

Constructing State Plans for the Clean Power Plan:

The First Questions to Ask

February 2016

Miles Keogh, NARUC Research Lab

Funded by the U.S. Department of Energy



Acknowledgment:

This material is based on work supported by the Department of Energy under Award Number DE-OE0000578.

Disclaimer:

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

The information and studies discussed in this report are intended to provide general information to policymakers and stakeholders but are not a specific plan of action and are not intended to be used in any state electric facility approval or planning processes. This paper is ultimately reflective of the opinions of the author and is intended to catalyze discussion; it should not be taken to represent the policy positions of the National Association of Regulatory Utility Commissioners, or any of its members. The work of the NARUC Research Lab does not bind any state agency or regulator in any state proceeding.

Constructing State Plans for the Clean Power Plan: The First Questions to Ask

Introduction

If you work in the energy sector, by now you have heard of the U.S. Environmental Protection Agency's (EPA) Clean Power Plan (CPP) which establishes greenhouse gas emissions guidelines under Section 111(d) of the Clean Air Act. Maybe your state is enthusiastic about the plan; maybe it's ambivalent or even suing to stop it. No matter what your state's perspective is with regarding the CPP, if you work in a state agency that interfaces with the power sector, you might have started making a list of things you would need to do to get your state through the steps required for compliance. This playbook is written to help.

It addresses the basics:

- *When* does my state have to take action?
- *Who* should be responsible for leading the plan and implementing it?
- *What* questions help my state walk through the first choices for implementation?

Changes to the timing of compliance from the proposed rule to the final rule offer the opportunity to change how your plan is developed. The proposed CPP created a one year deadline of September 2016 for states to create and submit plans. When the rule was finalized, the EPA provided the option for an additional two years (three in total) if a state requests it. Now, for states that need this extra time, getting the right people to lead, design, and implement your state plan may be easier and broader collaboration should yield a better plan.

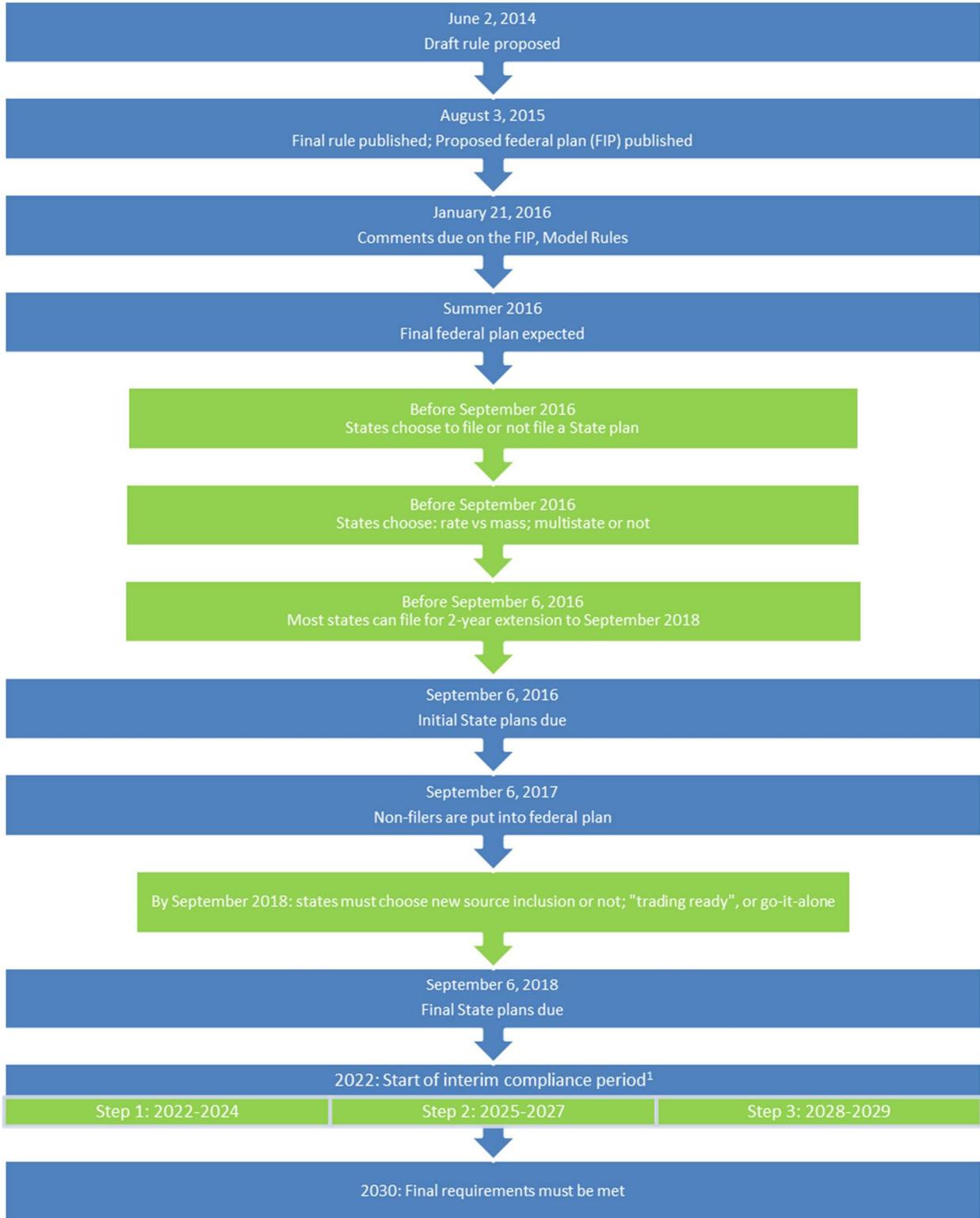
This paper makes the case that, while state air regulators are tasked with authoring and submitting the plan, the potential effects are much broader than those usually found in traditional environmental policymaking. Given the broader effects of the CPP, coordination across state decision-makers to construct the plan, leveraging the expertise of those with an understanding of the power sector, can help facilitate a state's plan design. Stakeholder input is a core part of the plan, and a potentially helpful institutional structure for building a state plan would be to leverage the role of state leadership (e.g., a Governor) and its convening authority to bring together a community of decision-makers serving the public interest to design the plan together. This paper recognizes the expertise needed to address different components of CPP compliance, and then identifies some of the first questions that need to be resolved by your state.

Clean Power Plan Compliance Timeline

So, by when does action need to be taken? Table 1 illustrates the state and federal decision points in developing a CPP state plan via one example pathway based on the final rule's timeline.¹

¹ Although the CPP is being litigated, this paper does not focus on how the rule may be altered, stopped, or delayed by the courts. Despite the litigation, to be prepared, it may be most helpful for states to assume that the rule will move forward with the earliest, most assertive compliance timing.

Table 1: The CPP implementation timeline



Steps in blue indicate major Federal milestones; steps in green indicate decision points for the states.

During the compliance period, the final rule allows states to craft their own emissions reduction trajectories or to follow EPA’s trajectories in meeting the interim goals included in the rule.

The final rule sets an important date in all our calendars: September 6, 2016. By that date, a state air agency needs to do one of three things:

1. Do nothing, recognizing that this will result in a Federal Plan constructed and enforced by the EPA.
2. File a complete compliance plan for the CPP. For states that are non-observer participants in the Western Climate Initiative and the Regional Greenhouse Gas Initiative (RGGI), this option may be more realistic, because they have existing programs.
3. File, with EPA, an initial plan and a request for an extension of up to two years to submit a final plan. Conventional wisdom suggests most states that file will ask for this extension.

If your state doesn't wish to file a plan, that's a valid choice; you can stop reading right here. The proposed Federal Plan² envisions two options for trading-based compliance system: one that uses a rate-basis and emission reduction credit, and one that employs a mass-basis and tradeable allowances.³ When EPA finalizes the Federal Plan, states will have a better sense of how the Federal Plan will affect them.

If you want to consider the implementation of a state plan, two questions appear first.

- What goes into an initial plan? What will my state need to file with EPA by September 6, 2016?
- Who should construct the plan? Who does my state need to work with to be ready for September 6, 2016?

The remainder of this paper addresses these questions.

Who, within your state, do you want to involve in constructing and implementing your plan?

In the preamble to the final rule and through guidance provide by EPA on October 22, 2015, EPA explains what would be needed in a state initial compliance plan.⁴ States must include three main ingredients (and may include a couple of optional garnishes discussed in the EPA guidance):

1. An identification of the direction your state will go vis-a-vis rate or mass basis, trading-ready or go-it-alone, and progress so far, including the ways in which public stakeholder input has been used to determine policy directions;
2. An explanation of why more time is needed (the EPA guidance gives some examples, such as the need for legislative consultation and the administrative scheduling of the agency, among others).
3. Information about the public and stakeholder input processes your state is using, with a special mention of "vulnerable communities."⁵

² You can find the proposed Federal Plan at <http://www3.epa.gov/airquality/cpp/cpp-proposed-federal-plan.pdf>.

³ Either approach envisions multistate compliance. For a toolkit of resources to facilitate multistate compliance, see NARUC's spring 2015 paper, "Multistate Coordination Resources for Clean Power Plan Compliance," <http://www.naruc.org/Grants/Documents/Multistate%2011d%20Coordination.pdf>.

⁴ "Initial clean power plan submittals under Section 111(d) of the Clean Air Act" <http://www3.epa.gov/airquality/cpptoolbox/cpp-initial-subm-memo.pdf>.

⁵ Vulnerable communities and resources relating to the CPP are explored in EPA guidance online at <http://www3.epa.gov/airquality/cppcommunity/fs-cpp-resources-communities.pdf>

This last area drives the question of who to involve in constructing the plan and will be addressed in the second half of this brief.

Meeting these requirements may be more easily accomplished if a state involves a broader expertise beyond the officials in the air office. Further, EPA's guidance on state plans notes that the EPA's regional offices are a technical resource that can be called on throughout plan development.

Who should lead the plan?

The kind of plan you choose will commit your state to a series of energy choices for decades. Unlike other air pollution control programs, the CPP doesn't simply look at pollution control add-ons to the existing fleet. Instead, it may drive changes in the portfolio of plants we use, the ways end-users consume electricity, and the ways we prioritize energy resources. Because previous pollution control programs were located more directly in the wheelhouse of expertise of the air regulators, it made sense for the construction of the compliance plan to be done by the air regulator. Since the CPP transforms the makeup of the energy resources of a state, broadening the expertise contributing to the plan's design to include state public utility commissions and energy offices, among others, will engage a wider and more effective range of compliance options.

One model that may prove instructive is the one being used in the states of Washington and Montana. In Washington, the Governor has called together key state stakeholders serving the public interest to construct the CPP state plan, including the public utility commission, energy office, key legislative liaisons, consumer advocates, and others. The Governor convenes the state stakeholder task force, the air agency serves as the technical staff to this state stakeholder task force, and the state stakeholder task force compiles the plan drawing from its core areas of expertise. Montana's model is similar, but the stakeholder group extends beyond the state agencies to include the power companies, key consumers, and others who are most heavily affected. Although in some states the Governor may not be the right locus for this convening (perhaps due to the authorities specific to different states, competing responsibilities, or other political realities), the key take-away is that engagement of broader expertise, with the support of elected officials, is more likely to be sustainable.

Stakeholder input as a driver of the plan may also be essential to creating a plan that is durable in the face of inevitable change. This input may need to go beyond the public hearing model where short statements are sought from the public at open meetings—the approach that is familiar from the way state commissions site power plants or engage public input in other utility decision-making domains. Instead, this approach puts the stakeholders in the drivers' seat, convened by the state's leadership and supported by the air office experts in a technical capacity. This approach may not work everywhere, but is worth considering as you build the decision-making institutions to successfully design a state plan.

Finally, the only currently existing multistate cap and trade program is the Regional Greenhouse Gas Initiative (RGGI).⁶ This system is in its tenth year of successfully operating a multistate mass-based greenhouse gas emissions trading program; so, as models go, it appears to be one to learn from. Its governance was established by an agreement among Governors⁷ and its individual state plans were constructed by teams of

⁶ More about the Regional Greenhouse Gas Initiative is available at <http://www.rggi.org>.

⁷ A succinct history of RGGI is online at <http://www.c2es.org/us-states-regions/regional-climate-initiatives/rggi#History>

state stakeholders serving the public interest: air agencies working closely with energy offices, public utility commissions, and others.⁸

Who should construct the plan?

Assuming your state decides to make a go of developing a plan, an immediate question is: who in the state is the right entity to design and implement the plan? Given the broader effects of the CPP, it is likely a team approach will better leverage the right in-state authority and expertise than wholly relying on the air agency. To recap, the CPP establishes targets for the reduction of emissions of carbon dioxide from the existing fleet of power plants under EPA's Clean Air Act authority. Under Section 111(d) of the Clean Air Act, state air pollution control offices must write a plan and submit it to EPA for approval and then ensure the approved plan is implemented.⁹ This is similar to the way EPA has handled clean air program implementation for other pollutant emissions, such as mercury, air toxics, and chemicals that cause ground-level ozone and acid rain, i.e., the state air agency is responsible for authoring and effectively implementing the plan.

Until now, the state air agencies have been writing plans relying on pollution control devices that are familiar to air regulators,¹⁰ but carbon dioxide emissions are an inevitable result of combustion, so the ways of controlling those emissions may be best addressed with systemic approaches like changing power plants or using energy efficiency, for example. These programs are very rarely in the domain of expertise or authority of state air agencies. Under the CPP, the air agencies could benefit from broader expertise. The stakeholder task force approach is one way to engage this expertise. To help air agencies think through which expertise and what state organizations/agencies to engage, the Regulatory Assistance Project (RAP) and the National Association of Clean Air Agencies (NACAA) published a useful resource: *Implementing EPA's Clean Power Plan: A Menu of Options (May 2015)*.

At the end of this document, Appendix A has a table that outlines the things states might include in a compliance plan that are detailed in the RAP/NACAA Menu of Options. It also identifies the state agency that generally is seen as the one with expertise in authorizing and implementing that activity. The RAP/NACAA Menu of Options identifies 26 possible activities that offer directions for compliance ranging from improved integrated resource planning to expanded renewable portfolio standards. One of the key take-aways that the table details is that all 26 are activities that are central activity areas not of air regulators, but of state public utility commissions, state energy offices, and state legislatures.¹¹ The table in Appendix A is especially relevant depending on the kind of plan selected. In any formulation, the implementation of the plan will undoubtedly benefit from the input from state public utility commissioners, energy offices, and legislatures.

⁸ Some observers note that RGGI may require modification to fit with the compliance template outlined in the Clean Power Plan in areas like the program duration, trajectory of cap decline, use of offsets, and cost containment reserve policies.

http://acadiacenter.org/wp-content/uploads/2015/07/RGGI-Emissions-Trends-Report_Final.pdf

⁹ If the State doesn't choose to do write a plan, or if the plan isn't accepted, the EPA will write a plan for the State and put that plan in place, and we're back in Federal Plan territory.

¹⁰ For example, we can add selective catalytic reduction units to the emissions stream to control ground-level ozone precursors, flue gas desulfurizers for acid rain precursors, precipitators and baghouses for particulates, and sorbent injection for mercury.

¹¹ This is not a criticism of the Menu Of Options – its whole point is to introduce these unfamiliar strategies to air regulators, which it does well.

A special mention must be made for incorporating the input of “vulnerable communities” – EPA calls these stakeholders out specifically in its recommendations about CPP compliance.¹² A good stakeholder process may more naturally accommodate these views (and others).¹³ What is a vulnerable community? The final rule and the October 22, 2015 guidance for the initial plan include a requirement that the submitting state describe how they identify vulnerable communities. The EPA guidance describes vulnerable communities as “low-income, minority and indigenous communities.” The EPA also requires details of the notification of, and consultation with, the vulnerable communities and communities that are near affected power plants. One tool that EPA offers (and references directly in the guidance) is called “EJSCREEN,” and it is available online at <http://www.epa.gov/ejscreen>. In addition, in-state resources that afford a voice to these communities may include state consumer advocates, departments of commerce, and state energy offices. Involving the Office of the Governor may also be an effective way to coordinate across state and tribal interests.

What should a state plan look like?

The EPA has provided a table of the pathways (see Table 2) a state might consider if it decides to file a CPP compliance plan. EPA’s table provides six pathways for plan design, varying by:

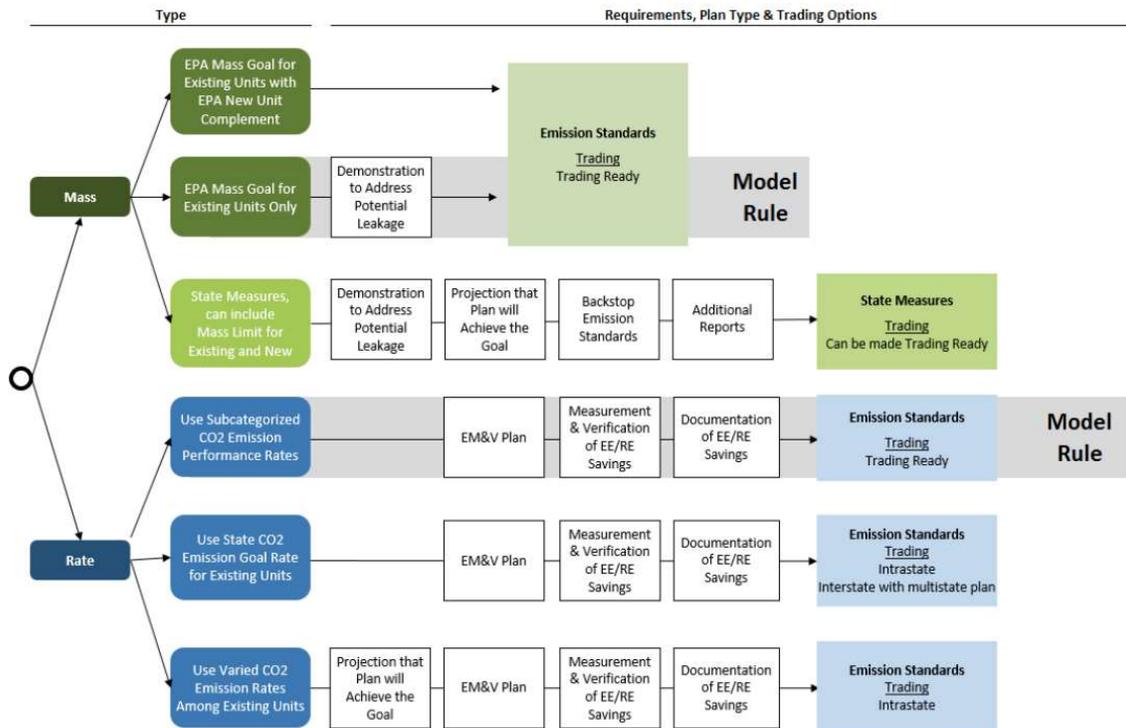
- Whether the state uses a rate-based or mass-based approach,
- How the plan deals with new sources,
- How the plan balances the use of trading and complementary policies with “go it alone” measures.

The pathway best suited for your state is going to be a balance between competing economic, political, and technical objectives. The best way to find that balance may be to use stakeholder input to define your state’s priorities and to have those who will live with the plan be able to buy into, and live with, what results.

¹² EPA guidance on communities is online at <http://www3.epa.gov/airquality/cppcommunity/fs-cpp-resources-communities.pdf>

¹³ The EPA guidance also calls for assessing reliability and job impacts, and a strong stakeholder process may also be a good way to both involve the necessary experts and to balance competing interests.

Table 2: EPA Guidance on CPP compliance plan design pathways



Source: http://www2.epa.gov/sites/production/files/2015-08/documents/flow_chart_v6_aug5.pdf

The First Questions Your State Needs To Ask

Once you’ve assembled a team, hopefully with support from elected officials, to act and involved the right stakeholders to construct a meaningful plan, it’s time to start working on the development of a strategy for creating a plan that can be submitted to the EPA either as part of the initial plan in 2016 or as the core of the final compliance plan for 2018 (or 2016). Table 4 assumes that by September 6, 2016, your state will have decided whether it will begin working on a plan. (If the decision is to refrain from filing a plan, no need to worry about the table above, you’re in Federal Plan country.) As your team convenes (hopefully with top-level support) to construct a state plan, some questions it may wish to consider include:

- Does your state want to allow trading?

A great deal of work is underway¹⁴ to support “trading-ready” language to include in each state’s plan that shares common elements such that questions like compliance unit determination, ownership assurance, verification, and other questions are described in a way that is consistent and allows states to trade.

- Mass-based or rate-based approach?

This may require economic modeling to determine which will be most favorable for your state’s situation. It is likely a multistate perspective should be considered. Although interstate rate-based trading and interstate mass-based trading is likely, the complexity of translating between these systems has so far proven to be an

¹⁴ This includes collaborative work done in the East by groups like Duke University, the Great Plains Institute, Georgetown University, the Eastern Interconnection States’ Planning Council and others; and in the West by the Western Interstate Energy Board and Colorado State University, as well as by states themselves.

insurmountable barrier to any consideration of trading between rate-based systems and mass-based systems.¹⁵

One unresolved issue is what happens if a state wants to switch approaches after it submits its final plan: how can this be done and what will the consequences be? If it becomes clear that this change will be straightforward and with few negative consequences, it lessens the impact of choosing a particular approach; if it is difficult or the consequences are onerous, this is going to be a decision that a state will want to decide carefully.

■ How will you account for electric, market, and jurisdictional boundaries?

Although power plant compliance is measured on a state-by-state basis, the boundaries of a utility's service territory, power flows, and markets are rarely aligned. A situation where a company that serves two states cannot trade with itself is a clear example of a boundary problem; others arise when states begin to consider multi-state dispatch, economic leakage, and assurance of reliability.

■ Does your state want to favor particular generating units (e.g., by technology, by geography)? Does your state include complementary policies like energy efficiency or renewable resource standards in the plan? Which ones?

States may be interested in preserving or incentivizing specific resources or generating units that provide outsized benefits that may not be obvious in the context of CPP compliance, e.g., a coal plant in an economically vulnerable area or a solar resource that will help renewable portfolio standard compliance. Choosing preferred resources and using complementary policies may seem like it is asking two distinct questions, but the CPP final rule outlines two approaches for plans that structurally accommodate preferred resources as a complement or substitute for a trading-based system for compliance measure selection. The two approaches in the CPP are:

- An emission standards plan – an approach that uses source-specific requirements ensuring all affected power plants within the state meet their required emissions performance rates or state-specific rate-based or mass-based goal (akin to trading programs such as Acid Rain, NOx SIP, or RGGI).
- A state measures plan – an approach that includes a mixture of measures implemented by the state, such as renewable energy standards and programs to improve residential energy efficiency that are not included as federally enforceable components of the plan.

In either path, the plan must also include a backstop of federally-enforceable standards; states may use the final model rule, proposed on August 3, 2015, for their backstop.

A third way to give preferential treatment to resources that your state has reasons to want more of is to create a set-aside under a mass-based system. This supplies allowances for the exclusive use of targeted resources, and it is an approach that has been used by a number of RGGI states.

Whether your state wants to favor generating units or include a portfolio of its complementary policies will help drive it toward an emissions standards plan or a state measures based plan.

¹⁵ This was explored at some length at a NARUC hosted meeting in July 2014, "Getting There Together: Multistate Compliance Options for the Clean Power Plans", held in Washington DC. <http://www.naruc.org/Publications/Multistate-111d-Slides-Mashup1.pdf>

Submitting your plan in September 2016

States must file their final plans, initial plans, and requests for extension with their respective EPA regional office. For initial plans and extension requests, the final rule notes that once the state's initial plan and extension request has been filed with its respective EPA regional office, the initial plan and extension request are presumed to be accepted unless EPA notifies the state otherwise within 90 days.¹⁶ States may also submit final plans in September 2016.

There is speculation that EPA is developing an online tool that will enable electronic submittal of the plans. Until this is finalized and released, States may still be well-advised to work with the regional offices throughout development and submission of state plans, even if a state eventually takes advantage of an online submission tool.

Conclusion

In summary, states face a complicated path.¹⁷ Bringing the right expertise to the table to lead and design a state's plan will likely yield a better, more sustainable plan that more adequately accommodates the technology, policy, and economic variables, the effects on which are hard to predict. Vulnerable communities are called out specifically for consultation, and your state is likely to have agencies that are adept in this arena such as state consumer advocates, departments of economic development, and state energy offices, among others. The CPP is likely to drive a large number of state choices about the power sector, and catalyze intrastate and interstate coordination between electricity sector policymakers to a greater degree than has ever been seen before. The economics are also unparalleled. State leadership support, especially of elected officials, will help catalyze a plan that reflects this scope. A sustainable plan will go a long way toward balancing competing objectives and minimizing risk. Transparent processes that convene the right decision-makers and ask the right questions are the ones most likely to yield the best outcomes.

¹⁶ <http://environment.law.harvard.edu/wp-content/uploads/2015/08/State-Roles-Clean-Power-Plan.pdf>

¹⁷ The uncertainty of pending litigation contributes to potential future unknowns with respect to timing; however, in the interim, states will likely benefit from considering the schedule EPA provided in the final rule.

APPENDIX A: ROLES IN THE CLEAN POWER PLAN MENU OF OPTIONS

Strategy	Description	Who does this in the State?
Optimize Power Plant Operations	This includes typical “inside the fence line” improvements such as improved equipment efficiency and heat rate improvements.	Investment in equipment upgrades need approval from Public Utility Commissions in vertically integrated states. Market-driven in unbundled states.
Implement Combined Heat and Power in the Electric Sector	Capture power plant waste heat for central HVAC or industrial processes in neighboring facilities.	This kind of change to the fleet of plants cannot be ordered and would need incentives or standards set by Legislators or Public Utility Commissions .
Implement Combined Heat and Power in Other Sectors	Use CHP outside the power plant context for end-use in the commercial, industrial, institutional, and manufacturing sectors.	This kind of change to the commercial and industrial power procurement would need incentives or programs supported by Legislators, State Energy Offices, or Public Utility Commissions .
Improve Coal Quality	“Beneficiation” of the fuel like coal washing, blending, or using waste heat to remove moisture can improve combustion efficiency.	Investment in equipment upgrades need approval from Public Utility Commissions in vertically integrated states. Market-driven in unbundled states.
Optimize Grid Operations	Improve performance and efficiency of electricity transmission and distribution systems. Conservation voltage reduction, power factor optimization, phase balancing, electrical and thermal storage capabilities, demand response.	These programs are usually approved and overseen by Public Utility Commissions and in some states and cases, supported by State Energy Offices .
Increase Generation from Low-Emission Resources	Increasing the proportion of power that comes from technologies like hydro, nuclear, geothermal, wind, solar	This kind of generation fleet portfolio planning and oversight is generally managed out of State Public Utility Commissions .
Pursue Carbon Capture and Utilization or Sequestration	Before or after combustion, Carbon capture and utilization and/or storage Compressed, transported & stored; or used (EOR)	Facility need, and investment in new plants or equipment upgrades, would need approval from Public Utility Commissions in vertically integrated states. Market-driven in unbundled states.
Retire Aging Power Plants	Take high emitting units and shut them	This kind of generation fleet

Strategy	Description	Who does this in the State?
	down, with the assumption that they will be replaced with lower-emitting generation.	portfolio planning oversight is generally managed by State Public Utility Commissions . Reliability implications are also a central concern of Public Utility Commissions .
Switch Fuels at Existing Power Plants	Repower oil and coal units to burn gas; blending fuels; or other repowering strategies.	Investment in equipment upgrades need approval from Public Utility Commissions in vertically integrated states. Market-driven in unbundled states.
Reduce Losses in the Transmission and Distribution System	Primary obstacles are economic rather than technical.	The required utility system upgrades are usually approved and overseen by Public Utility Commissions and in some states and cases, supported by State Energy Offices .
Establish Energy Savings Targets for Utilities	Energy Efficiency resource standards or targets require utilities to procure or produce efficiency to meet load.	Generally ratepayer funded, programs would be overseen by Public Utility Commissions with technical input (particularly on EM&V) by State Energy Offices
Foster New Markets for Energy Efficiency	Audits, energy savings contracts, private EE, financial/tax incentives, labeling, ability to compete in wholesale markets	Generally the policy domain of state Public Utility Commissions and State Energy Offices .
Pursue Behavioral Efficiency Programs	Information dissemination, social interaction, competition, and/or potential rewards to change energy consumption behavior	State Energy Offices implement these types of programs; utility-funded programs are subject to approval by state Public Utility Commissions .
Boost Appliance Efficiency Standards	Set minimum energy and water efficiency requirements for certain appliances/equipment States can't set standards for federally regulated products, but can for products not covered by federal standards	State Legislatures may set these standards, which are sometimes implemented by State Energy Offices and have incentives approved by Public Utility Commissions .
Boost Building Energy Codes	Sets mandatory requirements for HVAC & lighting; at least one state has set a "Net Zero" energy use standard for new buildings	State Legislatures may set these standards, which are sometimes implemented by State Energy Offices and have incentives approved by Public Utility Commissions .

Strategy	Description	Who does this in the State?
Increase Clean Energy Procurement Requirements	Often RPS policies, on load-serving entities safety valves/ACPs	State Legislatures or Public Utility Commissions may set these standards, and procurement is subject to approval by Public Utility Commissions .
Encourage Clean Distributed Generation	Facilities <20 MW interconnected to the distribution grid Encompasses solar PV, wind, biomass, anaerobic digestion, geothermal, fuel cell, and small CHP	Sometimes implemented by State Energy Offices , and utility implementation, expenditures, net metering, interconnection rules, and incentives set by Public Utility Commissions .
Revise Transmission Pricing and Access Policies	Doesn't directly reduce GHG emissions, but enables reliable, cost-effective choices that can Some transmission build essential for RE at scale Some improvements vital for RE integration Allocation of costs to beneficiaries is key	Set by Regional Transmission Organizations with input from regional state committees of Public Utility Commissions and regulated by the Federal Energy Regulatory Commission .
Revise Capacity Market Practices and Policies	Where they exist, the market rules can and do affect GHG emissions Rule reforms can be a tool to support and enhance other GHG strategies (e.g., EE, RE, NTAs, etc.)	Set by Regional Transmission Organizations with input from regional state committees of Public Utility Commissions and regulated by the Federal Energy Regulatory Commission .
Improve Integration of Renewables into the Grid	Balancing areas, balancing periods	Implemented by balancing authorities, sometimes these are Regional Transmission Organizations regulated by the Federal Energy Regulatory Commission , or otherwise regulated by state Public Utility Commissions .
Change the Dispatch Order of Power Plants	Change to run lower-emitting plants more and higher-emitting plants less Several ways: Pricing, cap-and-trade, CO2 adder Or, "environmental dispatch" (dispatch based on emissions or emissions + cost vs. cost-only)	Ordered by Public Utility Commissions or by State Legislatures .
Improve Utility Resource Planning Practices	Aka, Integrated Resource Planning (IRP)	Overseen by State Public Utility Commissions .

Strategy	Description	Who does this in the State?
Improve Demand Response Policies and Programs	Focuses on meeting long-term energy demand in an area through combination of supply-side and demand-side resources	Implemented by utilities regulated by state Public Utility Commissions or by Regional Transmission Organizations regulated by the Federal Energy Regulatory Commission
Adopt Market-Based Emissions Reduction Programs	Price emissions and rely on market forces to reduce costs (innovation, competition, customization) Price can be direct (e.g., tax) or indirect (e.g., RGGI)	Implemented by state Air Pollution Control Agencies , though in some cases in concert with Public Utility Commissions and State Energy Offices (as in RGGI)
Tax Carbon Dioxide Emissions	Pricing mechanisms internalize costs so market economies can be more effective Most effective in concert with other policies (that enable substitution or increase elasticity) Can spur innovation; provides revenue stream	Set by State Legislatures and implemented by state Air Pollution Control Agencies , though in some cases in concert with State Energy Offices .
Consider Emerging Technologies and Other Important Policies	Smart grid, “Internet of things,” storage, business models, EVs, aggregation	Implemented by utilities regulated by state Public Utility Commissions .