

THE CLEAN POWER PLAN: WHAT IT MEANS & TIPS FOR BUILDING A COMPLIANCE STRATEGY AND PLAN

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The U.S. Environmental Protection Agency's (EPA) proposed Clean Power Plan (CPP) is more than 1,600 pages long and difficult to navigate. Since EPA delegated authority to the states for developing compliance plans as part of their State Implementation Plan (SIP) requirements under Section 111(d) of the Clean Air Act, state-specific policies and plans will guide implementation activities and compliance reporting. Ultimate authority for identifying impacted parties, and assessing the economic benefits and costs likely to result from compliance, are still unknown. Studies conducted to support CPP and to identify the building blocks for compliance strategies provide guidance, direction, and order of magnitude, but there will be no certainty until the rule is final and states develop their SIPs.



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West Monroe Partners encourages its clients to participate and engage their state environmental regulators responsible for preparing the SIP if they have not done so already, and consider the pros and cons of the state going it alone or as partners with neighboring states to develop a compliance plan. The process of assessing the impacts that CPP will have on impacted entities requires care and the assessment should guide the creation of the “response plan” that impacted parties will need to create. This should include identifying the lowest-cost and most-strategic solutions for compliance; mitigating financial and operational risks; and maintaining and strengthening relationships with regulators, policy makers, and customers. States like New York and the New England states belonging to the Regional Greenhouse Gas Initiative (RGGI) CO₂ cap-and-trade program and California with its cap-and-trade program have a leg up. They have a program in-place, market rules that work, and a cap that they can lower to meet and verify CPP compliance.

This white paper provides up-to-date information (as of September 2014) regarding the evolving CPP process, which happens to be embroiled in a number of litigations that seek to challenge EPA’s authority. Nonetheless, while this works itself out, key milestone dates are approaching and WMP is providing thought leadership, technical expertise, and market intelligence to help utilities, technology companies, and other potentially affected parties plan for and comply with the CPP. Our goal is to provide corporate-level support to clients for managing risks and identifying opportunities for growth and new business development in response to CPP requirements. We offer the following suggestions for developing a framework and coalescing around a strategy and plan.

1. Familiarize yourself with the proposed rule requirements and stay engaged in deliberations with your state environmental and utility regulatory agencies.
2. Identify the most significant potential implications for your business in having to comply with the CPP and know the schedule and risks of noncompliance.
3. Identify and prioritize the most significant risks and potential rewards for compliance.
4. Evaluate the potential benefits of partnering, or leveraging market-leading carbon control initiatives that might offer significant rewards to your organization.
5. Think about how you might develop a compliance strategy and plan that meets your corporate objectives for improving social, economic, and environmental sustainability.
6. Assess the current state of your activities and/or plan for assessing and managing the risks associated with your responsibilities under the proposed rule and decide how you want to position your business and firm.

In the event an organization is uncertain about its options for addressing these and related issues, we happily provide this primer on the implications of the CPP and summary of West Monroe's approach for developing a strategic and proactive response plan.



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SHORT OVERVIEW OF KEY ASPECTS OF THE CPP

The CPP was released in June 2014, and represents EPA’s proposed rule (that derives its authority from Section 111(d) of the Clean Air Act) to create more stringent requirements at the state level to reduce emissions from existing power plants – which account for approximately one-third of the greenhouse gas emissions in the United States. Under the EPA proposal, the United States will reduce carbon emissions from the power sector by 30 percent from 2005 levels by 2030, or 19.2 percent from 2012 levels. Each state has its own carbon intensity target, and it is up to state environmental agencies to submit a plan for meeting the goal. The EPA also anticipates reductions in particulate matter, nitrogen oxide, and sulfur dioxide of more than 25 percent as incidental benefits to the CPP. Some of the options considered for helping impacted entities meet the respective targets include the following:

- improving the efficiency of high emissions units;
- re-dispatching power from existing coal plants to existing natural-gas plants;
- shutting down coal plants;
- greater use of natural gas-for new power generation;
- using more renewable energy, including the trading of renewable energy credits;
- retaining nuclear generation;
- adopting a CO2 cap-and-trade program; and
- increasing energy efficiency and or other energy conservation and demand-management programs

The rule, once final, could significantly change the mix and type, scale, location, and ownership of electric generation in the United States. This effect, coupled with the transformative changes taking place in states already, will speed the rate of change and adoption of new utility business models. There will be new costs associated with developing and implementing compliance plans, and new opportunities for progressive and innovative companies to develop new technologies and business services. While the CPP provides states with a number of options to address carbon emissions from existing power plants, the first-of-its-kind rule will have a significant impact on electric power providers and their customers. However, the EPA’s methodology or “best practice” for CO2 emission reductions based on modeling conducted for EPA assumes significant efficiency improvements in at coal plants; forced fuel switching from coal-to-gas; and greatly expanded policy directives for a renewable portfolio standard (RPS) on a national basis.

The rule’s heavy emphasis on the use and development of low-emitting power sources could severely curtail the ability of power plants to use coal as a cost-effective source of power. It could also raise natural gas prices as utilities increase their use of natural gas in place of coal and in new generation – placing pressure on gas supplies as the US continues to increase gas exports. Each state faces its own unique targets, but most will need to cut emissions by 30 to 50 percent to meet their state-specific goals. To do so, states can choose from a variety of options, including regional cap and trade programs, like the Regional Greenhouse Gas Initiative (RGGI) in New York and New England, or greater investments in renewable energy, energy efficiency, and demand-side management and smart-grid technologies.



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Final rules are to be in place in June 2015, and states will have to submit plans by the end of June 2016, unless an extension is given. States must submit initial or complete plans to EPA by June 30, 2016. Individual state plans are eligible for a one-year extension to June 30, 2017, while multistate plans are eligible for a two-year extension to June 30, 2018 (with a progress report due in June 30, 2017). Upon receipt of a complete plan, EPA will review and make a determination of approval or disapproval within 12 months. We strongly believe that the winners in this effort will be those that deliberately plan and invest in new businesses models and technologies; “first-movers” will lead the way. Laggards and foot-draggers likely are forced to act at some point, and have limited optionality from waiting too long to be involved and take action.

BUILDING BLOCKS FOR HOW STATES CAN COMPLY

The CPP is built on two key aspects; state-specific goals for reductions in carbon emissions from power plants, and guidelines to assist states in developing plans to meet those goals. With respect to the development of state-specific goals, the EPA has proposed a two-part goal structure in which an “interim goal” must be met on average from 2020– 2029, and a “final goal” must be met by 2030. State-specific goals are to be calculated as a rate of carbon dioxide emissions from fossil-fuel power plants in pounds (adjusted CO₂), divided by state electricity generation from fossil- fuel power plants and other low- or zero-emitting power sources (i.e., renewable and nuclear) in megawatt hours (net MWh). In this way, EPA believes that the Clean Power Plan will account for the different types and quantity of generation in each state when formulating state-specific goals.

Should states prefer to express their emission performance requirements in absolute tons, the CPP allows states to convert the rate-based goal to a mass-based goal if they so choose. The state-specific goals included in the proposed rule were based on EPA’s review of 2012 emission data for each particular state, any existing programs in that state to reduce CO₂ emissions, and application of the so-called “building blocks” that EPA believes collectively represent the “best system of emission reduction” (BSER). Figure 1 lists the reduction targets for each state calculated by WMP using the EPA formula.

The second component of the CPP is a set of proposed guidelines to assist states in developing state-specific plans by mid-2016, to meet the goals proposed by EPA. The EPA has identified four “building blocks” that it identified as BSER and that serve as cornerstones for CO₂ reduction:

1. Increase efficiency of fossil fuel power plants by improving average heat rate for coal steam electric generating units by 6 percent.
2. Increase use of low-emitting power sources by dispatching to existing and new when on line, natural gas combined cycle units to up to 70-percent capacity target utilization.
3. Expand zero- and low-emitting power source capacity by dispatching to new clean generation, including nuclear generation under construction, moderate deployment of new renewable generation, and continued use of existing nuclear generation.

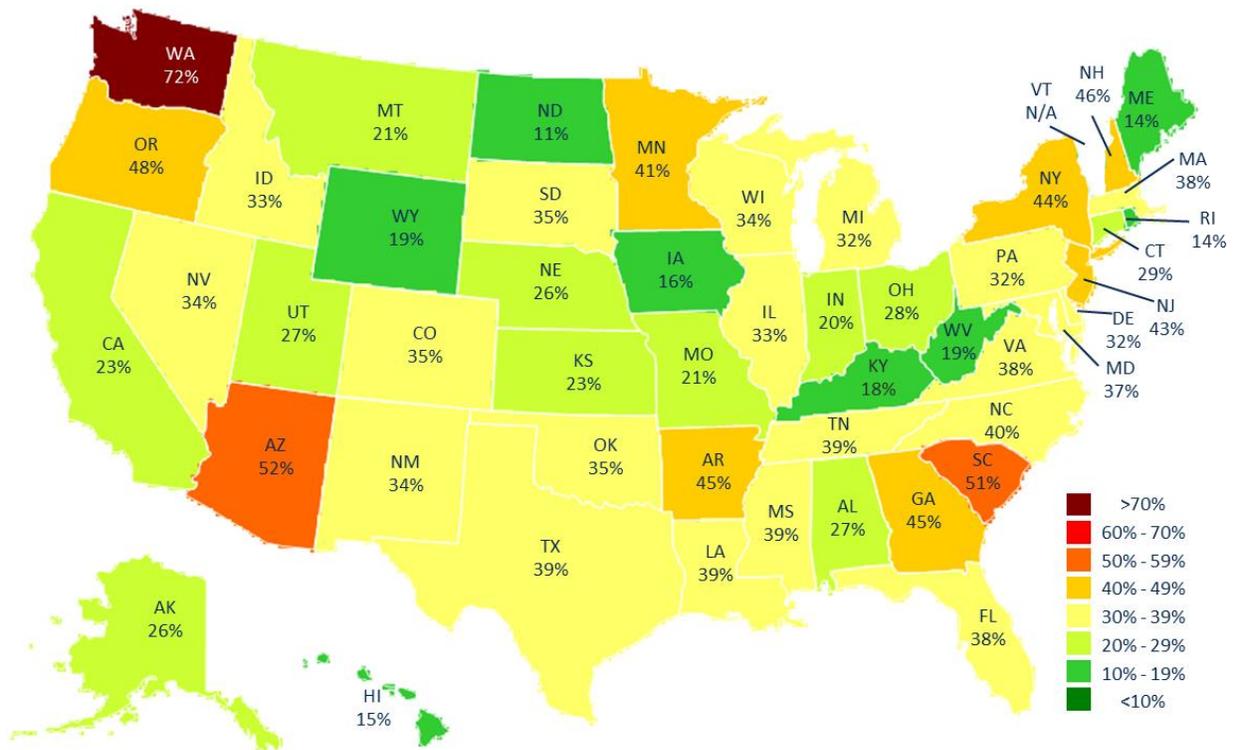


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- 4. Use electricity more efficiently by increasing demand-side energy efficiency to 1.5 percent annually.

Figure 1: State Targets

States are not required to use any of these “building blocks” if there are other things that states decide are more economical or consistent with their SIP. While EPA derived the state-specific goals through the application of each of these items, EPA has stressed that states will still have flexibility when choosing how to meet their goals from one or more of these mechanisms. State-specific plans can include, but are not limited to, demand-side energy efficiency and demand management programs, renewable energy standards, efficiency improvements at plants, boiler co-firing or conversion to natural gas, transmission efficiency improvements, development of energy storage technology, retirements, expansion of renewables or nuclear, market-based trading, and/or energy conservation programs. The proposed rule also allows states to submit multistate plans in order to reduce costs and to increase efficiency.





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THE IMPACT ON SPECIFIC STATES

Potential cost impacts raised by Federal Energy Regulatory Commission (FERC) Commissioner Philip Moeller, in a recent Congressional hearing, suggested that the EPA proposed rule would greatly affect how grid operators dispatch generation and would drive up costs to consumers largely because generators would need to include a "carbon fee" in their costs. In our view, states responses can fall into one of the following categories:

1. Reluctant and/or Resistant: Ignore new amendment and fight new EPA rules
2. Opportunistic: Attempt to re-examine current plans in light of proposed amendments
3. Strategically Engaged: Attempt to influence EPA or state-level plan development
4. Aggressive Response: Adopting plans and modifying strategies to leverage "clean and green" business opportunities
5. "Wait & See #1": Continue to comply with state and local regulations that require clean-up or shut down of coal plants – while waiting to see what happens with CPP and any successful legal challenges or rule changes
6. "Wait & See #2": Continue to comply with DSM regulations and renewable portfolio requirements and maintain an existing integrated resource planning process and wait until the dust settles

Some states and potentially impacted entities are already prepared for CPP compliance without having to formulate a fundamentally new strategy. The impact of CPP may not be so great in California, which already has a greenhouse gas (GHG) cap-and-trade program and the California ISO already includes the costs of greenhouse gas allowances in calculating generator's variable costs (which some observers have said were part of what drove up wholesale power prices in the region in 2013 by about 5 percent). California appears to be unique and the impact in other regions of the United States—particularly, the Midwest, Northeast and Southeast—would be impacted quite significantly by the CPP. A few examples from specific states illustrate these impacts:

- *Ameren Missouri*: The state of Missouri faces a 21 percent reduction of CO₂ emissions under the current CPP language. Available information suggests that the state will apply the rate-based goal—CO₂ emissions from fossil-fuel power plants in pounds divided by state electricity generation from fossil-fuel power plants and other low- or zero-emitting power sources in megawatt hours. Ameren Missouri will have to build a \$2 billion natural gas plant if the EPA finalizes the CPP in its current form, a company official said Aug. 19. Ameren, which provides power to about half of Missouri's population, has said that in order to make the math work for the state's goal, it will need to rush into constructing the new plant by 2020. It should be noted that renewable groups such as the Sierra Club have challenged this claim by saying that the state of Missouri can meet the EPA goals through more renewable energy, efficiency, and coal plant retirements.

Ameren said it would prefer not to build a gas plant, but if the proposal's current language became final, it would have no choice. Ameren has already announced it would close its 873 MW Meramec coal plant in 2022, the effect of which would be to reduce both the numerator and the



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denominator, but only modestly reducing the state's emissions rate. By building a new natural gas plant, the company can lower the state's emissions rate because the plant restores power to the denominator, but adds many fewer emissions to the numerator, thus lowering Missouri's overall rate. Ameren has publicly stated that it would prefer instead to continue along a trajectory it has already laid out, one that calls for more efficiency and a much smaller natural gas plant. The company has said that path would be slower, and Missouri would miss the EPA's interim goals, but it would meet the final goal by 2035. Ameren has said that it would like the EPA to allow it more time to meet the goal and it would like the agency to change

- *American Electric Power (multiple states of operation, based in Ohio):* AEP Chairman President and CEO Nicholas Akins issued public statements in July 2014 warning that imposing such a massive change [as called for by the CPP] could result in a "convoluted mess." Akins was quoted as saying, "To force a change in resource mix, system dispatch and market conditions along with navigating a myriad of state-related review processes covering many issues while not impacting reliability in such a short time frame could result basically in a convoluted mess that turns the foundation assumption building blocks of the plan into pipe dreams."

Akins also questioned the assumptions in the EPA's plans related to increasing the capacity factor of natural gas-fired generation, as well as upping the efficiency factors at coal-fired power plants. He said, "The idea of natural gas generation to run at 70% capacity factor, when neither the plants, natural gas pipeline system nor the electric system [is] in place to support it is not credible," he added. Or to expect 6% efficiency gains on coal units to occur when only about 1% is viable, even if capacity factors remained high, which won't happen because we have a force dispatch of other resources ahead of low-cost coal and that's just not credible either."

- *Indiana:* The EPA has ranked Indiana 5th in terms of total carbon dioxide emissions, releasing an estimated 92 million metric tons into the atmosphere in 2012. According to the EPA, Indiana ranked 15th highest in the nation in terms of pounds of carbon dioxide released per megawatt hour of energy produced in 2012. The EPA is proposing that the state develop a plan to drop its pounds/megawatt hour ratio from 1,923 to 1,531, a 20 percent reduction. Indianapolis Power & Light is considering the future of its legacy coal plants and looking to transition to a cleaner energy supply mix, as it updates its integrated resource plan.
- *Texas:* The CPP aims to reduce Texas' emissions rate by 39 percent over the 2012-2030 period. On August 15, Texas stakeholders, together in a chorus of opposition to the CPP based on concerns that it enables undue federal influence on the deregulated state's generation and transmission planning, ultimately threatening the independence of the Electric Reliability Council of Texas Inc. power market.



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VALUE OF REGIONAL PLANS

The CPP calls for each state to develop its own State Implementation Plan (SIP) detailing how they will comply with the CPP ruling (single state plans are due June 30, 2016; multi-state plans are due June 30, 2018). The EPA does not require any particular groupings of states, but it does suggest that some states might find it easiest to work within regional transmission organizations (RTOs), because those institutions have an administrative and market infrastructure in place. The challenge with this is that most of the RTOs do not align perfectly with state boundaries, so some states may have to create multiple plans for meeting the goals.

RTOs would face logistical issues if states choose to comply with the CPP by taking an independent, go-at-it-alone approach, because a single RTO would have to coordinate multiple compliance mechanisms. In today's highly integrated interstate marketplace for electricity transmission and grid operation, it is hard to imagine any state except the unique state of Texas, which already operates independently due to its lack of an interconnected grid, being able to function as an island with a stand-alone SIP. A good example of this is the state of Minnesota, whose governor announced in July that in response to the CPP the state would eliminate coal as a source of electricity production. The problem with that commitment is that electricity delivered to Minnesota residents is part of a regionally dispatched grid, in which coal is a critical resource. The value of developing a regional plan—prepared by states in similar geographic areas or with similar generation resource mixes needs exploration. Regional grid and wholesale market operators might find it easier to manage the impacts of the CPP if states in those regions participate in cap-and-trade type programs to comply with the rule, according to sources. For example, two states in the PJM Interconnection also participate in the RGGI, program, the nation's first cap-and-trade GHG emissions program that is a cooperative effort among states comprising some or all of the systems of New York ISO, PJM Interconnection LLC and ISO New England Inc.

Auction sales of carbon allowances in RGGI have generated \$1.8 billion since the program launched six years ago. The nine Northeastern and New England states participating in RGGI use the revenue to fund energy efficiency, renewable energy, consumer utility bill assistance, and other consumer programs. Under the program, a cap is set on total carbon emissions allowed from electric power generators, and generators buy allowances for the carbon they emit. Some states and RTOs are now looking for RGGI as a national model for reducing carbon pollution and transitioning to cleaner energy sources in compliance with the CPP.

A LEGAL QUAGMIRE

While we believe it is critical for impacted parties to formulate a response strategy to the CPP, we would be remiss in our analysis if we did not make note of the number of lawsuits initiated to thwart execution of the CPP, which may place the plan in legal limbo for some time. At last count, governors from approximately 15 US states joined together in resisting the CPP through a joint letter to President Obama. The letter is critical of the CPP, saying that it will ultimately result in increased unemployment in the coal industry along with



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higher electric bills for Americans. States governors who signed-on to the letter are from: Alabama, Alaska, Arizona, Idaho, Indiana, Mississippi, New Mexico, North Carolina, North Dakota, Oklahoma, Pennsylvania, South Carolina, Utah, Wisconsin and Wyoming. Other, more formal legal proceedings have also been launched, including a lawsuit by the Murray Energy Corporation, the largest underground coal mining company in the United States. Murray filed two lawsuits in the U.S. Court of Appeals for the D.C. Circuit challenging the proposed 111(d) guidelines and is supported by a number of states; it has received amicus support from nine states.

Three major theories are advanced by the industries and states that oppose the Clean Power Plan proposal:

1. *Argument #1:* The EPA cannot regulate existing fossil fuel plants because they are regulated under the hazardous air pollutant program.
2. *Argument #2:* The EPA cannot regulate beyond certain boundaries, namely solely within the power plant, which would preclude the agency issuing mandates related to efforts beyond the “fence line” of the power plant, and including end-use energy efficiency, renewable energy, and nuclear power plants open.
3. *Argument #3:* The Section 111(b) rule for new sources, which is a prerequisite to the 111(d) rules, under which the EPA has asserted its authority to set nationwide guidelines, is invalid. Essentially this argument rests on the position that questions about whether carbon capture and sequestration, on which the CPP is based, are outside the authority of the EPA given to it by the provisions of the Energy Policy Act of 2005.

Table 1 that follows provides a sampling of what some companies face, particularly companies with assets in more than one state.

OUR APPROACH

Clearly, there are many competing views and perspectives on the rule and its expected impact. Utilities, generators, alternative energy businesses, regional transmission organizations, state environmental, utility regulatory, and economic development agencies, and local governments all have a stake in these discussions and their outcome. Whether a state takes a regional, sub-regional or a state-only solution, we believe it is critical for all potential impacted parties to determine their best approach toward responding to the CPP. There is a tremendous risk in simply waiting to see what happens with the proposed rule (i.e., remaining purely reactive) as policies are presently being formulated that could find their way into state SIPs and thus become mandated requirements for impacted parties.

We cannot state strongly enough that with the implications of the CPP timeline, there is a real imperative to get in front of the planning of what would go into the state compliance plans, and in order to do so a potentially impacted party must first conduct a comprehensive assessment of how the CPP will impact them directly.



A WEST MONROE WHITE PAPER

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West Monroe offers a variety of services to assist potentially impacted parties and states in finalizing the CPP rules and in developing compliance strategies. We can assist in (1) developing timely and “best value” compliance plans, (2) improve stakeholder insights and intelligence around regulatory processes and the important role that innovative and enabling technologies can play in fostering a new business model for the utility of the future, and (3) viewing CPP compliance strategies and plans within the context of the firm as a whole, across a range of performance metrics, including financial indices to mitigate business and financial risks

For more information please reach out to Paul DeCotis at pdecotis@westmonroepartners.com, or visit our website at www.westmonroepartners.com.



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Table 1: Illustration

		Ameren Corporation	American Electric Power Company, Inc.	Indianapolis Power & Light	Duke Energy Corporation	Southern Company
Regulatory Industry		Diversified Utility	Electric Utility	Electric Utility	Diversified Utility	Electric Utility
Location		St. Louis, MO	Columbus, OH	Indianapolis, IN	Charlotte, NC	Atlanta, GA
States of Operation		IA, IL, MO	AR, IN, KY, LA, MI, OH, OK, TN, TX, VA, WV	IN	AZ, CA, CO, FL, IL, IN, KS, MA, ME, NC, NJ, OH, PA, SC, TX, VT, WI, WY	AL, CA, FL, GA, MS, NC, NM, NV, TX
Number of Plants	Total	32	76	8	174	105
	Coal	9	28	3	26	20
	Uranium	1	1	0	7	3
	Natural Gas	12	20	2	39	29
	Oil & Petroleum Products	6	7	3	16	11
	Other Non-Renewable	0	0	0	0	0
	Hydroelectric	3	18	0	34	34
	Renewable	1	2	0	52	8
Total Generation Capacity (MW)	Total	11,505.4	40,176.4	3,907.4	63,669.8	49,549.9
	Coal	5,653.8	26,433.2	3,146.3	22,812.8	22,094.5
	Uranium	1,235.8	2,285.3	0	8,772.9	3,699.3
	Natural Gas	3,501.4	8,516.4	503.8	19,635.7	13,834.2
	Oil & Petroleum Products	359.8	28.21	257.3	2,922.2	1,792.0
	Other Non-Renewable	0	1,761.5	0	4,649.3	4,971.9
	Hydroelectric	740.8	841.3	0	3,075.4	2,777.2
	Renewable	13.8	310.5	0	1,801.5	380.8
Percent Generation Capacity	Coal	49.1%	65.8%	80.5%	35.8%	44.6%
	Uranium	10.7%	5.7%	0.0%	13.8%	16.7%
	Natural Gas	30.4%	21.2%	12.9%	30.8%	374.0%
	Oil & Petroleum Products	3.1%	0.1%	6.6%	4.6%	13.0%



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(%)	Other Non-Renewable	0.0%	4.4%	0.0%	7.3%	277.4%
	Hydroelectric	6.4%	2.1%	0.0%	4.8%	55.9%
	Renewable	0.1%	0.8%	0.0%	2.8%	13.7%