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Clean Power Plan Compliance Within Reach for Litigating Companies

Power companies repeatedly show that they are well positioned to comply with the Clean Power Plan, even as they tell the courts that compliance is impossible

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The Clean Power Plan places the nation's first limits on climate-disrupting pollution from the electricity sector, which is responsible for nearly 40% of US emissions of carbon dioxide. Many utilities, power producers, and state regulators recognize the importance of addressing climate change and support the Clean Power Plan.[1]

However, some in the electric industry have instead chosen to take a reactionary, obstructionist position against climate progress, participating in litigation against the Clean Power Plan. A wide array of prominent legal experts have concluded that these companies' legal arguments are unsupported.[2] Moreover, as described below, in many cases, opponents' claims are even contrary to their own actions.[3]

This analysis examines a diverse selection of power companies that are litigating against the Clean Power Plan, including **Southern Company, American Electric Power, Big Rivers Electric Corporation, and Tri-State Generation & Transmission.**

We find that:

- Overall, power sector emissions of climate pollution are already 21% below 2005 levels.[4] As a result, the sector is already two-thirds of the way towards meeting the 2030 emissions reduction requirements of the Clean Power Plan.
- Even though these particular companies are opposing the Clean Power Plan in court, they are already using a variety of approaches to drive significant cost-effective reductions in climate pollution from their existing fossil units, thanks in large part to favorable economics for lower and zero-carbon generation.
- These are the same practical, cost-effective methods that EPA identified as the "best system" of emission reduction for climate pollution from power plants, and that formed the basis for the emission limits in the Clean Power Plan.
- With these investment decisions, power companies are well positioned to comply with the Clean Power Plan, even though they are making claims to the contrary in court.
- These companies' own actions affirm the reasonableness of the Clean Power Plan targets as well as EPA's approach in setting the standard, even though the companies are repeatedly claiming otherwise in court.

This is not the first time some of these companies have advanced deeply flawed "sky is falling" claims about clean air safeguards. This was the case back in the 70s when AEP published a series of *Washington Post* newspaper ads claiming "There is no way on God's green earth that the present

sulfur-dioxide emissions standards can be met.[5]" Not surprisingly, coal plants across the nation are routinely meeting SO_2 limits far more stringent and at very low cost. This was also true in 1990, when they attacked the bipartisan solutions to address acid rain claiming they would lead to "the potential destruction of the Midwest economy."[6] Of course, they then proceeded, along with the rest of the industry, to go out and comply at a small fraction of the costs predicted by EPA.[7] This same story is playing out again today.

What we know is that in spite of these frequent claims, the Clean Air Act has achieved deep reductions in pollution and delivered 'benefits exceeding the costs by 30:1, achieving these benefits while our population and economy has prospered, and coming in at a small fraction of the costs predicted by obstructionists in the power industry.[8]

The Clean Power Plan is no different, as day by day it becomes clearer that the reductions it requires are wholly consistent with driving trends in the industry, and that the benefits will far exceed any cost of compliance.

Background

The Clean Power Plan establishes national limits on climate pollution from existing power plants. These limits are based on EPA's rigorous assessment of the "best system" of emission reduction, which considered cost-effective technologies and strategies that power companies have been deploying for decades to reduce emissions from power plants, including improvements in coal-fired power plant efficiency and increased use of lower-emitting and zero-emitting generation.[9] These practices have been used to comply with a range of air quality protections, such as mercury, regional haze, and others, at least cost.[10]

States have considerable flexibility in how they achieve the needed reductions in climate pollution, and can work with stakeholders to develop individualized state plans that reflect unique local opportunities and policy priorities. As part of this flexibility, states may design plans that allow power companies to take advantage of the most cost-effective reduction opportunities, including those (such as energy efficiency) that EPA did not include in the determination of the Clean Power Plan targets.

Market Forces Are Already Driving Reductions in Climate Pollution through Strategies Wholly Consistent with the "Best System" of Emission Reduction

Across America we are witnessing a transition to a more modern and lower-carbon electricity sector. This is the result of powerful market trends that have made zero-emitting and lower-emitting generation very cost competitive as well as progress towards cleaning up the nation's air and water to deliver vital public health protections.

From 2005 to 2015 alone, natural gas generation increased by 75%, wind generation increased by nearly ten-fold, and solar generation increased roughly seventy times over, while coal generation decreased 33%.[11]

This has led to a rapid decline in emissions of climate pollution. In 2015, carbon dioxide emissions from the electric sector were already 21% below 2005 levels.

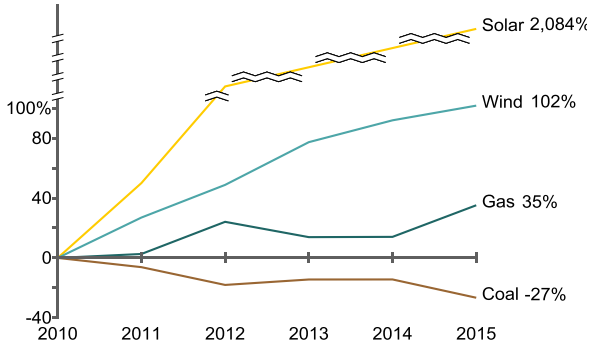
This places the power sector over two-thirds of the way toward the 2030 climate pollution reduction requirements established by the Clean Power Plan. Notably, these reductions occurred while United States gross domestic product grew on average 3.8% a year, from $13 trillion in 2005 to $18 trillion in 2015.[12]

This decline in climate pollution is due in large part to rapidly falling costs of zero-emitting and lower-emitting generation. Natural gas prices have declined nearly 80% as a result of significant

increases in domestic production.[13] This has led to sharp increases in generation at existing natural gas plants and the construction of new natural gas-fired power plants. Meanwhile, driven by technological improvements and other factors, the average cost of wind generation fell 61% between 2009 and 2015, while solar costs fell by 82%.[14] As a result, lower-emitting and zero-emitting energy are frequently now the lowest cost power generation option. Thus, high-emitting coal facilities have been decreasing output across the country, with capacity factors decreasing substantially since 2010.[15]

These market dynamics are naturally affecting future investment decisions as 97% of planned power plant additions in the next five years are expected to come from zero-carbon and lower-emitting resources.[16]

Change in U.S. Generation, Indexed to 2010



Source: EIA

Strong investments in energy efficiency are also helping to reduce climate pollution from the power sector, while providing direct benefits for consumers in the form of lower energy bills. From 1980 to 2014, the energy intensity of the U.S. economy—the amount of energy per dollar of gross domestic product (GDP)—fell from 12.1 thousand Btus per dollar in 1980 to 6.1 in 2014. This represents a 50% improvement, and over half of this impact is estimated to be caused by energy efficiency investments.[17]

These advancements are expected to continue as utility spending on energy efficiency is projected to triple by 2025, from about $6 billion in 2010.[18] Though EPA did not use energy efficiency to set the Clean Power Plan targets, these savings can be used for compliance, and early indications are that a number of states and power companies intend to take advantage of these opportunities. It is easy to see why when one considers that these energy efficiency programs regularly save consumers $2 for every $1 invested, and in some cases up to $5.[19]

These investments in carbon pollution reducing technologies are widespread as power companies across the country shift their generation to zero- and lower-emitting sources and invest in energy efficiency in order to stay competitive, save money for customers, meet evolving consumer preferences, and achieve company and state environmental goals.
This is true even for many of the companies that are working most actively to prevent the nation from making continued progress in fighting climate change through the Clean Power Plan.

Below we highlight several companies that are challenging the Clean Power Plan in the courts, either directly or through trade associations and affiliates. Across the board we find that these companies are already shifting to lower- and zero-emitting power generation and delivering benefits to consumers.

Their choices reinforce the reasonableness of the Clean Power Plan's targets and EPA's approach in setting them. These companies were selected because they reflect the diversity in the industry, including large investor-owned utilities, small and mid-sized electric cooperatives, and independent power producers that are spread across the United States. The same story could be told for many other companies litigating against the Clean Power Plan.

In 2015 emissions of climate pollution from the electric sector fell 21% below 2005 levels. As a result, the sector is already two-thirds of the way towards meeting the 2030 emissions reduction requirements of the Clean Power Plan.

Southern Company

Southern Company has called the Clean Power Plan "unworkable" and has claimed that it would result in a "complete deconstruction of the nation's electric sector."[20] However, an examination of Southern Company's plans for the coming years shows that it is already well on its way towards reducing its emissions of climate pollution, just as it would under the Clean Power Plan.

Southern Company is one of the largest utilities and power producers in the country, serving over 9 million customers in Georgia, Alabama, Mississippi and Florida with a fleet of over 44 GW. Just a decade ago, Southern Company's portfolio was dominated by coal, which accounted for more than two-thirds of the company's generation in 2006.

In the intervening years, Southern Company has begun shifting its fleet toward lower-emitting and zero-emitting resources. By 2015, the company had significantly reduced the carbon pollution intensity of its operations as it moved to a portfolio that was 47% natural gas, 33% coal, and 16% nuclear. This parallels the shift toward lower polluting resources that EPA recognized as part of the best system of emission reduction under the Clean Power Plan.

"[We] were already on track under the proposed rules to kind of meet the goals anyway -- without doing anything -- and this was prior to the 2016 [integrated resource plan] that was filed this year…[Georgia Power Company is] talking about adding more renewables, continuing the energy efficiency programs that have been in place."

– Georgia Public Service Commission

In its 2016 Carbon Disclosure report, Southern Company touted its investments in lower-emitting and zero-carbon generation. It noted that the Southern Company system is one of the largest owners of solar PV facilities in the United States and is in the process of acquiring or developing solar PV plants in California, Georgia, New Mexico, Nevada, North Carolina and Texas.[21]

Utilities affiliated with Southern Company have plans to purchase 800 MW of wind generation from Oklahoma and Kansas.
In addition, the company is evaluating the potential of developing additional onshore and offshore wind generation.[22]

In total, utilities under the Southern Company banner have added or announced nearly 4,000 MW of zero-emitting renewable energy generation since 2012, and the company's wholesale division has more than 1,900 MW currently under development. These investments have also been paired with advancing retirements of highly polluting coal units—1,200 MW announced as of June 2016.[23]

As a result of these investments, most of the states where Southern Company operates are well positioned to comply with the Clean Power Plan.[24] This includes Georgia, which has also challenged the Clean Power Plan – even though

Sheree Kernizan, Electric Unit Director for the Georgia Public Service Commission, has pointed out: "[w]e were already on track under the proposed rules to kind of meet the goals anyway -- **without doing anything** -- and this was prior to the 2016 [integrated resource plan] that was filed this year…And [Southern Company subsidiary Georgia Power Company's] talking about adding more renewables, continuing the energy efficiency programs that have been in place."[25]

Tri-State Generation & Transmission

Tri-State has claimed that it "will experience irreparable and irreversible harm from the Rule well before the compliance obligations of the Rule go into effect." However, Tri-State Generation & Transmission (G&T) continues to move forward with significant investments in lower-emitting and zero-emitting generation, driven by its goal of "bring[ing] further value" to customers.

Together with recent coal facility transition announcements, these shifts in Tri-State's portfolio will reduce emissions of climate pollution and will help bring a number of states in which it operates closer to compliance with the Clean Power Plan. This presents a clear contradiction to their legal filings.

Tri-State G&T owns or partially owns plants in Colorado, New Mexico, Arizona, and Wyoming. It serves over one million customers in Wyoming, Nebraska, Colorado, and New Mexico through 43 member distribution coops. In 2014, Tri-State G&T served customers with an energy mix that was 59% coal-fired and 24% renewable, with the remainder sourced from natural gas or other purchases.

Tri-State G&T is in the process of expanding its renewable portfolio, which it states will "bring further value to the member cooperatives across the four states it serves."[26] The company notes that as wind and solar projects "have become more cost-effective," it has made sense to develop and purchase renewable generation.[27] In February of 2014, the U.S. Department of Energy recognized Tri-State as a 2014 Wind Cooperative of the year. At that time, Brad Nebergall, Tri-State's senior vice president for energy management, stated:

"We have taken a steady, deliberate approach to integrating renewable resources, and it has paid off over time as we continue to build a generation fleet that remains cost-effective for our member systems."[28] Since that time, Tri-State has continued wind development and has expanded into solar.

Tri-State has also pursued other options to "proactively address carbon emissions," including "plant efficiency improvements…research and development, and support of energy efficiency programs with our members."[29]

In Colorado, Tri-State's planned actions are helping to bring the state closer to compliance with the Clean Power Plan. The company announced in September 2016 its plans to close one large coal-fired power plant and repower another to natural gas, by 2022 and 2025, respectively. Tri-State noted that "the retirements of both Nucla Station and Craig Station Unit 1 will result in carbon dioxide emission reductions that the State of Colorado has set a goal to achieve and will help meet other proposed federal requirements."[30]

The Colorado Department of Public Health and Environment estimates the agreement will cut carbon dioxide emissions by up to 4 million tons per year[31], which could reflect a 9.5% reduction in total carbon dioxide emissions from the power sector in Colorado.[32] This action is particularly notable because in its court filings, Tri-State implied that staying the rule would allow it to keep running Craig Unit 1.[33] Tri-State got the stay it wanted, and then it decided to shut the unit down anyway because of market conditions and selecting this pathway as the cost-effective approach to comply with long-standing unmet clean air obligations.

Other states across Tri-State's service area are already on target to comply with the Clean Power Plan due to planned activities. According to an analysis prepared on behalf of Arizona utilities, Arizona is well prepared for compliance due to a mix of coal retirements and renewable and energy efficiency development.[34] With already-planned actions alone, Arizona is projected to be in compliance with the Clean Power Plan through 2030.[35]

Similarly, New Mexico is on track for compliance with Clean Power Plan targets due to a shift from coal-fired generation to more zero-emitting renewable generation, as well as energy efficiency development. Accounting for state-wide, already-announced measures and retirements alone, New Mexico is also projected to be in compliance with the Clean Power Plan through 2030.[36]

Combined, these actions show that Tri-State is already taking actions consistent with the best system of emission reduction, shifting its generation to less climate polluting generation. Moreover, the company's actions appear to position them well for compliance with the Clean Power Plan.

American Electric Power

American Electric Power (AEP) is also making significant strides to reduce emissions by investing in zero-emitting and lower carbon resources because so doing "makes economic sense for our customers." Nevertheless, it continues to fight the nation's efforts to address climate change by challenging the rule through the Utility Air Regulatory Group, of which it is a member.[37]

AEP serves 5.4 million customers across 11 Midwestern and South Central states and operates a large merchant generation business. It has historically been one of the largest producers of coal-powered energy in the United States.

Since 2000, however, AEP cut its emissions of carbon dioxide by 39% through a mix of technologies and fleet adjustments consistent with those used by EPA to establish the standards in the Clean Power Plan.[38]

"It makes economic sense for our customers and lowers our carbon resources to include [renewables and gas-fueled generation]." – AEP

AEP's current resource mix is approximately 60% coal, 23% natural gas, and 5% nuclear, and also includes small amounts of wind and hydroelectric power.

The company is also planning continued improvements that are consistent with the measures that EPA used to establish the emission targets in the Clean Power Plan. The company projects continuing reductions in climate pollution as it continues to deploy these measures (i.e., "use less coal and increase use of natural gas and renewables to generate electricity," along with "us[ing] energy efficiency and demand response programs)."[39]

These plans include a significant expansion of renewables, with plans to add more than 5,500 MW of wind and almost 3,000 MW of solar, mostly by 2025.[40] Additionally, AEP plans to expand its gas fleet, adding nearly 3,000 MW between 2020 and 2027.[41] By 2026, the company projects that coal will drop to less than half of its generating capacity, while natural gas capacity will increase to 33%.

AEP has made it clear that this transition is good for business, noting that it "makes economic sense for our customers and lowers our carbon profile to include these resources."[42] In an Integrated Resource Plan for Indiana Michigan Power (I&M), an AEP subsidiary in the Midwest, the company noted that "wind and solar resources…were projected to add more relative value (i.e., lowered I&M's net energy cost) than alternative resources examined, including the purchase of energy from the PJM market."[43]

The company is also expanding its strategy to other alternative technologies that aid clean energy, such as a $5 million investment in Greensmith, an energy storage management company. This, says CEO Nicholas Akins, puts AEP at "the forefront of advancing these technologies for our customers."[44]

Ohio provides a strong example of how these investments are helping position the company and the state for compliance with the Clean Power Plan. AEP and others have historically operated large amounts of coal generation in the state.

Nevertheless, they are currently working to increase renewable generation and deploy energy efficiency investments. Using a Clean Power Plan compliance calculator,[45] we find that the expected investments in the state will allow Ohio to comply with the Clean Power Plan from 2022 through 2029. Notably, Ohio would achieve 90% of the emissions reductions needed to reach the final 2030 emission target a full decade before that target takes effect.

Big Rivers Electric Corporation

In their request to stay the Clean Power Plan, Big Rivers claims that the shift to lower and zero-carbon generation contemplated by the rule "will substantially increase costs to the public and jeopardize the reliability of the nation's electricity system." It is hard to reconcile this claim with the basic observation that Big Rivers has already reduced its emissions by a greater percentage (33%) than is required by the state of Kentucky (31%).

Big Rivers Electric Corporation is an electric cooperative based in Kentucky, serving around 115,000 customers through three member coops. It is participating in litigation against the Clean Power Plan even though recent actions position it well to comply with the climate pollution standards.

Big Rivers recently idled one of its coal-fired facilities, Coleman Station, as a result of market dynamics. This action has already reduced its carbon footprint by 33% since May 2014.[46] With this action alone, Big Rivers will reduce its own emissions by a greater percentage than is required by the state of Kentucky, which is required to reduce its emission 31% below 2012 levels by 2030.

Notably, Big Rivers' emissions of climate pollution could fall further still in the years ahead as a result of planned investments in zero-carbon generation and energy efficiency. Big Rivers notes that it is "well positioned in the national renewable energy movement," and that the generation "of the future will include a growing emphasis on renewable energy as these sources gain more attention, popularity, and viability."[47]

Big Rivers has recently increased its investment in energy efficiency to the benefit of its consumers. In 2015 it doubled savings over previous years, saving over 10 million kWh for customers. At current electric rates of 9.8 cents per kWh, this reflects customer bill savings of nearly a million dollars. Savings could be higher still as a result of their ability to help reduce future investments in the grid that would otherwise be driven by increasing demand.[48] Big Rivers has indicated that it plans to continue these programs and explore additional pilots that can advance technologies and serve customers.

The Prudent Path Forward

The power sector is rapidly decarbonizing, in part due to significant shifts in the economics of generation. Power companies across the country—including many of the companies opposing the Clean Power Plan—recognize these shifts and are investing accordingly.

These companies' actions stand in stark contrast with the arguments being made in court. Among other things, these actions underscore that the approach EPA used to determine emission targets in the Clean Power Plan reflects "business as usual" for the power sector.[49] And the success that these companies have experienced in reducing emissions through the "best system" demonstrates the inherent reasonableness and achievability of the targets themselves.

[1] See, e.g., Brief submitted by Power Companies in *West Virginia v. EPA*, No. 15-1363 (filed on June 29, 2016). Available at https://www.edf.org/sites/default/files/content/power_companies.pdf.

[2] *See, e.g.*, https://www.edf.org/media/legal-analysis-strong-likelihood-epa-climate-plan-will-stand-court; http://blogs.edf.org/climate411/2015/08/12/legal-experts-affirm-the-strong-legal-basis-for-the-clean-power-plan/

[3] Opening Brief of Petitioners on Procedural and Record-Based Issues at 12, West Virginia v. EPA, No. 15-1363 (D.C. Cir. Apr. 22, 2016).

[4] Energy Information Administration, Carbon dioxide emissions from electricity generation in 2015 were lowest since 1993, May 13, 2016. Available at http://www.eia.gov/todayinenergy/detail.cfm?id=26232

[5] The Washington Post, April 30, 1974, AEP Display Ad 13.

[6] See EDF, "There They Go Again: AEP Seeks Delay in Health Protections for Children and Elderly." Available at http://bit.ly/2cWZdhm; see also EPA, "The Clean Air Act and the Economy." Available at https://www.epa.gov/clean-air-act-overview/clean-air-act-and-economy.

[7] EPA, Acid Rain Program 2005 Progress Report. October 2006. Available at https://www.epa.gov/sites/production/files/2015-08/documents/2005report.pdf

[8] EPA analysis documents what has long been demonstrated, that the United States can achieve important pollution reductions while growing our economy. For example, between "1970 and 2011, aggregate emissions of common air pollutants dropped 68 percent, while the U.S. gross domestic product grew 212 percent. Total private sector jobs increased by 88 percent during the same period." See EPA, "The Clean Air Act and the Economy." Available at https://www.epa.gov/clean-air-act-overview/clean-air-act-and-economy

[9] Richard L. Revesz, Denise A. Grab, and Jack Lienke, Bounded Regulation: How the Clean Power Plan Conforms to Statutory Limits on EPA's Authority, September 12, 2016. Available at http://policyintegrity.org/publications/detail/bounded-regulation

[10] See, e.g., In re Appalachian Power Co. DBA, Am. Elec. Power, No. 13-0764-E-CN, 2014 WL 5212906, at *1 (W. Va. Pub. Serv. Comm'n, Feb. 12, 2014) (approving conversion of several coal-fired units to natural gas to "retain needed generation capacity while complying with the recent tightening of federal environmental regulations"); In re Portland Gen. Elec. Co., No. 10-457, 2010 Or. PUC LEXIS 400 (Or. Pub. Util. Comm'n, Nov. 23, 2010) (approving power company's plan to reduce use of coal as least-risk option to meet demand and maintain reliability in response to federal air pollution rules); In re Montana-Dakota Utilities Co., No. PU-11-163, 2012 WL 2849479 (N.D. Pub. Serv. Comm'n, May 9, 2012) (considering options presented by conversion to natural gas and investment in renewable energy when granting application to comply with regional haze regulations); In re Ky. Power Co., No. 2013-00430, 2014 Ky. PUC LEXIS 583 (Ky. Pub. Serv. Comm'n, Aug. 1, 2014) (approving plans to convert a unit to natural gas to comply with EPA mercury protections because the conversion was the most cost-effective, reliable option); In re Wis. Electric Power Company, No. 6630-CU-101, 2014 Wisc. PUC LEXIS 80 (Wis. Pub. Serv. Comm'n, Mar. 17, 2014) (approving a power plant's request to convert to natural gas to comply with federal environmental standards after determining, under Wisconsin law, that there were no more reliable or cost-effective alternatives and that the project was in the public interest).

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[12] The World Bank, World Bank national accounts dad and OECD National Accounts data files, accessed September 2016. Available at http://data.worldbank.org/indicator/NY.GDP.MKTP.CD?end=2015&locations=US&start=1969

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[14] Lazard, Levelized Cost of Energy Analysis 9.0, November 17, 2015. Accessed April 13, 2016. Available at https://www.lazard.com/perspective/levelized-cost-of-energy-analysis-90/

[15] EIA, Average utilization for natural gas combined-cycle plants exceeded coal plants in 2015. April 2016. Available at http://www.eia.gov/todayinenergy/detail.cfm?id=25652#

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[19] Bianco, N. et al. 2014. "Seeing is Believing: Creating a New Climate Economy in the United States." Working Paper. Washington, DC: World Resources Institute. Available online at http://www.wri.org/publication/new-climate-economy

[20] Southern Company, Comments of Southern Company on Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units; Proposed Rule, Notice of Data Availability, and Notice, posted December 6, 2014 to Docket EPA-HQ-OAR-2013-0602. Available at https://www.regulations.gov/document?D=EPA-HQ-OAR-2013-0602-22907.

[21] Southern Company 2016 Carbon Disclosure Report at p. 7. Available at http://www.southerncompany.com/what-doing/pdf/CarbonDisclosureReport2016.pdf

[22] *Id* at p. 8.

[23] *Id*.

[24] M.J. Bradley & Associates. State Scenarios, EPA's Clean Power Plan: Compliance Pathways. December 2015. Available at http://blogs.edf.org/climate411/files/2016/09/MJB-study-on-CPP-compliance.pdf

[25] E&E Publishing, LLC, States still thinking about CO2 cuts regardless of rule status, April 27, 2016. Available at http://www.eenews.net/stories/1060036323

[26] Tri-State Generation and Transmission Association, Inc, Renewable Energy, 2016. Available at http://d3p1ohwoqgyfd6.cloudfront.net/wp-content/uploads/2015/05/TGTRenewables_2016.pdf

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[28] Smart Grid News, Top Wind Cooperative Tri State Moving Solar, September 2, 2015. Available at http://www.smartgridnews.com/story/already-top-wind-cooperative-tri-state-moving-solar/2015-09-02

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[33] Declaration filed by Michael McInnes, Chief Executive Officer of Tri-State Generation and Transmission Association, in West Virginia v. EPA, No. 15-1363 (filed on October 23, 2015).

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[36] M.J. Bradley & Associates. State Scenarios, EPA's Clean Power Plan: Compliance Pathways. December 2015. Available at http://blogs.edf.org/climate411/files/2016/09/MJB-study-on-CPP-compliance.pdf

[37] AEP, Website: Environment & Carbon, accessed September 2016. Available at https://www.aepsustainability.com/environment/regulations/carbon.aspx. In addition, the President and COO of Appalachian Power and Wheeling Power – both affiliates of AEP – filed a declaration supporting UARG's motion to stay the Clean Power Plan.

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[40] Utility Dive, AEP CEO: Clean Power Plan could be the 'catalyst' to transform utility industry, November 13, 2015. Available at http://www.utilitydive.com/news/aep-ceo-clean-power-plan-could-be-the-catalyst-to-transform-utility-indu/409156/.

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[42] AEP, Website: Environment & Carbon, accessed September 2016. Available at http://aepsustainability.com/environment/regulations/carbon.aspx

[43] AEP Indiana Michigan Power, 2015 IRP Public Summary. Available at https://www.indianamichiganpower.com/global/utilities/lib/docs/info/projects/IntegratedResourcePlan/2015%20I&M%20IRP%20Public%20Summary.pdf

[44] AEP, Website: About AEP, accessed September 2016. Available at http://www.aepsustainability.com/about/message.aspx

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[47] *Id.*

[48] Big Rivers, Team Cumberland Presentation, April 2016. Available at http://energy.gov/sites/prod/files/2016/04/f30/Marlene%20%20Big%20Rivers%20SEPA%20Presentation%20April% 202016.pdf

[49] Brief submitted by Power Companies in West Virginia v. EPA, No. 15-1363, at 3 (filed on April 22, 2016) ("In fact, generation shifting is itself 'business-as-usual' within the power sector and the ordinary means by which supply and demand are instantaneously matched throughout the interconnected electricity grid and balancing authorities and utilities make dispatch decisions to deliver power at least-cost to consumers."). Available at https://www.edf.org/sites/default/files/content/power_companies.pdf