



University of Houston, C.T. Bauer College of Business
Symposium and Workshop
Clean Power Plan
March 9, 2016

Introduction

The Gutierrez Energy Management Institute (GEMI) of the University of Houston's C.T. Bauer College of Business held a Symposium and Workshop to explore the provisions of the Clean Power Plan (CPP) published on February 10, 2016 in the Federal Register by the Environmental Protection Agency (EPA) on March 9, 2016. The plan has been contested by 27 States on various grounds, and defended by 18 States. The appellants sought a stay of the rule from the D.C. Circuit, which was denied on January 21, 2016, and appealed to the Supreme Court. On February 9, 2016, in an unprecedented move, the Supreme Court stayed implementation of the CPP rule pending full judicial review of the objections.

“In order to grant a stay, the Court needed to find that if the D.C. Circuit were to uphold the CPP, (1) there is a reasonable probability that four Supreme Court Justices would vote for review of the D.C. Circuit opinion; (2) there is a fair prospect that a majority of the Supreme Court would vote to reverse the D.C. Circuit's opinion upholding the CPP; and (3) that there is a likelihood that immediate, irreparable harm would result from the denial of a stay. By granting the stay, it appears that five of the nine Supreme Court justices (Roberts, Scalia, Alito, Kennedy and Thomas) indicated that they believe there is a fair prospect that they would vote to overturn the D.C. Circuit were the D.C. Circuit to uphold the CPP.”¹ The rule has been challenged in several ways, and it is unclear which of the bases for challenge, if any,² that the Supreme Court majority relied upon in granting the stay.

On February 13, Justice Scalia passed away and the CPP stay remains in place. With the surviving Justices split on the stay, there is a possibility of a tie if the D.C. Circuit final decision is appealed to the Supreme Court.

With this dramatic turn of events as background, 35 invited participants convened at the C.T. Bauer College of Business to discuss these issues. The meeting was conducted under the Chatham House rule that comments made during the session could be repeated outside the meeting, but should not be attributed to specific individuals or their organizations. The agenda for the meeting is provided in Appendix 1.

The first panel provided a brief legal history of the CPP and comments from an EPA representative on its intent. A former senior strategist at the Federal Energy Regulatory Commission (FERC) described FERC's role in assuring the reliability of power supplies at reasonable costs. A second panel focused on the possible consequences of the CPP with particular focus on Texas. Among the issues raised was the impact of the CPP on power cooperatives dependent on coal generation. A final presentation focused on how a large multi-state electric utility was addressing issues posed by the CPP.

Following these presentations, three groups were formed to discuss what the implications of the CPP might be for power generators, power transmission and distribution companies and their customers, as well as regional economies. Finally, the groups considered whether there might be a better way to achieve the objectives of the CPP. The groups presented summaries of their discussions and conclusions; which showed broad agreement on the main themes, as well as specific ideas from each group that enriched the overall conclusions. A summary of these discussions and conclusions is presented below.

¹ Blog posted by members of Stoel Rives, LLP on February 11, 2016

² It is possible that Justice Kennedy's vote had to do with the unprecedented nature of state involvement in the case, The 47 states that are party to the case, are the most to be parties to a case in history.

Symposium
The CPP Rule

Legal Background

The EPA finds its authority to regulate greenhouse gases in the Clean Air Act (CAA) of 1970. In 2007, the Supreme Court required the EPA to make a determination as to whether greenhouse gases are a pollutant under the CAA³. The EPA issued an endangerment finding in 2009 and on June 26, 2012, the U.S. Court of Appeals-D.C. Circuit upheld the EPA's endangerment finding and greenhouse gas regulations issued under the Clean Air Act (CAA) for passenger vehicles and CAA permitting for stationary sources⁴. Regulation for mobile sources of GHG began in 2011 and litigation began over whether stationary sources were “subject to regulation”. The EPA proposed regulations for new and modified stationary GHG sources under CAA Section 111(b) and for existing sources under Section 111(d) (the “Clean Power Plan” CPP).

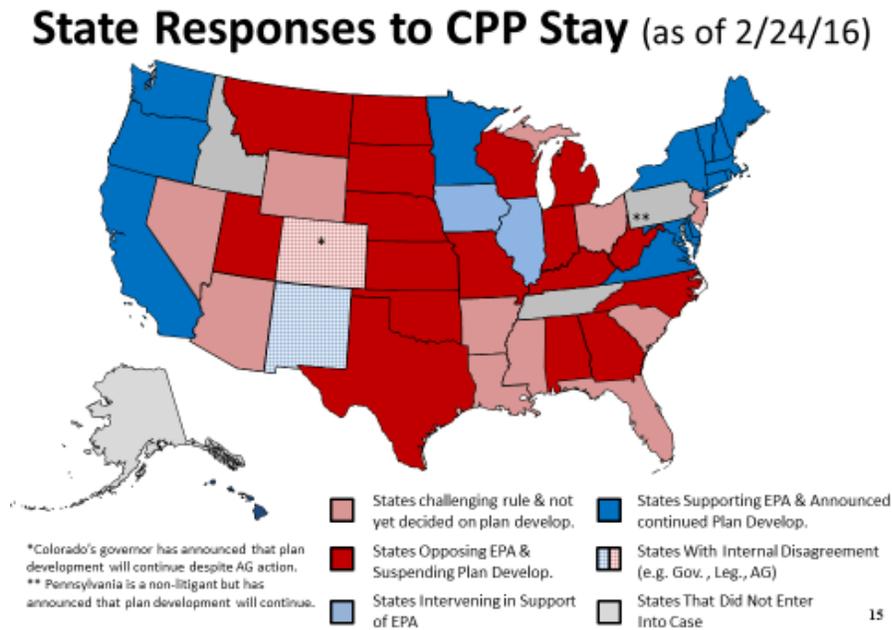
27 states (157 parties in all – Figure 1) have asked for a stay of the CPP rule. 18 states have intervened in support. The stay was denied at the D.C. Circuit, but awarded on appeal to the Supreme Court. Some of the grounds for asking for the stay were:

- A difference between the House and Senate versions of Section 111(d) which means that the EPA may not have the authority to regulate as proposed;
- Constitutional claims that the CPP coerces states to take actions for the benefit of the federal government and is commandeering the states to take actions;
- Fence-line issues of whether in Section 111, “the best system of emission reduction” applies to an individual plant (within the fence) or to the portfolio of plants within a State.

³ Massachusetts v. EPA - 2006

⁴ EPA: <http://www3.epa.gov/climatechange/endangerment/ghgcourtdecision.html>

Figure 1: 27 States Opposed to CPP



The decision to stay the implementation of the CPP was considered by most commentators as unusual or even unprecedented because of the high bar set for such a move, as described above. The stay will remain in place until the D.C. Circuit completes its review of the objections filed by the 27 states. If the CPP is upheld, the decision will be appealed and the Supreme Court will make the ultimate decision.

Following the death of Justice Scalia, President Obama has nominated Judge Merrick Garland to fill the Supreme Court vacancy. Republicans in the Senate have warned that they will not vote to confirm any nominee proposed by the President. If this impasse remains, the eight remaining justices, if they agree to consider the appeal of the D.C. Circuit decision and vote as they voted on the request for a stay, would be deadlocked at 4-4 for and against. The D.C. Circuit decision would then stand. Alternatively, the appeal might not be heard until after the general election and nomination of a candidate by the new President.

There is considerable uncertainty on the future of the CPP. However, the probability that it will stand is high enough that it is worthwhile to understand its intent and structure as well as the potential consequences of its implementation.

CPP Intent and Structure

The EPA determined that climate change was harming people's health and well-being, and consequently issued an "endangerment finding" on greenhouse gas regulations in 2009. This action spurred various regulatory interventions to control GHGs. The President proposed a climate action plan in 2013. He made specific, but not binding, pledges alongside other countries, party to the December 2015 Paris Agreement negotiated under the United Nations Framework Convention on Climate Change, to reduce U.S. GHG emissions as its Intended Nationally Determined Contribution.

Consistent with the climate action plan, the EPA developed the CPP to reduce CO₂ emissions from existing fossil fuel power plants. The EPA has rules in place to limit emissions from modified, new, and reconstructed sources, which are not affected by the CPP stay. The EPA's point of view is the stay was not a decision on the merits of the case against the CPP, but does put the enforcement and implementation of the plan on hold. Nevertheless, some states have chosen to continue to work on the CPP and related issues and the EPA is providing support and tools as needed.

The CPP establishes state GHG emission standards in two ways: a Rate Based Standard specifies a maximum emissions standard in pounds of CO₂ per megawatt hour of produced electricity; alternatively Mass Based Standard is expressed in U.S. Short Tons of CO₂ emissions annualized over the compliance period. State standards vary considerably, relative to current fossil fuel emission levels, due to differences in the EPA's analysis of emissions reduction opportunities in each state⁵. The standards take into account the costs of achieving the specified reduction and are designed to be reachable. The question of whether the state can relax the standard is being litigated.

The CPP identifies three building blocks available to the states as the best system of emission reductions (BSER) to meet one or the other of these standards:

- Improving the efficiency of power plants
- Moving generation to cleaner fossil fuel plants (e.g., switching from coal to natural gas)
- Shifting generation from fossil fuels to renewables (e.g., solar and wind)

A fourth building block, improving demand site energy efficiency (DSEE), is not included in the CPP but can be included in state implementation plans.

⁵ Brattle Group April 8, 2015 presentation to Central Texas Association for Energy Economics

The Role of FERC

FERC is an independent regulatory commission that regulates the interstate transmission of electricity, natural gas and oil: FERC describes its mandate:

- Regulates the transmission and wholesale sales of electricity in interstate commerce;
- Reviews certain mergers and acquisitions and corporate transactions by electricity companies;
- Regulates the transmission and sale of natural gas for resale in interstate commerce;
- Regulates the transportation of oil by pipeline in interstate commerce;
- Approves the siting and abandonment of interstate natural gas pipelines and storage facilities;
- Reviews the siting application for electric transmission projects under limited circumstances;
- Ensures the safe operation and reliability of proposed and operating LNG terminals;
- Licenses and inspects private, municipal, and state hydroelectric projects;
- Protects the reliability of the high voltage interstate transmission system through mandatory reliability standards;
- Monitors and investigates energy markets;
- Enforces FERC regulatory requirements through imposition of civil penalties and other means;
- Oversees environmental matters related to natural gas and hydroelectricity projects and other matters; and
- Administers accounting and financial reporting regulations and conduct of regulated companies.

The Texas coal fleet has already been extensively retrofitted to reduce emissions of regulated pollutants such as Sulphur Oxide (Sox), Nitrogen Oxide (NOx), and particulates. The investments made to achieve these improvements will be stranded if the plants are prematurely closed.

ERCOT also believes that the EPA has seriously underestimated the number of coal plants that will need to be closed to comply with the CPP.

By contrast, a Symposium participant observed that the problem for coal plants in Texas was more related to market forces. Specifically, low priced natural gas and the resulting cost advantage to efficient gas fired generators is resulting in power from these plants being dispatched ahead of coal fired plants on economic grounds, which predates the CPP and seems likely to persist.

A Multi-State Power Company’s Viewpoint

The two main issues that will be litigated are the definition of the word “system” and the definition of the phrase “remaining useful life.”

Simply put, the CPP is designed to reduce coal, increase natural gas, and encourage increases in non-emitting generation. CPP presents opportunities for new technologies in energy efficiency, natural gas technologies, including gas generation with carbon capture and storage (CCS), nuclear technology beyond the AT1000 currently being installed in Georgia, further advances in lowering the cost of solar generation, and potentially cost-effective power storage devices.

There will also be opportunities in further advancing wind technology and installing transmission capacity from sites rich in wind and solar resources to population centers.

In order for the CPP to be implemented smoothly, a strong collaboration between environmental and electricity regulators as well as between the regulators and the companies being regulated are needed. There are important issues that require further definition including a protocol for retiring coal facilities, incentives to keep existing nuclear plants operating, and how inter-state trading in carbon allowances (for a mass-based regime) or emission rate credits (for a rate based regime) might be structured and organized.

Workshops

Participants separated into three workgroups each including representatives from generation, transmission and retail electric power companies, attorneys, environmental advocates and regulators. The intent was to discuss the issues in a way that would allow participants to deepen their understanding of the issues and gain insights from others seeing these issues through different lenses. The groups were given the same instructions on the issues to address.⁶

- Discussion of the panel perspectives on CPP
- Implications for generators and their fuel suppliers
- Implications for transmission, distribution and retail sectors and their customers (Price, reliability)
- Implications for Texas and other regional economies

The groups reported back to the full meeting a number of shared themes:

- The CPP has proven to be an effective catalyst for focusing discussion on GHG issues.

⁶ Workshop moderator guide is attached as Appendix 2.

- Overall, the impact of the CPP varies by region. In some parts of the country, the CPP as published will likely not have a significant impact on electricity prices and reliability in the medium term so long as natural gas prices remain low, since the primary building block enabling compliance with the CPP standards will be to substitute coal fired generation with natural gas fired generation. However, many expressed a concern that the CPP skews the balance of policies of reliability, cost of service and environmental impact by placing more emphasis on environmental impact and less on reliability and cost.
- If the CPP survives, concerns were raised about the EPA's authority to regulate existing sources of greenhouse gases in other industrial sectors, which could have a more significant economic impact in states like Texas.
- Regions dependent on coal fired power generation will see significant increases in electricity costs and risks to reliability. Investors in and lenders to companies with a preponderance of coal fired generation will suffer loss of value. Owners may have invested in upgrades to meet earlier emissions standards and may have financed the projects with debt. Their ability (particularly small utilities and regional cooperatives) to remain financially viable and service and repay the debt may be compromised if the plants are shut down.
- Many nuclear energy plants are reaching the end of their permitted life. If they are shut down, regions dependent on nuclear energy will be challenged to replace them and at the same time meet the CPP emissions targets without compromising electricity costs and reliability.
- Further development of wind and solar energy supplies will require continued investment in increased transmission capacity as well as back-up power sources to feed the grid when wind and solar sources are dormant. States will need to address market design issues including capacity market questions and further evolution of financial terms for provision of Ancillary Services to the grid. There was general agreement that Texas is well served by the professionalism of ERCOT leadership and staff.
- If natural gas supplies are constrained by overly aggressive regulation of well siting, water disposal, methane emissions or pipeline routing, natural gas prices will increase and regions will become obliged to increase the contribution of more expensive, intermittent renewable power sources in place of coal fired generation. Concerns were raised that the costs of meeting the CPP standards would be greatly increased and reliability of the grid could be jeopardized. This outcome though will be dependent on the future cost, rate of penetration of, and ability to accommodate, renewables for specific power grids.
- Increased costs could also be mitigated by demand management through time-of-use rates or energy storage devices if their costs are reduced. A higher cost environment would also increase the attractiveness of Distributed Energy Resources (DER), but that could further stress the reliability of the grid.
- Constraints on natural gas development would adversely affect the huge Texas based oil and gas exploration and production and midstream development sectors. The associated higher cost of natural

gas could lead to a less reliable power scenario which would be particularly damaging to the Texas economy, home to a large energy intensive industrial sector.

- Smooth CPP implementation will require robust environmental compliance instrument markets for allowances or emission rate credits, with provisions for ensuring sufficient market depth and liquidity by encouraging financial participants and facilitating trading across states.
- CPP raises the need for coordination of potentially contradictory regulations imposed by different government entities and collaboration between regulators and the companies being regulated.
- There is a need for government funding of further basic research on carbon-free generation and power storage technologies and on GHG separation, capture and storage or preferably monetization.

If the CPP rule does not stand, it could be replaced by setting a predictable price on GHG emissions through a carbon tax or fee, or through a cap and trade system (although experience from the European Union highlights the unpredictability of a poorly designed carbon emissions market coupled with uncoordinated forcing of renewables).

Summary and Conclusion

Participants agreed that the symposium and workshop achieved its objectives of informing participants on the background of and issues arising from the CPP. They benefited from a solid grounding from panelists and from productive round table discussions among experienced people covering different aspects of the electric power business from commercial, policy, environmental, and legal perspectives.

Based on the rich discussions and the concerns that were identified, most participants agreed that a national carbon tax with offsets or a cap and trade system would be superior policies to the CPP and that could be the ultimate outcome if the Supreme Court rejects the published EPA Clean Power Plan. Either of these approaches would involve less micro-management of state power systems and would likely result in lower costs to meet the desired national CO₂ emissions results.

Appendix 1: Clean Power Plan or What Next? Workshop & Symposium Agenda

- 7:30 – 8:00 am Registration and Continental Breakfast
- 8:00 - 8:20 am Welcome and Opening Remarks by Dean Ramchand
- 8:20 - 9:20 am Setting the Context: Panel
 - Moderator Introduction (CPP, Another National Plan or Fragmented Approach)
 - EPA: CPP Intent
 - Implications for FERC
 - Q & A
- 9:20 – 9:30 am Coffee Break
- 9:30 – 10:30 am Economic Implications for Texas and other Regions: Panel
 - ERCOT: Texas Point of View
 - Implications for Power Generators
 - The Role of Natural Gas
- 10:30 am – 1:30 pm Workshop: Break Out Discussions with Working Lunch
 - Implications for Power Generators and their Fuel Suppliers
 - Implications for the Cost and Reliability of Electricity Supply
 - Regional Economic and Financial Consequences
 - What might be alternatives to CPP if the current rule is struck down?
- 1:30 – 2:30 pm Summaries of key issues from break-out groups
- 2:30 – 3:00 pm Closing Comments

Appendix 2: Workshop Agenda for UH CPP Symposium

Workshop objective: Define most important areas of public policy alignment across power industry on clean air regulation, and identify essential near term industry or government actions.

Time	Activity	Leader	Comments
10:30	Workshop overview	Ross	Objectives and process. Use structured table work ⁷ with worksheet and Post-its for each participant.
(Break into three groups with facilitator and flip chart. Brief introductions. Select recorder & timekeeper.)			
10:40	General reaction to panel perspectives <ul style="list-style-type: none"> • Do you agree with material presented? Why or why not? • Most important general conclusions? 	Facilitators	
11:00	Implications for Fuel/Generation sector <ul style="list-style-type: none"> • Biggest impacts from CPP? • Potential mitigation strategies? • Most important regulatory/public policy actions to help industry, if CPP survives? • If the CPP does not stand, what are the alternatives? 	Facilitators	Each participant notes key issues on Post-its. Group organizes info. Summarize action points on flip charts; Use voting with dots on action priorities. Recorder notes group's major points/conclusions.
11.45	Implications for T&D, Retail Energy sectors and their customers (price, reliability) <ul style="list-style-type: none"> • Biggest impacts from CPP? • Potential mitigation strategies? • Most important regulatory/public policy actions to help industry, if CPP survives? • If the CPP does not stand, what are the alternatives? 	Facilitators	
12:30	Implications for regional (Texas) economy <ul style="list-style-type: none"> • Biggest impacts from CPP? • Change in national and global competitiveness? • Likely shift in industry mix? • Potential mitigation strategies? • If the CPP does not stand, what are the alternatives? 	Facilitators	
1:15	<ul style="list-style-type: none"> • If not CPP, then what? 		
1:30	Synthesis of break-out group input <ul style="list-style-type: none"> • Reports out from each group • Key common themes 	Ross	

⁷ Each participant takes a few minutes at the start of each segment to note his/her thoughts on the worksheet for that segment and prepares ~5 Post-Its with main points. Then all participants offer their comments in turn, and the table engages in discussion to organize the Post-Its and prioritize their conclusions on the question. (Could use voting with dots to prioritize.) The recorder notes the major points and conclusion on a master worksheet. The selected reporter uses the master sheet to report out.