Helping States Prepare for the Clean Power Plan

An Interview with Karen Palmer and Anthony Paul

RFF Research Director and Senior Fellow Karen Palmer and Center Fellow Anthony Paul were among a team of RFF experts invited to assist states working with the National Governors Association on how to develop their compliance plans for the US Environmental Protection Agency's (EPA's) Clean Power Plan, the first national carbon reduction standards for power plants in the United States. They recently sat down with *Resources* to discuss the process.

RESOURCES: Can you tell us a bit about your work with the National Governors Association?

KAREN PALMER: The National Governors Association (NGA) occasionally facilitates "policy academies"—engagements with leaders from a variety of states around a particular multi-state policy issue. In this case, the policy academy was focused on EPA's Clean Power Plan.

Under the Clean Power Plan, EPA sets emissions or emissions rate targets for each state, and the states have to come up with their own plans to meet the targets. NGA invited us to help the teams who are writing the plans think through that process and model policy options for compliance.

ANTHONY PAUL: State environmental agencies have experience regulating conventional pollutants, but regulating carbon is different because there is no economic control technology. One can't merely buy a machine to scrub the exhaust. Instead, policies have to be in place that induce market transformation—generating less with more carbon-intensive generators and more with less carbon-intensive generators.

RESOURCES: Which states did you work with, and did they share similar concerns?

PAUL: Several states applied to be part of the policy academy, and four were selected by NGA: Michigan, Missouri, Pennsylvania, and Utah. This represents quite a diverse group. Utah, on one hand, is among the smallest power-generating states in the country. On the other hand, Pennsylvania is among the largest, second only to Texas. Pennsylvania is a huge gas-producing state; it has a lot of gas generators. Missouri, by contrast, has very few gas generators. Michigan has an aggressive renewable portfolio standard relative to the other states. But although the technology mixes are different among the states, the pathways to compliance are largely the same. So their concerns were similar.

One of the big decisions in complying with the Clean Power Plan is whether to adopt a rate-based target—defined by how much carbon dioxide is emitted per megawatt-hour—or a mass-based target

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measuring total tons of carbon dioxide emitted. Every state shared that challenge.

RESOURCES: Why does choosing a mass-based policy or a rate-based policy matter?

PAUL: According to our model and in looking at EPA's methodology, compliance with mass-based targets may be easier than compliance with rate-based targets in many states.

Coming into this process, I think all four states had in mind that they wanted to pursue rate-based policies because they wanted the option to grow their emissions from electricity output over time. But very early on, the modeling showed that the mass-based goals were actually easier to hit. That really transformed their thinking.

The states' environmental folks are used to regulating emissions using a mass-based target—for example, regulating tons of sulfur dioxide and nitrogen oxides emissions. Rate-based policies are more complicated.

PALMER: Trading across sources is harder under a rate-based policy than under a mass policy. It involves creating emissions rate credits (ERCs), which are the instrument that would be traded. These credits are generated whenever a megawatt-hour of qualified electricity is realized, including from covered emitting generators, new renewables and nuclear units, and verified energy efficiency savings. Covered emitting generators must hold ERCs in a quantity sufficient to meet their emissions rate goals. To receive ERCs, renewable generators and energy efficiency service providers submit an eligibility application that the state must certify. Then the credits are verified after the fact by a third-party evaluator and can be sold to emitters who need them for compliance.

However, if there is a mass-based policy, energy efficiency or new renewables would help keep demand for allowances down, but the complicated ERC creation and validation process would not be required.

The other important thing about a rate-based policy is that it makes it harder to expand carbon dioxide regulation beyond the electricity sector. For example, EPA could eventually choose to expand the rule to include industrial boilers. Regulating tons per megawatt-hour at refineries is nonsense—there are no megawatt-hours. But tons (measured under a mass-based approach) is a common metric that allows for the integration of sectors.

PAUL: Mass-based targets also provide a degree of freedom in allowance allocation that is lost under a rate-based approach. The basic idea with a rate-based approach is that the method of allowance allocation is built in: eligible generators earn allowances by making megawatt-hours. In a mass-based approach, allowances can be

allocated per megawatt-hour, but there are other options, including auctioning allowances or giving the allowance value to local electric distribution companies, to help offset any increase in retail electric costs.

RESOURCES: Allowance allocation is a complex but important design consideration, with consequences for efficiency and fairness. Did you find that this was a front-burner issue for states?

PALMER: The states certainly appreciated how critical the issue of allocation was, and its importance was amplified when the proposed federal plan—which came out at the same time as the final rule in August 2015 and serves as a model for the states—put allocation on the radar screen as a method for dealing with emissions leakage.

If you're using a mass-based approach and only regulating existing sources and you give allowances on the basis of historic activity, then you create an incentive to shift away from generators whose emissions are capped to those whose are not. But those generators are still going to emit, so you have a leakage issue. An updating output-based allowance allocation (dispensed per megawatt-hour) is a way to deal with that.

In our research, we also looked at differences in regulation across states, which is a possible outcome under the Clean Power Plan. Some states may use mass-based targets, while others use rate-based. This could create an incentive to move generation from mass-based to rate-based states, but, as we have shown in earlier work, those incentives could be muted through allocating allowances in the mass-based state on an updating basis.

PAUL: One of the things I didn't anticipate was that auctioning allowances is a nonstarter when states cannot raise revenue without legislative approval. Economists often prefer an auction over other methods of allocation because auction revenues can be used to reduce the cost of compliance.

RESOURCES: You've often said that regional cooperation will be a critical component to the successful implementation of the Clean Power Plan. How did states feel about coordinating with their neighbors?

PAUL: In general, many states are having discussions about building coalitions. For example, the Center for the New Energy Economy that Governor Ritter runs out of Colorado has numerous western states talking together.

PALMER: EPA also has made it easy for states to trade allowances without formal coordination by introducing the concept of a trading-ready state plan. Any mass-based state could trade with any other mass-based state that uses the same registry for tracking allowances. I think the agency recognizes the importance of the choice in creating opportunities for affected sources to trade with those in other states. ●

FURTHER READING

Burtraw, Dallas, Karen Palmer, Anthony Paul, and Sophie Pan. 2015. A Proximate Mirror: Greenhouse Gas Rules and Strategic Behavior under the US Clean Air Act. *Environmental and Resource Economics* 62(2): 217–241.