northwest Coal Exports; The End is Nigh," Sightline Institute, January 5, 2017; for background on the West Coast coal export proposals, see "Coal Clash: A Special Report ", The Oregonian, June 30, 2012, http://projects.oregonlive.com/coal/.
[24] "Gov. Brown signs bill to block state funding of coal terminals," Los Angeles Times, August 26, 2016.
[25] Oilprice.com, November 30, 2016.

land will not have a large impact in the short to medium term.[26] The Doyle Trading analysts sum up the economic forces against a coal renaissance this way:

> At the end of the day, it is those persistently-low [natural] gas prices that will propel investment decisions going forward. Most of what President Trump can do will help all fossil fuels including natural gas. The market will do the rest and coal already has two strikes against it with its smaller fleet and aging survivors.[27]

Sustained low natural gas prices are driving down demand for coal, and the Trump Administration's relaxation of environmental policies will do little to change this dynamic. "While loosening regulations would help with coal's outlook, market forces beyond regulations have hampered coal demand in the U.S. making it less competitive. Chief among them is low natural gas prices resulting from a glut of supply that came online over the past few years during the shale revolution."[28] As another analyst put it, "The removal of EPA regulations will help coal, but it will also help natural gas which means that coal could continue losing share."'[29]



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Here in Texas, the deregulation of the Texas electric market and other initiatives have laid the foundation for a market-driven transition to clean energy. Since 2013, TCEC has released a series of studies by The Brattle Group that analyze how natural gas, coal and renewable energy might interact in the Electric Reliability Council of Texas (ERCOT) grid in future years. TCEC's latest study, released in 2016, looks at how market forces can create a cleaner ERCOT grid that relies on Texas-produced natural gas, wind and solar power without raising electric prices for customers.[31]

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[26] "Trump May Be Offering Coal Leases That No One Wants," Bloomberg, March 27, 2017; DTC Deeper Dive, p. 2.
[27] DTC Deeper Dive, p. 14.
[28] "Trump to Affect Coal-To-Gas Switching in 2017?" BTU Analytics, November 15, 2016.
[29] "Trump can't save the coal industry," Business Insider, December 30, 2016.
[30] Oilprice.com, November 30, 2016.
[31] "Exploring Natural Gas and Renewables in ERCOT, Part IV" (Brattle IV), at http://www.texascleanenergy.org/FINAL%20Brattle%20TCEC%2023%20May%202016.pdf.

The TCEC/Brattle study, known as Brattle IV, found that if natural gas prices remain low (<$4/MMBtu) and solar PV prices continue to drop, over the next 20 years market forces will likely result in a cleaner ERCOT electric grid that relies on Texas-produced natural gas, wind and utility-scale PV solar power. And wholesale electricity prices will remain virtually flat in real dollar terms.

Energy analysts like those at Doyle Trading Consultants, a boutique energy research firm that specializes in the coal sector, highlight that the Henry Hub forward price curve on natural gas prices does not show prices above $4/mmBtu for any sustained period of time for the next decade.[32] On a recent day this fall, Henry Hub natural gas futures for September 2027 were trading at $3.00.[33]

Among the highlights of the Brattle IV findings, if the Texas electric market is allowed to function unimpeded:

- **Market Forces Drive The Transition**: The price of natural gas is driving change in the ERCOT grid, much more than any other factor.

- **Natural Gas Displaces Older Coal Plants**: Persistently low natural gas prices could cause the retirement of sixty percent (12 GW) of ERCOT's current fleet of coal-powered plants by 2022.

- **Natural Gas, Wind and Solar PV Will Largely Power ERCOT**: By 2035, about 85% of ERCOT power generation will come from natural gas, wind and solar power, with NGCC plants providing the lion's share of new generation.

- **Wind and Solar PV Will Grow**: Both wind and large-scale solar PV power will see swift, major additions of new generating capacity even with low natural gas prices – 9 GW for wind by 2019 and 13 GW for solar by 2021. This forecast assumes the current schedule to eliminate the Investment Tax Credit for solar development by 2021 and the Production Tax Credit for wind development by 2019.

- **ERCOT Will Get Much Cleaner**: As the low natural gas price drives ERCOT away from coal and toward Texas-produced clean fuels, annual CO_2 emissions in ERCOT will drop by an average of 28% below 2005 levels – an average of 61 million tons less of CO_2 in Texas air every year.[34]

- **A Cleaner ERCOT Grid Will Cost The Same As Today**: Wholesale electricity prices will stay around $41/MWh, similar to 2014 prices – virtually no price increase (other than for inflation).

- **Environmental Regulations Will Be Largely Irrelevant**: Market forces will reduce CO_2 emissions in ERCOT below what would have been required in the Obama EPA's controversial Clean Power Plan. Likewise, the EPA's Regional Haze Rule (if implemented) would have only a marginal impact (<15%) on projected coal plant retirements through 2022.

- **Energy Efficiency Can Save Money, Cut Carbon Pollution**: By accounting for enhanced energy efficiency to reduce consumption of electricity an additional 5% by 2035, the need for new electric plants on the ERCOT grid could be reduced by 4.7 GW, cutting CO_2 emissions and holding down power prices.[35]

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[32] DTC Deeper Dive, p. 14.
[33] "Henry Hub Natural Gas Futures Quotes," CME Group, http://www.cmegroup.com/trading/energy/natural-gas/natural-gas.html, accessed September 14, 2017.
[34] A 2014 report by CNA quantified the projected water savings that would also come as market forces drive the ERCOT grid toward clean fuels. https://www.cna.org/CNA_files/PDF/IRM-2014-U-009083.pdf
[35] Brattle IV, at http://www.texascleanenergy.org/FINAL%20Brattle%20TCEC%2023%20May%202016.pdf.

As a follow-up, TCEC commissioned additional research on the grid reliability and transmission implications of the market-driven coal plant retirements described in Brattle IV. The study, released in December 2016, found that coal plant retirements are unlikely to impact ERCOT's reliability.

Brattle concluded that ERCOT is currently oversupplied with power and the forecasted additions of natural gas, solar, and wind generation should provide a cushion to absorb many of the coal retirements that may occur. ERCOT's market has a strong track record of managing grid reliability, and there are safeguards in place to ensure that any future challenges can also be met. In addition, Brattle found that the existing Competitive Renewable Energy Zones (CREZ) transmission system can carry up to 11 GW of new renewable power from West Texas to the state's population centers along Interstates 35 and 45.[36]

"A resilient electric grid does come with a price."

Caught between campaign promises to bring back U.S. coal jobs and the economic realities of a market-driven transition away from coal and toward cheaper, cleaner fuels like natural gas and renewables, perhaps it is inevitable that the Trump Administration and its allies have begun floating the idea of direct coal subsidies to prop up the industry and new FERC regulations to give coal an unfair advantage in competitive markets across the U.S.

A new Department of Energy (DOE) report on grid reliability, requested by Energy Secretary and former Texas Governor Rick Perry last spring, affirmed that low natural gas prices, and to a lesser extent cheap renewable energy from wind and solar power, have been the major factors in driving the electric generation fuel mix away from coal. The report also finds that the U.S. electric grid is generally more flexible and reliable than it was in 2002.

However, the DOE report recommends changes in how prices are set in electric markets, creating power pricing advantages for baseload coal plants to continue operating, as well as faster, cheaper environmental reviews for coal plant updates.[37] In his cover letter to the August 2017 report on grid reliability, Secretary Perry urged grid resilience as a justification for possible electric price hikes, writing, "We also need to recognize the relationship between resiliency and the price of energy. Customers should know that a resilient electric grid does come with a price."[38]

Ahead of the release of the DOE report, Federal Energy Regulatory Commission Interim Chair Neil Chatterjee said coal plants are a crucial part of America's energy mix that need to be "properly compensated to recognize the value they provide to the system."[39]

Former coal executive and current West Virginia Governor Jim Justice is also advocating for coal subsidies on the basis of grid reliability and national security. According to news reports, he has visited the White House twice this summer to propose a $15/ton "homeland security incentive" subsidy for plants that burn Appalachian coal. Justice has said the taxpayer-funded, $4.5 billion plan would create coal jobs in West Virginia, Pennsylvania, Ohio, Virginia, Kentucky and Tennessee, and that President Trump and his staff are "really interested" in the idea.[40]

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[36] "Reliability Risks Due to Coal Retirement at ERCOT," at http://www.texascleanenergy.org/press-room.php.
[37] "Staff Report to the Secretary on Electric Markets and Reliability, August 2017" at https://energy.gov/sites/prod/files/2017/08/f36/Staff%20Report%20on%20Electricity%20Markets%20and%20Reliability_0.pdf.
[38] Cover letter from the Secretary of Energy, August 23, 2017 at https://energy.gov/sites/prod/files/2017/08/f36/Secretary%20Perry%20Grid%20Study%20Cover%20Letter.pdf.
[39] "U.S. to Say Power Markets Must 'Evolve' to Value Coal, Nuclear," Bloomberg, August 23, 2017.
[40] "Justice says coal plan a matter of national security," West Virginia MetroNews, August 6, 2017.

Delegations from western coal-producing states that are excluded from Justice's plan have fired back at the idea, with Wyoming Republican Rep. Liz Cheney quoted as saying, ""Such a policy would be flat wrong, unjust, bad economic policy, and would be adopting the worse [sic] tactics of the Obama era when the government wasted billions of taxpayer dollars attempting to pick winners and losers and undermine the market."[41]

Any scheme to prop up the coal industry would distort the well-functioning energy market at taxpayer expense. As the Brattle IV report shows, classic free market price competition between coal, natural gas and renewables is already driving a transition away from older, more expensive coal plants and toward cheaper, cleaner natural gas and renewables. An ERCOT grid powered by natural gas and renewables will be significantly cleaner, use less water, keep consumer electric costs low and enhance grid reliability with a diverse energy mix. An important benefit for Texas is that we generate our clean energy right here in the state, so the transition away from coal plants that burn Wyoming coal creates jobs and economic prosperity here in our state.

Asking taxpayers to bear the burden of propping up a coal industry whose product cannot compete in the open energy market in the U.S. or around the world is a violation of free market principles and a self-defeating economic policy for our state and our country. The energy market is already moving toward cheaper, cleaner natural gas and renewables, creating a clean energy economy that thrives on price competition.

The Texas congressional delegation, our state leaders, and all fiscal conservatives should oppose any plan to distort the well-functioning energy market with new subsidies for coal producers or coal plants. Taxpayers should not be asked to pay for extending the life of older, less efficient coal-burning plants that are ripe for retirement. Rather, energy consumers should be free to reap the benefits of cheaper, cleaner electricity from natural gas and renewables.

Conclusion

The Texas electric market is a model of how free energy markets allow cheaper, cleaner power to thrive. Natural gas and renewables are going to generate the lion's share of electricity in Texas within 20 years – if we allow the electric market to function without distortions. While some talk of a trade-off between affordability and reliability, TCEC's research shows that a cleaner ERCOT grid does not sacrifice affordability or reliability. Free market price competition from low-priced natural gas and renewables is already driving a transition to an energy grid that holds down electric prices and improves grid reliability with diverse fuels, not to mention being cleaner and creating jobs right here in Texas.

The Texas congressional delegation, our state leaders and all fiscal conservatives should strongly oppose attempts to distort energy markets with taxpayer subsidies to prop up the coal industry.

[41] "Republicans Divided on West Virginia Gov's Plan to Subsidize Appalachian Coal," The Daily Caller, August 14, 2017.