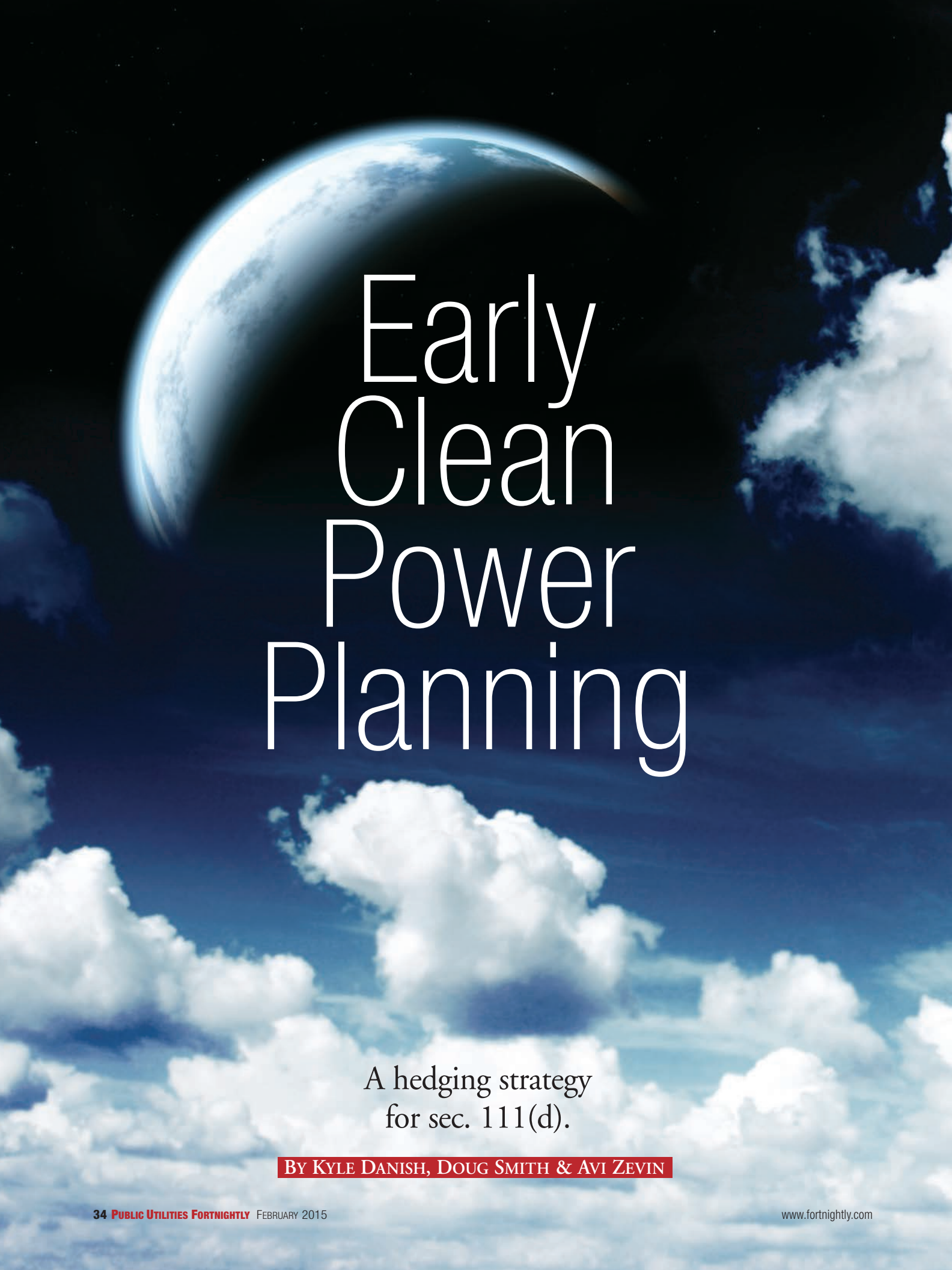

Early Clean Power Planning

A hedging strategy for sec. 111(d).

By Kyle Danish, Doug Smith & Avi Zevin

By December 2, almost 4 million comments were filed on the Environmental Protection Agency's (EPA) proposed Clean Power Plan, a proposal to reduce carbon dioxide (CO_2) emissions from existing power plants.[1] In January, EPA announced that it plans to finalize its Clean Power Plan rule in the summer of 2015. State compliance plans will be due a year later, in the summer of 2016.[2] While the schedule is set, there remains substantial uncertainty – about the shape of the final rule, about whether Congress will step in, and about the outcome of expected legal challenges.

Summer 2016 may seem like a long way away, and there could be a number of twists and turns for the Clean Power Plan before and after that date. Nevertheless, owners of power plants and other power sector stakeholders can ill afford to wait to see what happens in the last act. The planning process is too complicated, and the stakes are too high, to sit on the sidelines. Even for stakeholders planning to file or support legal challenges, early and active engagement in the development of state compliance plans will be an optimal hedging strategy.

In this article, we consider how interested power-sector players can engage with the federal government and the states between now and the expected summer 2015 release of the final Clean Power Plan.

EPA's Proposed Plan

On June 2, 2014, Administrator Gina McCarthy announced EPA's proposed Clean Power Plan, a proposed rule that would require states to develop plans to reduce CO_2 emissions from existing fossil-fuel-fired power plants.[3] EPA proposed to establish state-specific, state-wide emission rate goals (expressed as lbs. CO_2 per MWh) for existing fossil-fuel-fired power plants such as coal plants and natural gas combined-cycle (NGCC) facilities. These rates were developed by evaluating the extent to which four emission reduction opportunities, or "building blocks," would impact CO_2 emission rates in each state: (1) improving heat rates at existing coal plants in the state; (2) shifting generation from existing coal plants to existing and under construction NGCC plants; (3) retaining existing and completing construction of nuclear power facilities, and building new renewable energy; and (4) reducing end-use energy consumption through demand-side energy efficiency actions. EPA used this building block approach to develop and propose a 2030 emission rate goal for each state and an interim goal that the state must meet, on average, between 2020 and 2029.

Once the rule has been finalized, states will have approximately one year to submit compliance plans to EPA, with the possibility of a one- or two-year extension. Each state compliance plan must include a set of enforceable policies that will ensure that the state is able to meet its interim and final emission goals, and outline what steps the state will take if its initially proposed policies are insufficient to keep the state on its chosen emission reduction path. Beyond that, however, states have considerable flexibility. States are not required to utilize the building blocks EPA considered and are not required to apply the state emission rate goal to each covered unit.

Power sector stakeholders have too much at stake to sit out the development of state plans.

The proposal also would give states the option to convert their rate-based goal into a mass-based equivalent (in total tons CO_2), and to design their compliance plans to achieve that mass-based goal. EPA has provided two acceptable methodologies for converting rate-based goals to mass-based goals, and has provided the resulting state-wide mass-based emission caps under those methodologies.[4]

The public comments submitted to EPA largely address

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1. Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. 34830 (June 18, 2014).
2. EPA, EPA Fact Sheet: Clean Power Plan and Carbon Pollution Standards Key Dates (Jan. 7, 2015), http://www2.epa.gov/sites/production/files/2015-01/documents/20150107fs-key-dates.pdf.
3. Press Release, EPA Proposes First Guidelines to Cut Carbon Pollution from Existing Power Plants (June 6, 2014), http://yosemite.epa.gov/opa/admpress.nsf/bd4379a92ceceeac8525735900400c27/5bb6d20668b9a18485257ceb00490c98!OpenDocument.
4. EPA, *Translation of the Clean Power Plan Emission Rate-Based CO_2 Goals to Mass-Based Equivalents*, *available at* http://www2.epa.gov/sites/production/files/2014-11/documents/20141106tsd-rate-to-mass.pdf.

whether the proposed Clean Power Plan is a valid exercise of EPA's Clean Air Act authority and whether the proposal has legally, accurately and adequately captured the emission reduction opportunities for states in its building block approach. However, as discussed above, a key feature of the proposed rule is that once EPA sets a state's goal, the state's compliance plan need not rely on the specific building blocks EPA used. Therefore, while states and interested parties will surely continue to challenge or support EPA's goals – including through litigation – understanding the particulars of this building block methodology is significantly less important as we move into the implementation stage. State flexibility provides a critical opportunity for those power sector stakeholders that will be the subject of enforcement obligations and those that will be able to provide compliance opportunities to engage with their states to develop the most flexible, cost-effective plan possible.

Uncertainty and Opposition: No Cause to Stay Disengaged

EPA's proposal aims to reshape the electric sector by 2030, with significant efforts required starting in 2020. In the power sector, with its capital-intensive, long-lived assets, such fundamental change will require unprecedented planning, coordination, and foresight. In order to be successful, many states have already begun the process of compliance plan development. Those that choose to wait until the Clean Power Plan is finalized may find it difficult to develop a smart, cost-effective, and approvable plan by the deadline. And in those states that choose not to submit a plan, power plant owners are not off the hook; EPA is currently developing a federal implementation plan that it plans to finalize and apply to recalcitrant states.

To be sure, significant uncertainty remains. EPA is likely to make changes to the proposed Clean Power Plan before finalization. These changes may include revision of state goals, clarification of acceptable compliance plan measures, and changes to the compliance timeline. Uncertainty will continue even after summer 2015. Several states and private sector entities have initiated litigation in an attempt to block EPA from finalizing any regulation of CO_2 emissions from existing power plants under section 111(d) of the Clean Air Act,[5] and much more litigation is sure to come after EPA finalizes the Clean Power Plan. Moreover, the structure of the Clean Air Act requires that EPA promulgate regulations for *new* (including modified or reconstructed) power plants before finalizing regulation of existing power plants. These rules have been proposed,[6] and are also scheduled to be finalized in the summer of 2015, but are sure to be challenged in court as well. In addition, Congress could enact laws invalidating or defunding the Clean Power Plan.

However, notwithstanding all of the above, waiting until all uncertainty about the rule is resolved before developing a compliance plan is not a prudent approach for states, or for power-sector stakeholders that have an interest in influencing the requirements that they may ultimately face. Moreover, even if EPA changes the stringency of a state's goal in the final Clean Power Plan, the overall compliance structure is unlikely to change significantly. State planning can begin now without risk that such changes result in wasted effort. It is not too early to begin engaging with EPA and with states on what an acceptable, least-cost compliance plan may look like.

Even for states and stakeholders intending to challenge the Clean Power Plan, investments in planning are a rational hedging strategy, given the magnitude of the rule's potential impact. Planning and engagement are not incompatible with litigation.

Some state plan designs will maximize certainty for states, but place burdens on plant owners.

Shaping the Final Federal Policy

While the public comment period on EPA's Clean Power Plan proposed rule has closed, there are still opportunities to engage in the federal policymaking process before the summer 2015 release of the final rule.

Beginning this month, the Federal Energy Regulatory Commission (FERC) will be hosting a series of technical conferences aimed at evaluating the electric reliability, wholesale market, and energy infrastructure implications of the Clean Power Plan.[7] This includes a February 19 conference at FERC headquarters and additional regional conferences in Washington D.C., St. Louis, and Denver.

The FERC technical conferences serve as an opportunity to highlight the reliability implications of the proposed Clean Power Plan. Utilities have expressed particular concern about the cost and reliability implications of EPA's assumption in the proposed

5. Petition for Extraordinary Writ, *In re Murray Energy Corp.*, No. 14-1112 (D.C. Cir. filed June 18, 2014); Petition for Review, *West Virginia v. EPA*, No. 14-1146 (D.C. Cir. filed Aug. 1, 2014); Petition for Review, *Murray Energy Corp. v. EPA*, No. 14-1151 (D.C. Cir. filed Aug. 15, 2014).

6. Standards of Performance for Greenhouse Gas Emissions From New Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. 1430 (Jan. 8, 2014); Carbon Pollution Standards for Modified and Reconstructed Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. 34,960 (June 18, 2014).

7. Supplemental Notice of Technical Conference, *Technical Conferences on Envtl. Regulations and Elec. Reliability, Wholesale Elec. Markets, and Energy Infrastructure*, Docket No. AD15-4 (Jan. 6, 2015), *available at* http://www.ferc.gov/CalendarFiles/20150106170115-AD15-4-000TC1.pdf.

rule that states can significantly shift their generation from coal to natural gas by 2020, and the implications for meeting the Interim Goals on average between 2020 and 2029. Others have argued that the extended compliance timeframe and new technologies will mitigate any reliability concerns. One important issue to be discussed is what role FERC, EPA and other federal actors have in considering and addressing any reliability concerns.

In announcing the agency's plans to issue the final Clean Power Plan in summer 2015, EPA also indicated that it had begun work on a federal compliance plan. Section 111(d) of the Clean Air Act requires EPA to issue a federal compliance plan for any state that fails to submit a satisfactory state compliance plan, and provides EPA the same authority to do so as it has in issuing Federal Implementation Plans under the National Ambient Air Quality provisions of the Clean Air Act.[8] EPA plans to propose and take comment on a model federal compliance plan in connection with its issuance of the final Clean Power Plan in summer 2015. EPA then plans to finalize and apply the federal plan to states that fail to submit a satisfactory plan (or request for extension) by summer of 2016.[9]

EPA's federal plan will serve two purposes. First, it will ensure that existing power plants in states that choose not to submit compliance plans, or are not able to submit satisfactory plans, will be subject to regulation. And, the federal plan will not just affect power plants in the states to which it applies; given the interconnected electric grid and interstate power markets, neighboring states will also be impacted. Second, it will serve as a model rule that states can look to as one example of an approvable state compliance plan. For these reasons, utilities and other power sector stakeholders have a large stake in the federal compliance plan proposal. Early engagement with EPA on what a federal plan may look like, and providing public comment when the proposed federal plan is released in summer 2015, should be high priorities.

Regulated generators will likely be better off with state-developed compliance plans than they would be under the eventual backstop federal plan. EPA may not have the same authority to craft a flexible compliance plan as the states and so may place a greater burden on power plant owners than state plans would be required to. Moreover, a federal plan, even if somewhat tailored to each state for which it ultimately applies, may not be as responsive to specific state energy sector needs and opportunities. Therefore, states should be encouraged not to wait for the federal plan, but to begin the process of state plan development now.

8. CAA § 111(d)(2), 42 U.S.C. § 7411(d)(2) (2012).
9. EPA, EPA Fact Sheet: Clean Power Plan and Carbon Pollution Standards Key Dates (Jan. 7, 2015), http://www2.epa.gov/sites/production/files/2015-01/documents/20150107fs-key-dates.pdf.

Shaping State Plans

EPA has proposed to provide states with significant flexibility in the policies used to meet state goals. Such flexibility is a key component to the approach of the Clean Power Plan and of the underlying statutory framework, and so is unlikely to change as EPA finalizes the rule. Such flexibility, combined with the complexity of the power sector, the ambition of EPA's proposal, and the relatively short timeframes by which states must begin to reduce emissions in order to meet their goals, will require creative policy approaches, good data and analysis, and active stakeholder engagement.

The development of state plans will require countless specific policy decisions. For example, each state will need to determine:

- **Unit-Level Obligations.** How to translate the state-based goal into unit-level or utility-level requirements;
- **Renewables and Energy Efficiency.** How to integrate renewable energy and energy efficiency into a state plan, including how to translate renewable energy generation and energy savings into emission reductions;
- **EM&V.** What evaluation, monitoring, & verification (EM&V) protocols the state should adopt to verify the energy savings of end-use energy efficiency projects;
- **A Role for New Fossil?** Whether or not to incorporate new fossil-fuel fired facilities into a state plan;
- **Plant Retirements**. How to credit and provide appropriate

incentives for the retirement of existing fossil-fuel fired plants; and

■ **Trajectory.** How to determine the appropriate trajectory of emission reductions for the state over the interim period (gradual over time, slow to start with steeper emission reductions later, etc.).

Stakeholder engagement will be critical for the state to understand how the answer to each question will impact the cost, reliability, and feasibility of emission reductions in the state. Utilities are in a unique position to provide information on how a plan is likely to work – or not work – given the realities of the electric system and available resources in the state (and surrounding states).

However, before addressing specific questions such as these, each state will have to answer 3 fundamental questions early in their plan development process: (1) will the state develop its own compliance plan, or will it engage in a multi-state process; (2) will the state opt for a rate-based or mass-based goal; and (3) what general policy framework will the state use to meet its goals. Given the fundamental nature of these questions, it is appropriate for stakeholders to engage their states on these questions as soon as possible.

Single- vs. Multi-State Plans. The Clean Power Plan encourages states to develop multi-state compliance plans and EPA has proposed to provide states with additional time (until summer 2018) to do so. States should determine early-on whether to pursue a multi-state compliance approach. Doing so will require extensive analysis and coordination by state policymakers and power-sector stakeholders. While multi-state plans could lower the compliance costs for the electric sector as a whole, individual states or stakeholders may not necessarily be better off under such an approach. It is therefore important for states and stakeholders to fully consider whether and how they will benefit from coordination with neighboring states in their particular circumstances. Some states, such as those participating in the Regional Greenhouse Gas Initiative (RGGI), already have a significant head start on this coordination.

Multi-state coordination need not be limited to formal multi-state plans. States should consider engaging with neighboring states to form agreements on discrete issues. For example, states may coordinate to allow the interstate use of mass-based emission allowances, tradable rate credits, or renewable energy credits. They could also reach agreement on common protocols for crediting energy efficiency measures. Stakeholders that operate across state borders – such as multi-state utilities, geographically diverse independent power producers, or national energy service companies – will have a particular interest in multi-state coordination. These stakeholders should work to communicate the gains from coordination to states and may be able to serve as conveners to bring multiple states together.

Finally, even if a state decides not to coordinate with neighboring states, or even decides not to submit a plan at all, the interstate nature of the electric system guarantees that plans submitted by neighboring states still will have an impact on that states' electric sector. A state's choice to go it alone is not a choice to be unaffected. This is particularly true where a state's utilities are members of an independent system operator (ISO) or regional transmission organization (RTO). Multi-state analysis will be necessary to fully understand the implications of even individual state plans. Stakeholders such as utilities will be in the best position to conduct such analysis and work with their states to incorporate the results into the state plan.

Rate- or Mass-Based Goal. EPA has given states the option to select between being held to a rate-based goal (lbs. CO_2 per MWh) or converting that into a mass-based (tons CO_2 per year) goal, in order to implement rate-based or mass-based compliance plans. The first step in developing a compliance plan is to determine what goal that plan is designed to meet.

The particulars of the building blocks are less important in the implementation stage.

In general, rate-based policies can reduce compliance costs in circumstances of anticipated growth. For example, if a state anticipates significant business-as-usual growth in population, economic activity, or energy intensity, the state may be at a disadvantage if held to a set level of CO_2 emissions.

Mass-based systems, on the other hand, can be more straightforward to implement, can facilitate more economically efficient policies, and can allow a state to generate revenue or allocate benefits to firms as necessary. For states that anticipate declining electric sector demand (or more specifically, declining output by covered in-state generating units), these advantages could be compelling.

However, the choice between a rate-based or mass-based goal is even more complicated given two details of the Clean Power Plan proposal.

First, states can choose their own rate-to-mass conversion methodology. In its proposed rule, EPA suggests that a state may incorporate anticipated electric sector growth into this conversion. In that case, choosing a mass-based goal need not be disadvantageous to a state that expects growth so long as the state builds that growth into the conversion in the first instance and the initial growth estimates are reasonably accurate.

Second, unlike most mass-based environmental regulatory schemes, the proposed Clean Power Plan would only set limits on *existing* fossil-fuel-fired power plants. EPA has given states the option to incorporate new power plants into a state plan, but does not require this. The emissions from a new NGCC facility constructed to meet demand growth would have to meet any new-source emission rate limit for that facility, but need not

impact the state's ability to meet a mass-based goal under the proposed Clean Power Plan. The impact that demand growth will have on a state's covered emissions will depend on many factors, including the level of unused fossil-fuel-fired generating capacity compared to the level predicted by EPA in setting the state's goal and the extent to which satisfying demand growth requires keeping existing fossil-fuel-fired facilities online that would otherwise shut down.

The choice between a rate-based and a mass-based goal is complicated and will depend on individual state circumstances and policy priorities. The choice has significant implications for how the state goal gets translated into requirements for individual units. Thus, state policymakers will require stakeholder engagement in order to fully consider implications of each option, and generation owners and other stakeholders have every incentive to inform that state decision. Early stakeholder engagement is critical to ensure that each state fully understands the implications of this choice for the critical elements of the power sector.

Choosing a Framework. Most previous rules EPA has proposed under section 111 of the Clean Air Act set unit-level emission limits. Implementation was straightforward. In the case of the Clean Power Plan, EPA has proposed to give states substantial discretion in choosing a policy framework. States get to decide how to translate a single state goal into enforceable requirements, and more fundamentally, which power sector players in the state will be subject to plan requirements.

For example, states may set emission limits for individual fossil-fuel-fired power plants under which a plant that is over-complying may trade its surplus with a plant that is under-complying. States may even set requirements on power-sector entities beyond fossil-fuel-fired power plants, including distribution utilities, non-utility third parties, and the state itself. EPA deems this latter option a "portfolio approach." In implementing a portfolio approach, states have the flexibility to employ a wide range of policies that would be implemented "outside the fence" of a typical power plant, such as renewable portfolio standards energy efficiency programs, and more.

While states can choose among an almost limitless combination of state policies designed to reduce the state's emissions (rate or mass, as appropriate), there are three fundamental policy frameworks from which the state will ultimately have to choose: (1) rate-based obligations on individual generating units, (2) mass-based obligations on individual units, and (3) a portfolio approach.

The first two of these frameworks place all federally enforceable obligations on power plant owners. States may find these options attractive, as they reduce uncertainty regarding the state's ability to meet its Interim and Final Goals, and may be seen as more straightforward. Moreover, some have argued that any EPA-developed federal compliance plan will be constrained to relying on this strategy.

The third framework would place enforceable obligations on parties beyond power plant owners, such as distribution utilities, renewable power generators, energy efficiency developers, and the state itself. However, this approach comes with an increase in analytical requirements and implementation complexity. To the extent this is a more attractive approach, power plant owners may need to engage with states on this issue and provide the modeling and analysis the state will need to show EPA that a collection of policies will result in state-wide emissions consistent with the state goal.

Under the first framework, a state plan would place emission rate compliance on individual generating units, accompanied by emission rate trading. For some states, a relatively straightforward compliance framework would be to require that each individual covered fossil-fuel-fired power plant meet the emission rate set by EPA in the Clean Power Plan for the state. Under this framework, the state would be certain that, so long as each unit met its requirement, the state would itself meet its goal.

Multi-state coordination may be directed at discrete issues.

Because the emission rate goal in all states is lower than the rate achievable at every power plant, under this framework, states would be expected to incorporate the flexibility allowed by emission rate trading. Units with high emission rates would purchase credits from lower emitting fossil-fuel-fired plants. In addition, EPA has provided methodologies to translate increases in renewable generation and energy efficiency into emission rate credits. Rate-based trading could be implemented in a variety of ways; the details of such a policy are complicated and would have to be worked out by a state.

A state's choice of this policy framework need not prevent it from enacting additional, complementary policies that will help reduce emission rates and lower costs for compliance. For example, to the extent that complementary policies can contribute to expanding tradable credits generated by zero carbon energy or energy savings, a state could fund (or require utilities to fund) energy efficiency programs to reduce demand; enact updated building codes; or develop tax credits, feed-in tariffs, or expanded renewable portfolio standards to encourage renewable energy development.

This approach may reduce uncertainty and complexity for the state by directly tying each unit's emission rate to the state's compliance with its goal. However, it would do so by placing the risk of any compliance shortfall directly on the owner of the power plant, even if that owner does not ultimately have direct control over the amount of low-carbon power produced.

Stakeholders will likely have a strong perspective on whether such an approach is viable.

Under the second framework, a state plan would place mass-based compliance on individual generating units, accompanied by tradable allowances. For states that choose a mass-based goal, the most straightforward policy framework would be to set mass emission limits for individual generating units. Those units could then reduce generation to meet their cap or acquire the excess emission allowances of other plants that emit less than their mass limit required. Such a system could provide an economic incentive to reduce CO_2 emissions at a fossil-fuel-fired power plant and for generation from zero-carbon generating sources such as renewable energy, which would require no allowances, and for energy efficiency projects that reduce the demand for generation from fossil-fuel-fired facilities.

This framework would have many of the same tradeoffs as the unit level, rate-based framework described above, including reduced complexity for the state and increased compliance risk for generating unit owners.

As with the unit level, rate-based framework outlined above, a unit-level mass-based emission allowance program could benefit from complementary policies. For example, as is currently done in RGGI, states could auction allowances, which can provide revenue for the funding of complementary programs. However, the ultimate compliance obligation would still rest solely on covered power plant owners.

The third framework would utilize a portfolio approach. A portfolio approach would adopt a set of policies that the state projects will result in emissions (rate or mass, as appropriate) consistent with the state's goal. States could scale existing policies or adopt new policies, including measures such as renewable portfolio standards (RPS), energy efficiency programs, financial support for low-carbon generation or end-use efficiency, and carbon taxes.

This framework would expand the range of obligated parties without placing the entire compliance burden on power plant owners. However, it would do so at the expense of certainty. A state would be required to project the emission reduction impacts of the various policies it enacts – a task that would benefit from the analytical contributions of stakeholders. And if the policies did not work as intended, EPA has proposed to require states to implement "corrective measures" – additional policies that will further reduce emissions from power plants and bring the state back on track with its plan. This requirement introduces uncertainty both for the state and for power-sector stakeholders that would be subject to corrective measures.

Utilities are in a unique position to provide information on the impacts of different state plan designs.

Stakeholder input to states on their choices among these policy frameworks will be critical. Stakeholders with particular perspectives on the tradeoffs presented by each option have a strong incentive to participate early to influence which approach their state takes.