



Streamlined State and Federal Planning Approaches Under the Clean Power Plan

Securing Flexible, Cost-Effective Carbon Pollution
Reduction through Well-Established Legal Authorities
for Emissions Management

Authors

Tomás Carbonell
Peter Zalzal

Abstract

Later this summer, EPA will finalize the nation's first limits on carbon pollution for existing fossil fuel-fired power plants - which are responsible for almost 40% of the nation's total carbon pollution emissions, and are leading industrial sources of other pollutants that threaten public health. In this white paper, we examine how (1) the Clean Power Plan can be implemented by states and EPA using traditional regulatory approaches that apply to individual regulated power plants and that are consistent with existing law, while preserving compliance flexibility to ensure the cost-effectiveness of the program and protect electric reliability; 2) State and federal plans can facilitate interstate trading and cooperation by incorporating basic "common elements" that ensure the regulatory frameworks in various states are mutually compatible and preserve the environmental integrity of the Clean Power Plan; 3) these frameworks can be designed to secure enforceable emissions reductions and complement other state policies that mitigate carbon emissions, including incentives for clean energy and additional measures identified in a recently issued state toolkit that are not part of EPA's building blocks, without requiring that those policies be incorporated into the state section 111(d) plan; and 4) in the context of the federal plan, there are clear advantages to a mass-based emissions trading framework that incorporates the common elements described in the paper, and contains discrete elements that can be customized at the option of the state.

Overview

EPA's proposed Clean Power Plan would establish the nation's first limits on carbon pollution from the power sector, reducing emission from the nation's largest source of climate-destabilizing pollution to approximately 30% below 2005 levels by 2030. Acting under long-standing Clean Air Act authority, EPA has proposed carbon pollution goals that reflect the generating portfolio and emission reduction opportunities within each state. Moreover, EPA has provided extensive flexibility to the states to devise customized plans to achieve the required emission reductions over the ten-year period from 2020 to 2030—allowing each state to decide upon the most feasible and cost-effective approach for mitigating carbon pollution, and providing states with substantial discretion as to how emission reductions are achieved across facilities and over time.

The state-driven flexibility of the Clean Power Plan has important benefits, providing an opportunity for states to develop plans that strongly reflect state priorities. It also presents tremendous opportunities for states to choose to structure complementary policies to assist power companies in meeting carbon pollution goals, achieve needed reductions in additional health-harming air pollutants, and maximize job creation and economic benefits associated with modern clean energy infrastructure. The extent to which states realize these opportunities depends greatly on choices made by the states regarding the design of state plans, as well as guidance and other tools provided by EPA to facilitate the development of state plans.

This white paper describes how the Clean Power Plan is, at its core, a traditional Clean Air Act emissions-reduction requirement. As such, the Clean Power Plan can be implemented by states through a straightforward, flexible, cost-effective approach that exclusively regulates power plants and draws upon well-established regulatory tools and existing legal frameworks. Such an approach can be designed to recognize the clean air benefits of renewable energy, energy efficiency, and other clean energy measures that can reduce emissions from regulated power plants at low cost, without requiring that states incorporate those specific policy measures into state plans. Moreover, states choosing such a program should also be able to harness the benefits of interstate trading by incorporating basic “common elements” that would enable trading among mutually compatible state plans. This would avoid the need for an initial, formal process of developing joint state plan submissions to EPA, though not preclude such formal arrangements for states choosing to pursue them at a later time.

EPA has also committed to propose a model federal plan in the Summer of 2015, and this paper describes how such a plan can build from these same traditional air quality planning and management tools. Among other things, this paper suggests that the federal plan adopt a regulatory approach based on a mass-based emissions trading system incorporated into the operating permits of individual power plants; describes how the federal plan, like state plans, can be designed around “common elements” that allow for trading with entities in states using compatible plans; outlines ways in which EPA can allocate compliance instruments to support electric reliability and enhance the environmental integrity of the Clean Power Plan; recommends that the federal plan provide for the participation of new power plants; and describes the legal basis for all of these design elements.

State Plan Design Considerations

The flexible architecture of the Clean Power Plan provides opportunities for states to adopt and implement section 111(d) plans using existing state authority, applying requirements directly to sources through permit-based limits and leveraging traditional emissions management programs and compliance flexibilities. A plan that takes this traditional, emissions management-based approach will achieve required emission reductions using a simple, legally-durable, and flexible structure that can be adopted in a timely manner.

Along with substantial reductions in carbon pollution, EPA estimates that the proposed Clean Power Plan will result in a more than twenty-five percent decrease in the pollutants that lead to soot and smog. Even so, there is a risk that state plans—including the flexibilities we describe more fully below—could be carried out in a way that increases emissions of these harmful pollutants in certain communities located in close proximity to electric generating units. We have a shared stake in ensuring that state plans are administered in a way that delivers important public health protections for all Americans, especially environmental justice communities that bear a disproportionate share of ambient air pollution burdens. Indeed, African-American and Latino communities have the highest rates of asthma and other respiratory diseases in this country due to stationary and mobile source pollution. It is likewise critical that state plans be designed to maximize benefits for all Americans, especially our low-income populations.

State plans can be designed to achieve these critical outcomes, and, to do so, it is essential that states ensure these community voices are an integral part of the planning process. The state planning process creates an opportunity for collaboration to ensure that states and stakeholders are thinking about compliance with carbon emission limits through a multipollutant lens.¹ And states should commit to transparently tracking emissions of these harmful pollutants in a way that enables communities that have raised those concerns to ensure that they are being addressed. Moreover, as we describe more fully below, energy efficiency and demand side management programs can be an important part of the comprehensive way a state tackles its emission reduction goals, and it is essential that states and power companies deploying these programs do so in a way that is designed to benefit all Americans. Indeed, in a wide variety of states, these programs have been designed and deployed in a way that reduces pollution and drives down costs for low income Americans.²

¹ This will be particularly important in the context of state planning to achieve the revised ambient air quality standards for particulate and ground-level ozone (the main component of smog), as coal-fired power plants are large sources of carbon pollution and of SO₂ and NO_x, which are key ingredients of particulate pollution and smog.

² See Paul Hibbard, Andrea Okie & Susan Tierney, *EPA's Clean Power Plan: States' Tools for Reducing Costs and Increasing Benefits to Consumers* 34 (July 2014) (describing ways in which energy efficiency programs have been designed to protect and benefit low-income consumers); Regional Greenhouse Gas Initiative, *Regional Investment of RGGI CO₂ Allowance Proceeds* 9, 14 (Feb. 2014) (finding that energy efficiency and ratepayer assistance programs funded by RGGI have benefited over three million households, including over two million households that have received \$122 million in ratepayer assistance as of 2014). Under the proposed Clean Power Plan, EPA projects that by investing in energy efficiency household and business energy bills can decrease by about 8% by 2030. EPA,

With these important state planning considerations in mind, below we first describe in greater detail how states can deploy these traditional tools in developing 111(d) plans, identifying both key elements of a such plans and areas where EPA can provide additional guidance to further enable effective compliance and secure cost savings. We then examine several specific states, concluding that these states have ample existing legal authority to adopt an approach along these lines.

State Plan Architecture

The proposed Clean Power Plan sets forth four general criteria and twelve specific components required for an approvable state plan³—all of which focus on ensuring enforceable, quantifiable, and verifiable emissions performance. Here, we specifically address the requirement that a state plan must identify emission standards and any other measures to satisfy the state’s goal, as well as implementing and enforcing measures available to demonstrate compliance. To satisfy these requirements, state plans should include two essential components: (1) an enforceable emission limit applicable to regulated power plants (referred to in the Clean Power Plan as “affected electric generating units”) and reflected in the operating permits of those facilities; and (2) accompanying compliance flexibilities for that provide multiple ways for the affected EGU to meet the emission limit (possibly including averaging, trading, crediting, and early action programs) while assuring environmental performance, minimizing costs, and respecting the traditional roles of environmental and economic regulators.

Pursuing this type of approach would involve state environmental agencies translating emission targets—either mass- or rate-based—into enforceable emission requirements that apply directly to affected electric generating units. State environmental agencies would likewise establish a compliance framework, potentially including some of the flexibilities we describe below, that would give owners and operators of those EGUs additional tools to assist in meeting their emission limits. Once environmental agencies establish the “rules of the road” through the state plan, power companies could then determine how to best meet required emissions limits for their facilities —making resource decisions that reflect their specific circumstances and opportunities, and the needs of their customers. With the certainty this state planning approach provides, companies can leverage flexibilities and make compliance decisions over time, working through their normal regulatory processes (whether state utility commissions or otherwise), and engaging their normal stakeholders, to help effectuate their preferred emission reduction strategy.

This process reflects how some of our nation’s most successful air quality programs have long been implemented for electric generating units. For example, following the enactment of the

Regulatory Impact Analysis for the Proposed Carbon Pollution Guidelines for Existing Power Plants and Emission Standards for Modified and Reconstructed Power Plants, 3-43 (June 2014). State deployment of demand side energy efficiency solutions to mitigate carbon pollution can provide multipollutant reductions while providing direct bill savings for communities suffering from high pollution levels.

³ 79 Fed. Reg. at 34,909 (describing criteria, including enforceable measures, emissions performance, quantifiable and verifiable emissions performance, and reporting and corrective actions); *Id.* at 34,911 (describing 12 components).

Title IV SO₂ emissions limits and allowance trading program of the Clean Air Act in 1990 to address acid rain, many state PUCs took action to approve compliance actions by regulated utilities, including the establishment of rules governing cost recovery for sulfur dioxide allowance transactions; integrated resource plans demonstrating capital investments or changes in generation and fuel mix that would be required to cost-effectively comply; and approval of investments in individual pollution control projects.⁴ Similarly, state PUCs undertook proceedings to ensure that regulated utilities comply with the Clean Air Interstate Rule and install pollution controls needed to meet National Ambient Air Quality Standards.⁵ And most recently, state PUCs around the country have been actively engaging with utilities to ensure smooth implementation of the Mercury and Air Toxics Standards, Cross State Air Pollution Rule, and other environmental requirements through long-term planning and ratemaking proceedings.⁶

Emission Limits Enforceable Against Regulated Sources.

A central question for state plans is whether the plan should require regulated power plants (known as “affected electric generating units”) to be subject to emission limits that ensure state goals are met, or instead, whether compliance obligations should be spread among power plants and other entities responsible for deploying measures like energy efficiency and renewable generation.⁷ Although the proposed Clean Power Plan leaves this choice up to the states, the most effective approach is to place emissions obligations directly on affected EGUs in the form of flexible, market-based programs for generators—similar to approaches used by EPA and the states to address other power sector pollutants such as sulfur dioxide and nitrogen oxides. This approach ensures environmental performance, provides clear and enforceable compliance obligations for emitting sources, and thoroughly comports with long-standing legal frameworks. Moreover, this approach provides the states and affected sources with the latitude to augment

⁴ See Ron Lile & Dallas Burtraw, *State-Level Policies and Regulatory Guidance for Compliance in the Early Years of the SO₂ Emission Allowance Trading Program* 13-52 (May 1998) (summarizing orders and regulations issued by PUCs in response to the Clean Air Act Amendments of 1990, as well as some instances in which states passed new legislation to ensure timely and well-coordinated compliance. Examples include the establishment of new ratemaking rules requiring utilities to pass on to ratepayers certain profits from allowance transactions, or utilize those profits for demand-side management or other programs benefiting ratepayers; integrated resource planning processes requiring utilities to identify optimal combinations of shifts in generation, pollution control investments, fuel-switching, and other strategies to reduce sulfur dioxide; and approval of cost recovery for investments in flue gas desulfurization projects).

⁵ See M.J. Bradley & Associates, Public Utility Commission Study, EPA Contract No. EP-W-07-064 (Mar. 31, 2011) (providing detailed case studies of the Indiana Utility Regulatory Commission’s response to the Clean Air Interstate Rule and the Clean Air Mercury Rule; the Georgia Public Service Commission’s efforts to implement a “Multipollutant Rule” adopted by the state air quality regulators to comply with the Clean Air Interstate Rule and the ozone and particulate matter NAAQS; and the West Virginia Public Service Commission’s development of innovative financing mechanisms to ensure its regulated utilities complied with CAIR and CAMR).

⁶ See Matthew Bandyk, *State regulators approve Minnesota Power plan for coal retrofit, retirements*, SNL Sept. 25, 2013 (reporting on Minnesota PUC’s approval of a plan by Minnesota Power to install emission controls needed to comply with MATS at a 585 MW power plant); Matthew Bandyk, *We Energies coal-to-gas conversion gets approval from Wis. Regulators*, SNL Feb. 3, 2014 (describing Wisconsin PUC’s approval of a Wisconsin Electric Power proposal to comply with MATS by converting an existing 256 MW coal-fired power plant to natural gas); Matthew Bandyk, *Kentucky Power gets approval to convert coal unit at Big Sandy to gas*, SNL Aug. 1, 2014 (describing Kentucky PUC’s approval of a plan to convert a 268 MW coal-fired power plant to gas, also for purposes of complying with MATS).

⁷ 79 Fed. Reg. at 34,901. EPA refers to the later approach as the portfolio approach.

the state plan with complementary clean energy policies and programs that can lower the cost of compliance and maximize the economic benefits of reducing carbon pollution—without having to incorporate those programs as part of a state section 111(d) plan.

A state choosing to take this approach should adopt emission standards (either as emission rates or allowance submission requirements)⁸ that apply directly to sources, include those standards in the state’s plan, and enforce them through the state’s Title V permitting program⁹ or other state permitting program. Title V permits are legally enforceable documents that seek to assure compliance by consolidating all air pollution control requirements into a single, comprehensive “operating permit.”¹⁰

An enforceable emission standard applicable to affected EGUs has a number of important benefits:

- **Environmental Integrity.** A plan that applies mass- or rate-based standards directly to sources will ensure that states achieve the required level of emission performance.
- **Simplicity.** A traditional, emissions management-based approach is the simplest way for states to submit a compliant plan. States implementing these programs should not need to incorporate their existing renewable portfolio standards or energy efficiency programs into their state plans, although states implementing rate-based programs will need to explain the process by which credits are assessed and awarded for these programs so as to ensure that the credits are quantifiable, verifiable, and enforceable.¹¹ Similarly, companies can make their own decisions about how best to meet emission limits without including those specific decisions in the state plan. Because it ensures emission performance levels are met, such an approach also avoids the need for additional “corrective” measures contemplated under other planning approaches.¹²
- **Enforceability and Efficiency.** States have a long history of applying emission limits to sources through enforceable permits. Such an approach reflects states’ extensive experience with air quality planning and management and likewise leverages existing authority and permitting structures (for instance, all affected EGUs already have Title V permits addressing other pollutants).

⁸ Below, we discuss specific states’ authority to adopt such emission limits.

⁹ Emission limits could also be included in other state-based permits, *see* 35 P.S. 4006.1(b)(1) (Pennsylvania state permitting authority), but here, we focus on Title V because of its broad-based availability.

¹⁰ In 2010, EPA engaged in a dialogue with states intended to determine whether states had authority to incorporate greenhouse gas emission limits into their Title V permitting programs. *See* 75 Fed. Reg. 31,514, 31,525 (June 3, 2010). While most states possessed this authority, EPA worked with the few states that did not in order to ensure those states obtained adequate authority to issue Title V permits incorporating greenhouse gases. *See, e.g.*, 75 Fed. Reg. 53,892 (Sept. 2, 2010).

¹¹ Such evaluation, measurement and verification is not needed in the context of a mass-based program. To the extent renewable energy and energy efficiency reduce emissions from affected EGUs, those emission reductions will be automatically reflected in lower measured emissions from those facilities.

¹² 79 Fed. Reg. at 34,912 (noting need to provide additional corrective measures if state plan is not achieving required emission reductions).

- **Flexibility.** As described more fully below, such a framework can fully incorporate cost-saving compliance flexibilities such as averaging, crediting, and trading. These flexibilities have been successfully used in other air pollution programs to enable affected sources to determine the most cost-effective way to achieve emission reductions.

Flexible Framework to Demonstrate Compliance

Along with these enforceable emission limits that apply directly to sources, state environmental agencies can likewise establish a compliance framework that would give owners and operators additional tools to assist in meeting these emission limits. EPA identifies several key flexibilities that can facilitate compliance while lowering costs, including averaging and trading of emissions across sources and crediting of emission reductions due to deployment of renewable generation and energy efficiency programs. These flexibilities can apply both within state borders and among states. We describe how states could integrate each of these features into a state plan in greater detail, below.

Averaging and Trading. By providing flexibility as to the timing and location of emission reductions, a state plan that allows for averaging or trading across emissions sources will result in the least-cost compliance option and best facilitate system reliability.¹³ Averaging is typically limited to include emissions units within a single plant, but could be expanded to include all units held by a common owner or operator. Permit trading allows owners and operators to take advantage of opportunities beyond their own portfolio, thus expanding the timing and location of emissions reductions considerably and bringing corresponding reductions in compliance costs. In the proposed rule, EPA properly concludes that states may incorporate averaging and trading into their 111(d) plans, citing the definitions of “standard of performance” in both sections 111(a)(1) and 302(l)¹⁴ and EPA’s past practice in 111(d) rulemakings of authorizing averaging and trading.¹⁵ In section 110, which section 111(d) requires EPA to build upon in establishing regulations governing state plans, Congress expressly required EPA to allow states to employ market-based measures to implement the national ambient air quality standards (NAAQS).¹⁶ In addition, EPA has allowed states to adopt averaging and trading provisions in

¹³ See Frantz T. Litz & Jennifer Macedonia, Choosing a Policy Pathway for State 111(d) Plans to Meet State Objectives 18 (2015) (hereinafter “Great Plains White Paper”).

¹⁴ *Id.* at 34,927.

¹⁵ See Standards of Performance for New and Existing Stationary Sources: Electric Utility Steam Generating Units, Final Rule,” 70 Fed Reg 28,606 (May 18, 2005) [also known as the Clean Air Mercury Rule, or “CAMR”], vacated on other grounds by *New Jersey v. EPA*, 517 F.3d 574 (D.C. Cir. 2008), cert denied sub nom. *Util. Air Reg. Grp. v. New Jersey*, 555 U.S. 1169 (2009); see also Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources; Municipal Waste Combustors, 60 Fed. Reg. 65,387 (Dec. 19, 1995) (trading rules codified in 40 CFR 60.33b(d)(1)-(2)).

¹⁶ Section 111(d) provides that EPA’s regulations governing state plans shall “establish a procedure similar to that provided by section [110],” and section 110, in turn, explicitly provides that enforceable control measures can include “marketable permits.” See 42 U.S.C. § 7410(a)(2)(A) (state implementation plants under CAA section 110 must include enforceable emissions limitations and other control measures, means, or techniques “(including economic incentives such as fees, marketable permits, and auctions of emissions rights)”). See also 42 U.S.C. § 7602(y) (definition of federal implementation plan including same language).

the context of many other Clean Air Act rulemakings.¹⁷ States can (and have) implemented these flexibilities at the level of individual sources, by providing in Title V operating permits that sources may demonstrate compliance with emission limits by averaging emissions with another designated source or by procuring approved compliance instruments. In addition, there is a long history of permit-based trading for NO_x, SO₂, and other pollutants resulting in substantial emission reductions at lower-than-projected costs.¹⁸

Renewables and Efficiency Crediting. Renewable energy (RE), energy efficiency (EE), and other measures that reduce emissions at affected facilities can also help to secure emission reductions and facilitate compliance,¹⁹ and a framework built around emission limits applicable directly to sources can allow sources to leverage these flexibilities in a proven, legally-durable fashion. Emissions reductions due to EE / RE measures (both through state-level programs as well as investments made by owners of electric generating units with compliance obligations) should be reflected in the mass of emissions measured at affected EGUs, so states that adopt a mass-based emissions will not need to separately integrate an EE / RE crediting program to promote these reductions. States may, of course, nonetheless wish to implement separate EE and RE programs to drive their deployment and obtain the broader health and economic benefits that these policies can promote.²⁰

States that adopt a rate-based approach, however, could include in their plans a means of directly accounting for emission reductions due to EE / RE programs.²¹ A plan along the lines we describe above could recognize these savings by incorporating an EE / RE crediting program that would generate credits affected EGUs could use to comply with rate-based limits. EPA describes a number of ways that states could potentially calculate EE / RE savings for purposes of a crediting program and also discusses the need for state plans to include evaluation, measurement, and verification (EM&V) provisions.²² States can incorporate these standards or a process for establishing these standards into their state regulations for implementing the Clean Power Plan. Each source's permits would then describe the kinds of RE/EE credits that would be recognized for compliance, and cross-reference the EM&V standards that must be applied to those credits.

Whether mass- or rate-based, such an approach can satisfy the needed state plan elements without requiring formal inclusion of state-level energy efficiency policies or renewable portfolio standards in a state's 111(d) plan.²³ States, in partnership with PUCs and other relevant entities, can continue to develop and implement these state-level policies in a manner that best reflects state priorities. In addition, this approach allows companies with compliance obligations to

¹⁷ See, e.g., Finding of Significant Contribution and Rulemaking for Certain States in the Ozone Transport Assessment Group Region for Purposes of Reducing Regional Transport of Ozone ("NO_x SIP Call"), 63 Fed. Reg. 57,356 (Oct. 27, 1998) (describing NO_x budget trading program).

¹⁸ State Plan TSD at 34-35.

¹⁹ 79 Fed. Reg. at 34,919.

²⁰ *Id.*; see also Great Plains White Paper, *supra* note 8 at 8.

²¹ 79 Fed. Reg. at 34,919.

²² *Id.*

²³ EPA proposes that EE / RE credit generating mechanisms are "implementing measures" for purposes of a plan submission. *Id.*

make resource planning decisions—including but not limited to company-level investments in renewables, energy efficiency, or demand response programs— that can help satisfy their compliance obligations and best reflect their specific circumstances, opportunities, and customer needs.

There are a host of other complementary policies that states and companies can additionally deploy to help secure cost-effective carbon pollution reductions. These measures include, among others, demand response programs and improved building efficiency codes.²⁴ A recently-released report by the National Association of Clean Air Agencies sets forth a detailed menu of options for reducing carbon pollution, including emerging technologies and policies that EPA did not consider in the building blocks used to establish state goals.²⁵ As with renewables and efficiency investments, an emission-management state planning framework can fully recognize these investments, but would allow state and company decisions about how best to deploy them to be made in a traditional manner, as measures to help achieve the prescribed standards of performance but not requiring these measures to be incorporated into the state’s 111(d) emissions reduction plan.

“Common Elements.” The proposed Clean Power Plan also identifies opportunities to secure cost-effective emission reductions and enhance reliability by allowing interstate trading of compliance instruments (including mass-based allowances as well as EE / RE credits and credits generated by affected sources because of over compliance in a rate-based framework). Although EPA’s proposal notes that states could implement such programs by submitting a joint multi-state implementation plan,²⁶ past implementation of Clean Air Act programs shows that vibrant interstate markets for compliance instruments can be established *without* these elaborate processes.

Rather, states can facilitate interstate trading by adopting mutually compatible state plans designed around a few basic “common elements,” which would allow power companies operating in different states, and owners with compliance obligations spanning multiple jurisdictions, to trade either reduction credits or allowances.²⁷ This would allow states and owners of EGUs to capture the economic efficiencies associated with trading and averaging across a wider pool, without requiring formal agreements between states. Moreover, this

²⁴ According to the Department of Energy, only one-quarter of states have adopted the most up-to-date codes for residential and commercial buildings. This is notable as these codes can reduce energy use in new residential and commercial buildings by 20 and 25 percent, respectively. Importantly, building codes have shown themselves to be cost effective, with codes adopted between 1992 and 2012 expected to save consumers more than \$40 billion from buildings constructed during these 20 years alone. See U.S. Department of Energy (DOE), 2014, Building Energy Codes Program: “Status of State Energy Code Adoption,” July, U.S. DOE Office of Energy Efficiency and Renewable Energy, accessible at <http://www.energycodes.gov/adoption/states>. See also U.S. Department of Energy (DOE), Building Technologies Office, “Building Energy Codes Program,” DOE Office of Energy Efficiency & Renewable Energy, accessible at <https://www.energycodes.gov/>.

²⁵ NACAA, Implementing the Clean Power Plan: A Menu of Option (May 21, 2015), available at http://www.4cleanair.org/sites/default/files/Documents/NACAA_Menu_of_Options_LR.pdf.

²⁶ 79 Fed. Reg. at 34,913 (describing approaches including both single and multiple plan submissions).

²⁷ EPA could provide that states choosing to adopt these common elements in their state plans would be presumed to authorize exchange of compliance instruments with other states likewise incorporating the common elements approach. States incorporating these common elements could, however, opt out of interstate trading, limiting exchange of compliance instruments to in-state entities.

approach would not preclude more formal agreements down the road, to the extent states later pursued them. A broad range of stakeholders and analyses have urged EPA to pursue such an approach.²⁸

In providing guidance on common elements, EPA could draw from similar concepts reflected in multiple national rulemakings requiring states to reduce power sector emissions that affect air quality in downwind states. In the 1998 NOx SIP Call, for example, EPA identified key elements states must adopt (or incorporate by reference) in their state plans to ensure they could participate in an interstate trading program to reduce NOx emissions.²⁹ Similarly, in the 2005 Clean Air Interstate Rule (CAIR), EPA adopted a model state plan that reflected basic criteria for participation in interstate trading programs.³⁰ Here, a common elements approach would define key parameters that must be included in state plans to allow sources to trade compliance instruments across state lines. Table 1 identifies key “common elements” in both the mass- and rate-based context, though as the Table makes clear, “common elements” in a mass-based context are substantially more straightforward. Accordingly, states deploying a mass-based framework would need less guidance from EPA to enable interstate trading via a “common elements” approach.

TABLE 1
Common Elements in the Mass- and Rate-Based Plans³¹

	Mass-Based Plan	Rate-Based Plan
State Trading	A state-wide emission trading program designed to achieve the mass-based state goal. This requires that the state issues allowances in a quantity not to exceed the state emissions budget.	A state-wide emission trading program designed to achieve the rate-based state goal.
Compliance Instruments	Compliance instruments representing the same quantity of CO ₂ emissions (i.e. 1 allowance = 1 ton).	Compliance instruments representing the same units of measurement (for example, MWh of zero-carbon generation or tons

²⁸ See, e.g., Jonas Monast et al., *Enhancing Compliance Flexibility Under the Clean Power Plan: A Common Elements Approach to Capturing Low-Cost Emissions Reductions* (Nicholas Institute for Environmental Policy Solutions, Policy Brief NI PB 15-01, Mar. 2015).

²⁹ 63 Fed. Reg. 25,902 (discussing model budget trading rule). State plans could have variations (allocation methodology; early action crediting) but to allow for interstate trading, elements in model rule must be consistent.

³⁰ See 69 Fed. Reg. 32,684, 32,708-21 (June 10, 2004).

³¹ We assume trading would not occur across mass- and rate-based states.

		of avoided emissions).
Tracking and Implementation	A tracking system and appropriate safeguards to ensure that each allowance is only registered with one owner at a time and retired once. EPA should facilitate this by establishing model regulations governing trading and compliance for states pursuing the common elements approach.	A tracking system and appropriate safeguards to ensure that each allowance is only registered with one owner at a time and retired once, as well as an approved EM&V plan to ensure the integrity of compliance instruments. EPA should facilitate this by establishing model regulations governing trading and compliance for states pursuing the common elements approach, and providing guidance on EM&V for RE / EE.
Provisions to assure environmental integrity of trading	<p>No special provisions needed. Trading among mass-based states does not affect overall emissions levels, because the total quantity of emissions from regulated sources is determined by the size of the cap.</p> <p>EPA should evaluate whether states should be required to treat new units in a consistent fashion as part of guidance on common elements.³²</p>	Unrestricted trading among rate-based states could reduce the environmental benefits associated with the CPP by incentivizing increased generation in states with relatively weak state goals. EPA should only recognize trading through a common elements approach if states can demonstrate that the carbon emissions outcome of trading is not less stringent than implementing individual state goals separately without trading. This could entail policies for reducing such “leakage,” including requiring rate-based states to harmonize their rates in order to trade with each other; or requiring states to provide compensating emission reductions for increases in exports of generation to other

³² Disparate treatment of new sources could inadvertently incentivize a shift in generation from existing to new sources, creating a potential for excess emissions. We discuss the importance of including new units in the federal plan and EPA’s legal authority to do so below.

		<p>states.</p> <p>To prevent double counting, power plants in states implementing rate-based programs should not be allowed to utilize renewable credits generated in mass-based states unless those states retire a corresponding number of CO₂ allowances.</p> <p>EPA should evaluate whether states should be required to treat new units in a consistent fashion as part of guidance on common elements.³³</p>
Provisions to ensure the environmental integrity of compliance	Minimum sanctions, including monetary penalties and emissions mitigation, for violations of the program.	Minimum sanctions, including monetary penalties and emissions mitigation, for violations of the program.

Providing for a “common elements” approach in the context of permit-based state plans allows states to reap the benefits of interstate linkages without requiring states to engage in the development and submission of multi-state compliance plans, which will allow both states and power companies to be more nimble as they determine how to achieve the lowest cost emissions reductions. By facilitating multi-state compliance markets, this can afford operators greater options for compliance that will likely result in lower costs of compliance. In light of these benefits, we recommend that EPA expeditiously finalize guidance identifying minimum requirements for “common elements” in state permits, so states will have the certainty they need that their individual plans meet the threshold to be “interstate trading ready.”

Compliance Pool Tailored to Recognize Early Action and Support Reliability While Protecting Environmental Integrity. A traditional, emissions management-based framework could also incorporate a mechanism to recognize early action and support reliability through a tailored compliance pool. EPA could consider developing a “compliance pool” that would be capped in size and consistent with the required carbon emissions reductions to ensure that the Clean Power Plan as a whole delivers rigorous environmental performance. The agency

³³ Allowing states implementing rate-based programs to choose whether or not to include new units in their programs will erode the emissions benefits of the program.

could allocate this pool of credits to states, which states could then use to recognize early action or provide to generators that have demonstrated a need for compliance instruments to operate for reliability purposes. EPA has taken a similar approach in the context of several other air quality programs,³⁴ and commenters and analyses have suggested EPA take a similar approach in the Clean Power Plan.³⁵

State Legal Authority

States have clear legal authority to adopt the approach we describe above, and, in many cases, have already used that authority to adopt similar flexible, air quality management programs. We examine existing legal authority in five states³⁶ all of which have clear authority to adopt emissions limits applicable directly to electric generating units along with compliance flexibilities to implement the Clean Power Plan. Here, we highlight two states—Pennsylvania and Nevada—and analyze statutory provisions and regulatory programs, also pointing to analogs in other states we examined, that are strongly supportive of these states’ authority to adopt the approach we recommend. In addition to its simplicity, environmental integrity and durability, this approach relies on existing state legal authority and accordingly will help to ensure states timely adopt a compliant plan.

Pennsylvania

Pennsylvania has clear legal authority to adopt greenhouse gas emission limits for electric generating units in the state. The Pennsylvania Air Pollution Control Act includes a definition of air pollution that is crafted broadly and encompasses greenhouse gases,³⁷ and the Pennsylvania Department of Environmental Protection (“DEP”) has clear statutory authority to “implement provisions of the Clean Air Act in the Commonwealth,”³⁸ which include the greenhouse gas emission limits found in the Clean Power Plan. Moreover, the state has authority to include these emission limits in permits DEP issues to sources, under both the state’s EPA-approved

³⁴ See, e.g., NOx SIP Call, 63 Fed. Reg. 57,428 (allowing a capped pool of 200,000 tons of NOx allowances across all participating states and distributing this pool among states based on the percentage of emission reductions the state was required to achieve under the program); see also Clean Air Interstate Rule, 70 Fed. Reg. 25,285 (same). In both the NOx SIP Call and CAIR, EPA provided that states could allocate these allowances among sources as a credit for early reductions or directly distribute them to sources based on demonstrated need). *Id.* Acting on this opportunity, Kentucky and Pennsylvania both promulgated regulations allocating their allowance pools to recognize early action and promote electric reliability. See 401 KAR 51:180 (Kentucky regulations establishing framework for allocating early reduction and emergency / reliability credits); 25 PA Code 145.43 (Pennsylvania regulations choosing to allocate all pool allowances to early reduction measures).

³⁵ See, e.g., Advanced Energy Economy, Design Principles for a Rate-Based Federal Plan Under EPA’s Clean Power Plan 15 (May 2015).

³⁶ We have specifically examined legal authority in Colorado, Nevada, Minnesota, Montana, and Pennsylvania, though all states have authority to issue Title V permits including greenhouse gases.

³⁷ See 35 P.S. § 4003 (defining “air pollution” broadly to include “any form of contaminant, including . . . gases . . . inimical or which may be inimical to the public health, safety or welfare or which is or may be injurious to human, plant or animal life or to property . . .”).

³⁸ 35 P.S. § 4004(1)

Title V permitting program³⁹ and DEP’s own authority to issue permits under the state’s Air Pollution Control Act.⁴⁰

The Pennsylvania Air Pollution Control Act likewise vests the DEP and Environmental Quality Board (“EQB”) with broad authority to establish regulatory programs with compliance flexibility, which encompasses averaging, crediting, and trading provisions along the lines described above.⁴¹ Under the DEP’s general authority to implement provisions of the Clean Air Act, as noted above, the state can utilize the flexibilities expressly provided for in the Clean Power Plan.⁴² In addition, the Pennsylvania Act grants DEP authority to “do any and all other acts and things not inconsistent with any provisions of this act, which it may deem necessary or proper for the effective enforcement of this act and the rules or regulations promulgated under this act”⁴³ and provides EQB with authority to “adopt rules and regulations for the prevention, control, reduction, and abatement of air pollution.”⁴⁴

The DEP and EQB have previously interpreted these broad statutory grants of authority as authorizing adoption of air quality regulations which have included averaging, trading (including trading across state lines), and crediting flexibilities similar to those we examine here.

- Averaging and Trading—Pennsylvania has adopted a NOx budget trading program, including provisions allowing for interstate trading, citing the EQB’s authority to adopt rules and regulations for the prevention, control, reduction and abatement of air pollution.⁴⁵
- Crediting—Pennsylvania has also adopted various air quality crediting programs that are likewise founded on the EQB’s broad statutory authority. These include emission

³⁹ 25 PA. Code 127 subch. F. (Pennsylvania Title V permitting regulations). PA DEP has previously applied permit-based GHG limits to sources through its federally-approved PSD and Title V permitting program. See Pennsylvania 60-day Letter re: Implementation of the GHG Tailoring Rule (Aug. 4, 2010) (citing 35 P.S. § 4004 authority to implement CAA provisions as a basis for doing so).

⁴⁰ See 35 P.S. § 4006.1(b)(1) (“No person shall operate any stationary air contamination source unless the department shall have issued to such person a permit”); see also 35 P.S. § 4006.1(k) (authorizing permit revisions at existing sources to incorporate new CAA requirements). Pennsylvania cited both of these provisions as the basis for its authority to establish permit-based emission limits for MSW landfills in Pennsylvania’s 111(d) landfill plan. PA Municipal Solid Waste (MSW) Landfills Plan Submittal, at 4 (June 30, 1997).

⁴¹ Statutes in the other states give similarly broad authority to air regulatory agencies. See e.g., Colo. Rev. Stat. § 25-7-106(1) (giving air regulators “maximum flexibility in developing an effective air quality control program”); Minn. Stat. § 116.07 subd. 4 (stating that “[w]ithout limitation” pollution control agency rules and regulations “may relate to sources or emissions of air contamination or air pollution, to the quality or composition of such emissions, or the quality of or composition of the ambient air or outdoor atmosphere or to any other matter relevant to the prevention, abatement, or control of air pollution”); Mont. Code Ann. §§ 75-2-102(2), 75-2-203 (giving air agency broad authority to regulate emissions from any source pursuant to the act’s policy of preventing injury to plant and animal life and property to the “greatest degree practicable”).

⁴² The proposed Clean Power Plan expressly provides for these flexibilities, concluding that emissions averaging and trading programs fall within the “standards of performance” that may be included in state plans, 79 Fed. Reg. 34,927, and that an EE / RE crediting program is an approvable implementing measure, *id.* at 34,919.

⁴³ 35 P.S. § 4004(27).

⁴⁴ *Id.* § 4005(a)(1)

⁴⁵ See 25 PA. Code § 123.101 et seq. (Pennsylvania regulations); see also 27 Pa. Bull. 5683 (Nov. 1, 1997) (Pennsylvania Bulletin noting adoption and the EQB’s reliance on authority in 35 P.S. § 4005(a)(1)).

reduction credits (“ERCs”) that sources subject to new source review requirements can generate due to over-control;⁴⁶ as well as credits for renewable generation that can be used for compliance with NOx emission requirements for boilers, stationary combustion turbines, and stationary internal combustion engines;⁴⁷ and renewables and demand side management crediting that were available to help satisfy requirements under the Clean Air Interstate Rule.⁴⁸

Nevada

Nevada likewise has clear authority to apply emission limits to electric generating units. Nevada’s statute defines “air contaminant” and “air pollutant” in broad terms that encompass greenhouse gases.⁴⁹ Moreover, as with Pennsylvania, Nevada’s Department of Conservation and Natural Resources has authority to “take all action necessary or appropriate to secure to the state the benefits of the [Clean Air Act],”⁵⁰ and in addition, has sufficient permitting authority to apply greenhouse gas limits directly to sources.⁵¹

Nevada’s state environmental commission likewise has broad rulemaking authority that would allow it to adopt the compliance flexibilities we describe above, including the power to establish regulations “consistent with the general intent and purposes” of the state’s air quality act “to establish such requirements for the control of emissions as may be necessary to prevent, abate or control air pollution.”⁵² In addition, Nevada’s air quality statute provides explicit authority to adopt crediting and trading programs, including express authority to collect funds from the “sale of emission credits or allocations” and enabling authority for larger counties within the state to develop emission credits and trading programs.⁵³ These broad and specific grants of authority authorize the state to develop a program that includes permit-based emission limits and allows for trading across sources (including interstate trading of compliance instruments) as well as crediting of energy efficiency and renewable generation. Moreover, the Department of Conservation and Natural Resources can “cooperate and contract with other governmental agencies, including other states and the Federal Government”⁵⁴ allowing for coordination between the air agency and the PUC in implementing any piece of this program.

⁴⁶ See 25 PA. Code § 127.206 (emission reduction credit regulations); see also 37 Pa. Bull. 2365 (May 19, 2007) (citing 35 P.S. § 4005(a)(1) authority as basis for adoption).

⁴⁷ See 25 PA. Code § 129.205 (regulations); 34 Pa. Bull. 6509 (Dec. 11, 2004) (citing 35 P.S. § 4005 authority).

⁴⁸ See 25 PA. Code § 145.212 (“The Department will allocate CAIR NOx allowances to a renewable energy qualifying resource or demand side management energy efficiency qualifying resource in accordance with subsections (c) and (d) . . .”).

⁴⁹ See Nev. Rev. Stat. §§ 445B.110, 445B.115 (defining “air contaminant” as “any substance discharged into the atmosphere except water vapor and water droplets” and “air pollutant” as air contaminants that “may tend to,” among other things, “injure human health or welfare, animal or plant life or property”).

⁵⁰ *Id.* § 445B.205

⁵¹ Nev. Admin. Code § 445B.287 (general Title V requirements).

⁵² Nev. Rev. Stat § 445B.210.

⁵³ *Id.* § 445B.508.

⁵⁴ *Id.* § 445B.230(3).

Under this existing statutory authority, Nevada has previously enacted regulations that incorporate key elements of the approach we describe above:

- Nevada has adopted regulations for trading under permit caps, as well as offsetting and netting for criteria pollutants in nonattainment areas.⁵⁵
- Nevada regulations allow applicants for Title V permits to include “alternative operating scenarios,” a federally enforceable emissions cap, and a “provision regarding trading increases or decreases of emissions pursuant to a federally enforceable emissions cap.”⁵⁶ For trading provisions, the sources must include “proposed replicable procedures and conditions of the operating permit that ensures that the trades of emissions are quantifiable and enforceable” and “any additional information the Director determines is necessary to process the application.”⁵⁷
- Regulations in Clark County, Nevada, create a banking, trading, and emission reduction credit program.⁵⁸
- Though never formally approved by EPA, Nevada submitted a state plan and adopted regulations to implement EPA’s Clean Air Mercury Rule.⁵⁹ These included provisions for trading and—in certain circumstances—auctioning allowances.⁶⁰

In addition to the above-described benefits of this approach, states’ ability to rely on existing legal authority will allow for timely adoption of compliant state plans. In past 111(d) rulemakings states have relied on many of the same existing authorities described here and have submitted plans within the timeframes set forth in EPA’s proposed rule.⁶¹

⁵⁵ *Id.* §§ 445B.296, 445B.3405.

⁵⁵ *Id.*

⁵⁶ *Id.* § 445B.296. Other states have similar regulatory provisions. *See, e.g.*, Minn R. 7007.0800 subp. 10 (Minnesota program allowing for trading of emissions increases and decreases within a single facility if requested by a permittee).

⁵⁷ Nev. Admin. Code § 445B.296(3). Nevada also administers a program allowing for averaging across units at a single facility. *Id.* § 445B.33627 (requirements for approval of plantwide applicability limitations). Other states regulations similarly include averaging provisions. *See, e.g.*, Colo. Rev. Stat. § 25-7-1203 (allowing averaging across several emissions points in voluntary emissions limitations agreements); *id.* § 25-7-12020 (defining actual emissions as average emissions from group of stationary sources).

⁵⁸ Clark County, Nevada Reg. § 12.7. Notably, Pennsylvania also allows for interstate trading of emission reduction credits under its New Source Review program. 25 Pa. Code § 127.208.

⁵⁹ Nevada DEP pointed to its broad grants of statutory authority as authorizing its plan submission and adoption of regulations. *See* NV CAMR Submittal at 5.

⁶⁰ *Id.* at 10 (trading), 44 (auction provisions).

⁶¹ For instance, Minnesota submitted its 111(d) plan addressing municipal solid waste landfill emissions within 1 year of EPA’s promulgation of emission guidelines for those sources. *See* 71 Fed. Reg. 75,117 (Dec. 14, 2006). Nevada submitted its CAMR 111(d) plan within approximately 18 months. *See* 63 Fed. Reg. 40,049 (July 27, 1998).

Federal Plan Design Considerations

Like other cooperative federalism programs established by the Clean Air Act, section 111(d) requires EPA to issue a federal plan in the event that a state does not submit a satisfactory plan that complies with federal emission guidelines. In the Summer of 2015, EPA intends to issue—and take public comment on—a proposed model federal plan to implement the Clean Power Plan. This model federal plan will not only provide a predictable and consistent approach to achieving carbon pollution reductions in states that do not submit their own plans, but could also serve as a template to guide states in developing their own streamlined and cost-effective plans.

As described below, the federal plan offers an important opportunity to demonstrate that carbon pollution reductions from the power sector can be achieved through flexible, straightforward, market-based programs that are directly enforceable against regulated power plants and that appropriately incentivize low- and zero-carbon generation. Like state plans, a federal plan could also be designed around core “common elements”—parallel to those described in section II above—that would facilitate trading of compliance instruments between sources covered by the federal plan and entities in other states that are subject to compatible plans. In addition, the federal plan could be designed to reflect individual state priorities and preferences through a modular architecture that allows states to customize key elements, such as allocations of compliance instruments. Such a program would follow in the best tradition of national air pollution reduction programs under the Clean Air Act—borrowing in many key respects from successful federal and state plans that have reduced interstate transport of other major pollutants from the power sector. This section describes the key elements of such a federal plan.

Mass-Based Goal Coupled With a Streamlined Emissions Trading Approach.

A threshold issue for the model federal plan is whether it should be designed to achieve a “rate-based” state goal (expressed in terms of the amount of carbon pollution per unit of generation emitted in the state) or a “mass-based” state goal (expressed in terms of the total amount of carbon pollution that may be emitted in the state over time). Because states implementing the Clean Power Plan will have the discretion to choose either form of state goal, EPA may likewise exercise this choice under its broad authority when promulgating a federal plan on behalf of a particular state.⁶² Similarly, EPA may select from a range of regulatory approaches to implement the required emission reductions—so long as the federal plan, like state plans required by section 111(d), “establishes standards of performance for any existing source” within

⁶² Although there is no case law interpreting the scope of EPA’s federal plan authority under section 111(d), the courts have consistently found that under section 110 – the provision after which 111(d) is modeled – EPA “stands in the shoes of the state” when adopting a federal plan and may deploy the same regulatory tools that Congress has authorized the states use in achieve federal clean air goals. *See Central Ariz. Water Conservation Dist. v. EPA*, 990 F.2d 1531, 1541 (9th Cir. 1993) (When promulgating a federal plan, EPA “stands in the shoes of the defaulting state, and all of the rights and duties that would otherwise fall to the State accrue instead to EPA.”); *South Terminal Corp. v. EPA*, 504 F.2d 646, 668 (1st Cir. 1974) (“The statutory scheme would be unworkable were it read as giving to EPA, when promulgating an implementation plan for a state, less than those necessary measures allowed by Congress to a state to accomplish federal clean air goals. We do not adopt any such crippling interpretation.”).

the state and “provides for the implementation and enforcement of such standards of performance.”⁶³

Both mass- and rate-based state goals have their own advantages, and a model federal plan could be designed to achieve either. However, the combination of a mass-based state goal, implemented through a flexible emissions trading program that applies to regulated power plants, offers a suite of compelling features that would make it the preferred basis for a model federal plan. Under such an approach, EPA would establish an emission “budget” for power plants within a state, consistent with the state’s mass-based goal.⁶⁴ The budget would apply beginning in 2020, and would gradually decline each year through 2030—ensuring that existing power plants within the state achieve both the interim and final standards established in the Clean Power Plan. In order to ensure that power plants achieve the budget in a flexible and cost-effective way, a stock of tradable compliance instruments (allowances) —each representing a ton of CO₂ emissions—would be allocated on a predetermined basis to owners of generation in the state.⁶⁵ Each power plant in the state would be subject to a requirement to obtain allowances to cover each ton of carbon dioxide it emits, either using its own allocation or by acquiring allowances from other entities.

This approach has a number of advantages. First, this approach would be straightforward for EPA to establish and administer – requiring principally that the agency track the ownership and submission of emission allowances by regulated entities. Unlike a rate-based system, there would be no need for EPA to specifically credit generation or avoided emissions resulting from renewable energy, energy efficiency, or other low or zero-carbon generation. As a result, a mass-based system would avoid the need to create procedures for evaluation, monitoring and verification of such projects.

Second, this system would ensure that the state goal is met cost-effectively by providing the fleet of power plants with the flexibility to determine which facilities can most efficiently reduce carbon pollution (and on what schedule). This system would establish a market “price” on carbon emissions that would shift generation from carbon-intensive sources to low or zero-emitting sources, and would incentivize companies and other entities to invest in energy efficiency, renewable generation, and other projects to reduce carbon emissions from regulated facilities as necessary to minimize the cost of achieving the state’s budget.

Third, this system is fully compatible with other clean energy programs that the state might already have in place or might consider implementing – such as renewable portfolio standards or incentives for energy efficiency. Such programs would automatically help power companies achieve the state goal (by helping emissions stay within the “budget”) without any formal action to recognize or otherwise incorporate such programs in the federal plan.

⁶³ 42 U.S.C. § 7411(d)(1).

⁶⁴ EPA has proposed a technique for converting a rate-based state goal into a mass-based equivalent.

⁶⁵ The question of allocating allowances (and potentially other types of compliance instruments) would also arise in the context of state plans. Where a state is designing its own plan, such allocation questions are likely to be decided by state regulators as part of the process of crafting the plan.

In addition, this system has a long history of success in the power sector and other major industrial sectors, and is familiar to power companies in virtually every state. Examples of similar programs include:

- In the Cross-State Air Pollution Rule (CSAPR), which was upheld by the Supreme Court in 2014, EPA adopted state-wide emissions budgets for sulfur dioxide and nitrogen oxides from the power sector in twenty-eight states, and issued federal plans for each state establishing emissions trading programs to achieve those budgets;
- In the Clean Air Interstate Rule (2005) and NO_x SIP Call (1998), EPA similarly adopted state-wide emissions budgets for these pollutants, and provided model rules and federal plans that encouraged the adoption of emissions trading programs in dozens of states.⁶⁶
- Ten states—including California and the nine Northeastern states participating in the Regional Greenhouse Gas Initiative (RGGI) —are currently using similar emissions trading programs to achieve carbon dioxide reductions from the power sector.
- Congress established a similar emissions trading program for sulfur dioxide emissions from coal-fired power plants nationwide in the 1990 Clean Air Act Amendments, under Title IV of the Clean Air Act.

A final important advantage of this system is that it can incorporate unrestricted trading of compliance instruments between states without compromising the level of emission reductions achieved. This feature of mass-based programs results from the fact that the state-wide emission budget always determines the maximum level of emissions from covered sources. Trading among sources that are located in different states may shift emissions from one location to another, but total emissions from regulated sources will, by design, remain within the total budget of allowances that has been distributed to sources. As a result, there is no need for EPA to address interstate “leakage” concerns described in section II in the context of a federal plan that reflects a mass-based emission trading system.⁶⁷

⁶⁶ In CAIR, EPA initially issued model rules as a way of encouraging states to adopt mutually compatible emission trading programs. The CAIR rule was followed one year later by a rule establishing a “backstop” federal plan, which was nearly identical to the CAIR model rule, for all states that did not submit state plans compliant with CAIR. *See* Air Pollution Control – Transport of Emissions of Nitrogen Oxides (NO_x) and Sulfur Dioxide (SO₂), 71 Fed. Reg. 25,328, 25,330-331 (Apr. 28, 2006). The NO_x SIP Call was similarly implemented by means of a model emissions trading rule that was voluntarily adopted by multiple states. *See* Finding of Significant Contribution and Rulemaking for Certain States in the Ozone Transport Assessment Group Region for Purposes of Reducing Regional Transport of Ozone, 63 Fed. Reg. 57,356, 57,366 (Oct. 27, 1998).

⁶⁷ However, as described more fully below, there is a potential for “leakage” to new power plants in mass-based states with plans that do not cover new sources – in addition to unintended emissions that might result from interstate trading in compliance instruments. For this reason, we recommend that the federal plan incorporate new sources (an option that EPA has proposed to allow for states with mass-based plans under the proposed CPP), and that EPA consider whether treatment of new units should be considered as part of a “common elements” framework for state and federal plans (see section II above).

Compatibility with Other State Programs through Recognition of Common Elements

Various analyses, including EPA’s Regulatory Impact Analysis for the Clean Power Plan, have concluded that carbon pollution goals can be more cost-effectively achieved if states “pool” their emission reduction opportunities rather than achieve their goals on an individual state basis.⁶⁸ Like federal plans issued under CSAPR as well as other programs identified above, a Clean Power Plan model federal plan based on emissions trading could be designed to allow power companies to trade with any power company in any state that is operating under the federal plan or a compatible state plan. This “plug and play” compatibility would allow states operating under the federal plan to secure the benefits of multistate coordination, without having to pursue potentially complex negotiations or formal agreements with other states.

Such an approach has direct precedents under the Clean Air Act. In the 2011 CSAPR, EPA promulgated federal plans for all twenty-eight states covered by the rule.⁶⁹ Although established on a state-by-state basis, the federal plans were based on a common architecture that created mutually compatible emissions trading programs for each state. As a result, any power plant operating in a state covered by a CSAPR federal plan can trade allowances with any power plant in any other state covered by the federal plan.⁷⁰ Moreover, CSAPR offered each state the option of modifying the trading program in certain respects, either by submitting an “abbreviated” state plan or a “full” state plan, while preserving their interlocking, “plug and play” compatibility.⁷¹ Thus, states in CSAPR could customize the allowance allocations to individual power plants, as well as certain other program features, while continuing to enjoy the benefits of a flexible multistate trading program.⁷²

⁶⁸ EPA’s Regulatory Impact Analysis concluded that a “regional” approach to compliance – under which states within each region combine their respective state targets and meet them on a regional basis – would have 17% lower compliance costs by 2030 relative to achieving compliance on an individual state by state basis. EPA, Regulatory Impact Analysis for the Proposed Carbon Pollution Guidelines for Existing Power Plants and Emission Standards for Modified and Reconstructed Power Plants ES-8, Table ES-4 (June 2014). A 2015 analysis by PJM, one of the nation’s largest regional grid operators, also concluded that a regional approach using mass-based goals and emissions trading would have substantially lower costs than a state-by-state approach. See PJM Interconnection Economic Analysis of the EPA Clean Power Plan Proposal at 82 (Mar. 2015).

⁶⁹ 76 Fed. Reg. 48,208 (Aug. 8, 2011); see also 76 Fed. Reg. 80,760 (Dec. 27, 2011).

⁷⁰ In order to comply with a decision of the DC Circuit and assure the attainment of air quality standards in localized areas of downwind states, EPA limited the *amount* of interstate trading in CSAPR through a set of “assurance provisions” that ensured no individual state would exceed its emission budget by more than a predetermined level. See 76 Fed. Reg. at 48,294-96; see also 79 Fed. Reg. 71,663 (Dec. 3, 2014) (revising deadlines for assurance provisions). Because carbon dioxide is a dispersed pollutant, there would not be a need for such provisions in the context of the Clean Power Plan.

⁷¹ This feature was also included in the Clean Air Interstate Rule, adopted during the Bush Administration. See Federal Implementation Plans: Interstate Transport of Fine Particulate Matter and Ozone and Correction of SIP Approvals, 76 Fed. Reg. 48,208, 48,321, 327-28 (Aug. 8, 2011) (describing abbreviated and full SIP submission options under CSAPR and CAIR).

⁷² The Regional Greenhouse Gas Initiative (RGGI), through which nine Northeastern states established an emissions trading program for carbon pollution from existing power plants in 2005, also demonstrates the potential for a system of mutually compatible federal and state plans based on common elements. Although RGGI was created pursuant to a formal memorandum of understanding among the member states, the program was implemented through a “model rule” that was individually promulgated by each state participating in the program. Similar to the CSAPR federal plan, the model rule sets forth basic elements that are needed to ensure the mutual compatibility and effectiveness of the emissions trading programs created under RGGI, including: common procedures for accounting for and tracking allowances; monitoring, reporting, and recordkeeping requirements; and common penalty provisions

In order to protect the environmental integrity of the program and place power plants on a level playing field, CSAPR did establish certain uniform conditions that all trading programs have to meet⁷³—analogous to the concept of common elements described in section II of this paper. For purposes of a mass-based federal plan under the Clean Power Plan, the common elements would mirror those described in section II (see Table 2).

Table 2
Common Elements for Federal Plan

Category	Common Element
State Trading	Creation of a state-wide mass-based program with emissions trading. Provisions ensuring that allowances are issued in a quantity not to exceed the state emissions budget.
Compliance Instruments	Compliance instruments representing a standard quantity of CO ₂ emissions (i.e. 1 allowance = 1 ton)
Tracking and Implementation	A compatible tracking system and appropriate safeguards to ensure that each allowance is only registered with one owner at a time and retired once. EPA should facilitate this by establishing model regulations governing trading and compliance for states pursuing the common elements approach.
Provisions to assure environmental integrity of trading	<p>No special provisions needed. Trading among mass-based states does not affect overall emissions levels, because the total quantity of emissions from regulated sources is determined by the size of the cap.</p> <p>As noted in section II, inclusion of new units should be evaluated by EPA as a common element for mass-based states. We recommend below that the federal plan</p>

for power plants that hold insufficient allowances to cover their emissions. See Regional Greenhouse Gas Initiative, Model Rule Part XX CO₂ Budget Trading Program (2013), Subpart XX-2.1-2.6 (designation and authorities of authorized account representatives); Subpart XX-4.1; Subpart XX-6.1-6.4 (allowance tracking system); Subpart XX-6.5 (penalties for excess emissions); Subpart XX-8 (monitoring and reporting requirements).

⁷³ See 76 Fed. Reg. at 48,333-343. These core features included provisions governing monitoring, reporting, and recordkeeping; creation of allowance accounts and identification of “designated representatives” who would be responsible for ensuring compliance with allowance surrender requirements; and common provisions governing liability for allowance shortfalls.

	provide for the inclusion of new units.
Provisions to ensure the environmental integrity of compliance	Minimum sanctions, including penalties and emissions mitigation, for violations of the program.

Allocation of Allowances to Support Reliability and Minimize Interstate Effects

EPA would have substantial discretion in determining how allowances should be allocated under a model federal plan, and could consider a number of options—including allocating allowances directly to existing power plants in proportion to their share of recent or historic electric output or based on their recent or historic carbon dioxide emissions. EPA may also consider setting aside a certain share of allowances for new fossil generating units, or to incentivize new energy efficiency and renewable energy projects that help the state achieve its emissions budget. Alternatively, EPA could avoid the use of set-asides entirely, and treat new renewables and efficiency projects in the same way as existing fossil generation under an output-based allocation approach. EPA has considered similar allocation issues in the past, most recently in the CSAPR proceeding—in which EPA proposed and took comment on a number of allocation options, including some of those listed above.⁷⁴

From an environmental point of view, the emissions trading program should largely achieve the state goal regardless of which allocation method is reflected in the federal plan. However, since some states may choose to implement different types of programs, decisions about allocations could influence how generation is distributed among states operating under the federal plan and states operating under distinct state plans. In particular, some respected analysts have concluded that allocating allowances to generators based on electric output (via an output based allocation approach that “updates” over time as generation levels change) would help avoid unintended incentives to “shift” generation away from states with mass-based goals and towards states with rate-based goals – reinforcing the environmental integrity of the overall CPP.⁷⁵ Similarly, reasonable “set-asides” of allowances or direct allocation to clean energy projects could help ensure that renewable energy, energy efficiency, and other measures are adequately incentivized. In light of the well-documented market barriers that get in the way of cost-saving efficiency measures, such measures have been shown to minimize costs. EPA should consider and take comment on a broad suite of allocation options in a proposed federal plan, including the options described above.

⁷⁴ See CSAPR, 76 Fed. Reg. at 48,284-94. EPA ultimately decided to allocate allowances to existing power plants based on historic heat input, on the grounds that this methodology did not unduly advantage or penalize particular power plants based on their use of particular fuels or emission controls. *Id.* at 48,289. This judgment was not disturbed by the courts, but neither does this precedent require EPA to adhere to this methodology in future federal plans.

⁷⁵ Dallas Burtraw et al., *Comments to the US Environmental Protection Agency on its Proposed Clean Power Plan 20-21* (Dec. 2014).

There are also ways to design allowance allocations to reinforce the reliability of the electric system. In particular, allocations should be timed and structured such that a well-supplied market for compliance instruments is created as early as possible. This will ensure that allowances are available at a reasonable price to any power plant that needs them, including power plants that may need to operate at unexpected times for reliability purposes. In CSAPR, EPA provided a liquid market by ensuring that power plants received allocations for several years in advance⁷⁶ – helping ensure that, on the whole, the market had an ample stock of allowances in circulation at all times to provide for orderly compliance and deal with unexpected and short-term needs for allowances. If EPA includes new units in the federal plan, it could also “set aside” a discrete number of allowances for such units to minimize discrepancies between allocations to new and existing units.

Lastly, as noted above, EPA could consider creating a limited “pool” of compliance instruments that states would be able to allocate for purposes of recognizing early action and promoting electric reliability. If EPA were to adopt such an approach, it could specify the allocation of such instruments in the federal plan or request input from the state on how such a pool should be allocated.

Inclusion of New Units

Another important issue for EPA to consider in the design of the federal plan is whether new fossil fuel-fired power plants will be subject to the same emissions trading program as existing power plants. Although the proposed Clean Power Plan would not require state plans under section 111(d) to cover new power plants, some analysts have concluded that the program would produce more uniform market signals and more robust environmental and economic outcomes if new power plants were included in implementation policies under a mass-based program.⁷⁷

EPA should provide for participation of new units in a model federal plan’s implementation mechanisms and would likely have the ability to do so under its broad remedial authority to craft federal plans under section 111(d). Including new units in the mass-based program will ensure that a) new sources in the state covered by the federal plan do not face unintended incentives to expand emissions relative to existing plants, and b) existing sources in the states achieve actual emission reductions commensurate with the state goals, instead of shifting their emissions to new power plants. Put differently, including new units in the federal plan is a protective measure to ensure that existing power plants achieve reductions that are consistent with the state goal and the “best system of emission reduction” that EPA has established for those plants. As such, including new units can be seen as a provision for “implementation and

⁷⁶ See, e.g., 40 C.F.R. § 97.421(a)-(3) (providing for recordation of allowance allocations for 2012 and 2013 by Nov. 7, 2011; for 2014 and 2015 by July 1, 2013; for 2016 and 2017 by July 1, 2014; and for 2018 and 2019 by July 1, 2015).

⁷⁷ See Bipartisan Policy Center, *Insights from Modeling the Proposed Clean Power Plan*, at 29 (noting that including new NGCC units can lower cost, reduce market distortions, and reduce impacts on existing generators); Evelyn Wright & Amit Kanudia, *Evaluating Emissions Variation and Leakage Potential Across Clean Power Plan Compliance Designs: A Scenario Analysis in FACETS* at vii (describing modeling results indicating that excluding new gas from a mass-based compliance plan would lead to higher emissions).

enforcement” of the standards for existing sources – a required part of section 111(d) plans under the terms of the Act.⁷⁸

EPA’s authority to take such action is supported by case law finding that, in the context of federal plans to implement the National Ambient Air Quality Standards, EPA “stands in the shoes of the state” and, in general, may exercise the same authority as a state in regulating stationary sources under the federal plan.⁷⁹ The courts have also recognized that, like a state, EPA may go above and beyond the minimum requirements of the Clean Air Act under a federal plan. As the Tenth Circuit recently concluded in rejecting a challenge to a federal plan for a tribal area:

[W]e note there is no requirement that a gap-filling federal plan can be only as strict as necessary to meet national air standards. . . States, and presumably tribes, may surpass national air standards as long as their plans satisfy all of the minimal Clean Air Act requirements. See *Union Elec. Co.*, 427 U.S. at 263-65, 96 S.Ct. 2518 (holding that the EPA cannot disapprove a state plan solely because it imposes stricter limits than the national air standards or is economically or technologically infeasible). We have found no authority saying that we can prevent the agency to which we owe substantial deference from implementing the same type of superior plan.⁸⁰

As noted above, the proposed CPP provides states with mass-based programs the option of including new sources in their emissions trading programs, and set forth a proposed methodology for calculating the state’s overall emission budget if it includes both new and existing sources. To the extent that the final CPP provides such a pathway for states to design mass-based federal plans that include new sources, this case law suggests that EPA may elect to make the same choice when exercising its remedial power to craft a federal plan “in the shoes of the state” – even if states are not required to account for emissions from new sources when designing their plans under section 111(d).

The inclusion of new sources in a federal plan under the CPP would also be consistent with past EPA rulemakings regulating interstate air pollution from the power sector, all of which covered new sources in order to protect air quality.⁸¹ Although these programs were developed under

⁷⁸ 42 U.S.C. § 7411(d)(1)(B).

⁷⁹ See *Central Ariz. Water Conservation Dist. v. EPA*, 990 F.2d at 1541 (When promulgating a federal plan, EPA “stands in the shoes of the defaulting state, and all of the rights and duties that would otherwise fall to the State accrue instead to EPA.”); *South Terminal Corp. v. EPA*, 504 F.2d 646, 668 (1st Cir. 1974) (“The statutory scheme would be unworkable were it read as giving to EPA, when promulgating an implementation plan for a state, less than those necessary measures allowed by Congress to a state to accomplish federal clean air goals. We do not adopt any such crippling interpretation.”); cf. *Okla. Dep’t of Env’tl. Quality v. EPA*, 740 F.3d 185, 193 (D.C. Cir. 2014) (“Because the EPA may administer a federal program only “in the shoes of a tribe or the shoes of [a] state,” it can exercise no more jurisdiction than could the tribe or state whose shoes it fills.”) (citation removed) (quoting *Michigan v. EPA*, 268 F.3d 1075, 1085 (D.C. Cir. 2001)).

⁸⁰ See *Ariz. Public Service Co. v. EPA*, 562 F.3d 1116, 1130 (10th Cir. 2009).

⁸¹ Under the NO_x SIP Call, CAIR, and CSAPR, EPA established state-wide emission budgets for air pollution that applied equally to emissions from then-existing generating units as well as generating units that would be built in the future. Further, EPA included provisions in its model rule and federal plans that set aside a small percentage of allowances for new units on an annual basis, as well as distribution formulas for ensuring that such allowances were

section 110 of the Clean Air Act and not section 111(d), the structure of these programs reflects the appropriateness and long history of reducing power sector emissions through emission trading programs that apply equally to new and existing units.

If EPA does not provide for the participation of new sources in the federal plan, we recommend that EPA make clear that the federal plan will be modified upon the next revision to the New Source Performance Standards (NSPS) to include all sources built prior to that time. In past rulemakings, EPA has provided that new sources are considered “existing” sources, and may be made subject to state and federal plans under section 111(d), once a NSPS that applies to those new sources is reviewed and revised.⁸² That same approach should apply equally in the context of the Clean Power Plan, and would help mitigate the incentives that might otherwise exist for power companies to build and operate new sources in order to avoid emission reduction requirements under section 111(d).

Options for Empowering the States and Fostering Partnership with EPA

Although EPA is required to issue a federal plan for any state that does not timely submit a satisfactory plan of its own, there are several ways in which EPA could design the federal plan to provide states with an important role in policy decisions and in implementation.

First, as it did in CSAPR, EPA could identify certain “modular” components of the federal plan that could be customized (at the option of the state) while maintaining the overall environmental integrity and cost-effectiveness of the plan. In CSAPR, EPA provided states with the option of submitting an “abbreviated” state plan that modified only the allowance allocation provisions of the federal plan. Among other things, states could opt to replace the heat input-based allocation methodology in the federal plan with an auction of allowances; set-asides for renewable energy generators or other entities; or different formulas for allocating allowances among new and existing power plants.⁸³ A federal plan implementing the CPP and designed

allocated fairly among new units. *See* Finding of Significant Contribution and Rulemaking for Certain States in the Ozone Transport Assessment Group Region for Purposes of Reducing Regional Transport of Ozone, 63 Fed. Reg. 57,356, 57,408-409 (Oct. 27, 1998) (discussing how EPA’s procedure for establishing state emission budgets accounted for growth in generation and the construction of new generating resources); *id.* at 57,470-471 (describing set-aside provisions for new sources in EPA’s Model Rule); Rule to Reduce Interstate Transport of Fine Particulate Matter and Ozone (Clean Air Interstate Rule); Revisions to Acid Rain Program; Revisions to the NO_x SIP Call, 70 Fed. Reg. 25,162, 25,168 n 10 (May 12, 2005) (explaining that state-wide emission budgets apply to new source emissions as well as existing sources); Air Pollution Control – Transport of Emissions of Nitrogen Oxides (NO_x) and Sulfur Dioxide (SO₂), 71 Fed. Reg. 25,328, 25,356 (Apr. 28, 2006) (describing set-aside provisions for new sources in the federal plan implementing CAIR); CSAPR, 76 Fed. Reg. at 48,290 (describing set-aside provisions for new sources in the CSAPR FIP).

⁸² *See* Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Hospital/Medical/Infectious Waste Incinerators, 74 Fed. Reg. 51,368, 51,375 (Oct. 6, 2009) (providing that “All HMIWI that complied with the NSPS as promulgated in 1997 are ‘existing’ sources” following the promulgation of amendments to the NSPS, and requiring those sources to comply with applicable emission guidelines to the extent they are more stringent than the NSPS); Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Commercial and Industrial Solid Waste Incineration Units, 80 Fed. Reg. 3,018, 3,023 (Jan. 21, 2015) (clarifying that following February 2013 revisions to the NSPS, EPA intended to regulate sources covered by the prior 2000 NSPS as “existing” sources under the more stringent EG once these units were covered under an approved state plan or federal plan that implements the February 2013 CISWI final EG).

⁸³ CSAPR, 76 Fed. Reg. at 48,326.

along the lines described above could, similarly, provide states with the option of auctioning the allowances or otherwise modifying the allocation methodology.

In addition to allocations, other provisions of the federal plan could likely be adjusted by the state without altering its effectiveness in achieving the state goal. For example, EPA could consider allowing states to determine whether and to what extent interstate trading of compliance instruments is allowed. Such modifications would allow the state to retain control over important policy decisions, while ensuring that the required emission reductions are achieved.

Finally, EPA could consider delegating the implementation and enforcement of the federal plan to state environmental regulators, just as EPA has done with respect to past section 111(d) federal plans,⁸⁴ as well as New Source Review permitting and administration of the Regional Haze program.⁸⁵ Delegation of the implementation of the federal plan would preserve the state's important role in carrying out and enforcing Clean Air Act programs, while conserving EPA's limited administrative resources.

Conclusion

This paper demonstrates that the Clean Power Plan can feasibly be implemented through traditional emissions management programs that are exclusively enforceable against regulated power plants. States and EPA have long deployed such traditional environmental regulatory tools to achieve flexible, cost-effective emission reductions in other pollutants generated by the power sector—as well as to appropriately incentivize RE, EE, and other activities that reduce the cost of compliance while yielding significant environmental and economic benefits. Moreover, past experience with the Clean Air Act has shown that, with appropriate EPA guidance, such programs can facilitate and leverage multistate trading and cooperation—without involving the states in complex or time-consuming joint state implementation plans.

Many of the same design considerations that inform the state planning process are also relevant to EPA's development of a model federal plan. As shown above, such a federal plan can be designed to ensure environmental performance, provide compliance flexibility that enhances cost-effectiveness and supports electric reliability, and reflect the same “common elements” that would apply to state plans.

⁸⁴ In promulgating a federal plan for municipal solid waste landfills in 1999, EPA encouraged states to request delegated authority to administer the plan and provided specific procedures for doing so. *See Federal Plan Requirements for Municipal Solid Waste Landfills That Commenced Construction Prior to May 30, 1991 and Have Not Been Modified or Reconstructed Since May 30, 1991*, 64 Fed. Reg. 60689, 60698 (Nov. 8, 1999). EPA has approved such delegation requests for at least one state. *See Approval and Promulgation of Plans for Designated Facilities; New Jersey; Delegation of Authority*, 72 Fed. Reg. 1,668 (Jan. 16, 2007).

⁸⁵ *See* 40 C.F.R. § 52.21(u) (providing for delegation of Prevention of Significant Deterioration permitting responsibilities to other agencies); 40 C.F.R. § 52.26(e) (providing for delegation of certain EPA functions relating to visibility protection to “any state or local air pollution control agency” or to “any Federal land manager with jurisdiction over the area”).