



It's Not a SIP: Opportunities and Implications for State 111(d) Compliance Planning

Authors

Christopher James and Kenneth Colburn

Introduction

Even before the US Environmental Protection Agency's (EPA) Clean Power Plan (CPP) becomes final, states are initiating careful planning efforts to identify ways that its proposed requirements could be met. Many observers characterize these state plans – which EPA will require under Section 111(d) of the federal Clean Air Act (CAA) – as “State Implementation Plans” (SIPs) for greenhouse gas (GHG) emissions. In reality, however, the CAA's requirements under 111(d) differ markedly from those for traditional criteria pollutant SIPs as found in Section 110 of the Act. Distinguishing the difference between Section 111(d) compliance plans and Section 110 SIPs is therefore quite important. States have far greater flexibility under 111(d) to craft a plan based on state policies instead of prescriptive federal requirements and timing. The CPP framework EPA has proposed manifests this flexibility: states can follow it exactly if they wish, or can put together a 111(d) plan based on other policy preferences as long as an equivalent emission trajectory is met.

Section 111(d) has seen little use historically, and never at the scale proposed in the CPP, so neither EPA nor the states have directly applicable experience about what will constitute an approvable state 111(d) plan. States have substantial experience with Section 110 SIP planning, and some may choose to model their 111(d) plans along similar lines. However, as detailed below, a state 111(d) plan is “not a SIP” and the distinction matters. There are several significant differences that could operate to the detriment of the states if they constrain their 111(d) planning to SIP approaches.

Chief among them is that unlike Section 110, the CPP offers broad flexibility for states to identify and implement technology and policy options of their own choosing to reduce GHG emissions. EPA's proposal uses four broad “building blocks” (heat rate improvements, re-dispatch to natural gas, non-emitting generation like renewable energy and nuclear power, and energy efficiency) to determine individual state emissions reduction targets. In actuality, the options open to states extend far beyond these building blocks; they include an array of additional policies and technologies that can be tailored by states to achieve compliance more cost-effectively, assist in meeting other or future air quality goals, help address other issues such as water concerns, and target state employment or economic gains. Some states may choose to submit 111(d) plans consistent with the narrow, but more certainly approvable, character of Section 110 SIPs, but most states could benefit from the greater flexibility the CPP provides and will want to explore the numerous additional options it allows.

“Not a SIP”

Section 7410 of the US Code embodies the CAA's Section 110 requirements for SIPs to meet national ambient air quality standards (NAAQS). And Section 111(d) states that EPA must “establish a procedure similar to that provided by section 7410.”¹ But “similar” is not *identical*, and EPA has repeatedly asserted that state compliance plans under 111(d) are “not SIPs.” But what does “not a SIP” really mean in reference to state 111(d) compliance plans? What is different, exactly?

1 42 U.S. Code § 7411 (d) (1).

Several important differences exist between Sections 110 and 111(d):

1. Cost considerations: Cost considerations are diametrically opposite for SIPs under Section 110 and the CPP under Section 111(d). Section 110 is linked to the section of the CAA that requires EPA to establish National Ambient Air Quality Standards (NAAQS). EPA *may not* consider cost in the NAAQS standard setting process; NAAQS are based solely on mitigating public health and environmental impacts with a margin of safety. Under 111(d), EPA *must* consider costs, as well as other environmental and energy impacts, as part of the process to establish an emission “guideline” or standard.

In contrast to SIPs, under 111(d) EPA must consider costs, as well as other environmental and energy impacts, as part of the process to establish an emission “guideline” or standard.

2. Experience and working knowledge: Section 110 is routinely used by states, often several times each year. By contrast, even though Section 111(d) has long been part of the CAA, it has only been used three previous times: to address total reduced sulfur emissions from pulp mills (1970s-80s), hazardous air pollutants from municipal waste combustors (1990s), and mercury emissions (2000s; subsequently overturned by DC Circuit Court, but on grounds unrelated to 111(d)). In short, no one has prior experience with 111(d) processes and plans on the scale of the CPP.

3. Acceptable and approvable contents of state plans: While there is a wealth of experience and guidance available for SIPs under Section 110, guidance for approval of state plans under 111(d) is scarce. To help meet Section 110 requirements, EPA has published dozens of Control Technique Guidelines (CTGs), prescriptive and presumptive measures²

to control emissions of volatile organic compounds (VOCs) and particulate matter (PM), multiple mobile source requirements concerning vehicles and fuels, etc. There is a rich public record for states, the regulated community, and stakeholders to access for direction and further guidance. Under Section 111(d), while required emission reductions may be clear, how a state chooses to achieve them is up to the individual state. Here, the CAA is far less prescriptive and there is no similar “menu of options” available to states today listing ways to comply with 111(d).³ Under 111(d), states can presumably demonstrate that they will achieve the required reductions through any combination of EPA’s four proposed building blocks – or through measures that go beyond EPA’s building blocks – and receive EPA approval.

4. Federal response when a state does not submit a plan or when a state plan is deficient: Section 110 provides clear non-discretionary language defining EPA’s responsibility to act and the timeframe in which it must do so, including assuming oversight and operation of a state program through a Federal Implementation Plan (FIP), imposing higher offset ratios under the New Source Review program, and in severe cases applying sanctions against the state, including possible withholding of federal funds for highway construction. Under Section 111(d), EPA has the same authority as it does under 110 to impose a federal plan, but neither its obligation to do so nor a timeframe is specified. States might reasonably anticipate, however, that any federal plan EPA ultimately does impose on a state, if any, will be close if not identical to the requirements reflected in EPA’s 111(d) final rule.⁴

5. The role of EPA’s Regional Offices: EPA’s ten regional offices are the initial recipients of state 110 SIP and 111(d) plan submittals, and their role in reviewing and approving state plans is similar for both sections of the Act. Regional offices always provide guidance, work with states as plans are developed,

2 Including requirements for “Reasonably Available Control Technology” (RACT), “Best Available Control Technology” (BACT), or “Reasonably Available Control Measures” (RACM) for various air pollutants.

3 The National Association of Clean Air Agencies is developing such a menu, with RAP’s assistance, to be published in early 2015. RAP is also working on materials to help

states consider energy efficiency at scale as an analog to how mobile source emissions are currently treated, and to coordinate air quality and energy planning in an integrated, multi-pollutant fashion.

4 This outcome is likely due to EPA’s limited resources and increased legal risk if a federal plan imposed in a state were to differ from EPA’s final 111(d) rule.

and serve as a conduit to the policy and legal staff at EPA headquarters. In SIPs, however, their role is much more evaluative and directive, consistent with the greater prescriptiveness of Section 110. Under Section 111(d), states have much more leeway to submit alternative or innovative strategies to achieve the required emission reductions. So although EPA still approves or denies a state's plan, the vector reflecting "who tells who what the plan contains" is largely reversed. Even so, any state considering incorporating strategies outside EPA's four proposed building blocks in its 111(d) plan would be wise to engage its EPA Regional Office "early and often." The experience of EPA's Regional Offices is diverse;

many have significant experience in renewable energy or energy efficiency, for instance, and others much less. And like the states, EPA's Regional Offices have much greater experience with Section 110 SIPs than Section 111(d) plans. Reasonable consistency in state SIPs is achieved across EPA Regions through federal guidance, the application of model rules, and decades of implementation and enforcement experience. It's not yet clear how EPA will ensure similar consistency in its assessment of widely differing state 111(d) compliance plans over differing EPA Regional Offices. Table 1 summarizes these and other important differences in state compliance planning under CAA Sections 110 and 111(d).

Table 1

Key Differences Between Clean Air Act Sections 110 and 111(d)		
	Section 110	Section 111(d)
Consideration of costs	EPA may <i>not</i> consider costs in setting NAAQS.	EPA <i>must</i> consider costs in setting 111(d) guidelines (standards).
Required level of emissions reductions	Nonattainment designations are specified by the CAA and are not at EPA's discretion. Nationally consistent control measures (e.g., CTGs, VOC and NOX RACT, PM10 RACM) are imposed, their number and stringency proportional to the severity of air pollution problems.	EPA determines the emissions reduction target level or quantity of emissions to be reduced. How states achieve the specified reductions is left to them.
Timing of emissions reductions	Timing of emissions reductions is specified by the CAA and is not at EPA's discretion. States must enact regulations within three years of NAAQS designation.	EPA establishes the timeframe for states to achieve the required emissions reductions (proposed to be 2020-2030). States have 1 year to submit 111(d) plans, but extensions may be available.
Measures to reduce emissions	States have some flexibility in SIPs but many control measures are mandated by the CAA or in regulation (e.g., CTGs, RACT, BACT, RACM, MACT, etc.)	CPP proposes flexibility to use the four building blocks or other alternative measures beyond the building blocks to achieve emissions reductions in ways that best suit each state.
Acceptability of emissions reductions	Emissions reductions must be quantifiable, non-duplicative, permanent, verifiable, and enforceable. Outside of mobile and area sources, they generally must be tied to individual sources.	Acceptability is likely to hinge on the same characteristics, but EPA is seeking comment and may allow greater flexibility.
Flexibility	States only have limited flexibility (e.g., to adopt measures that are more stringent than federal requirements). States may be able to substitute local for national measures on a case-by-case basis, with technical justification and approval by EPA.	EPA's proposed CPP reductions rely on four building blocks. States are obligated to achieve equivalent reductions, but can use EPA's building blocks and/or pursue alternative emissions reduction measures.

Table 1

Key Differences Between Clean Air Act Sections 110 and 111(d) *(continued)*

	Section 110	Section 111(d)
Enforcement responsibility	<p>SIPs are enforced by the state environmental agency and EPA. The public can also petition EPA to compel compliance with the CAA.</p> <p>Neighboring states affected by pollution from upwind states can petition EPA for redress and action under Section 126 of the CAA.</p>	<p>111(d) plans are enforced by the state and EPA. State enforceability may involve several agencies (e.g., environment department, public utilities commission, energy office, etc.), possibly requiring an MOU. The public can also petition EPA to compel state compliance with a 111(d) plan.</p>
Response if state fails to submit a plan or submits an inadequate plan	<p>Response actions are prescribed by the CAA (not at EPA's discretion). EPA's finding of inadequacy or failure to submit requires the state to remedy the deficiency within 18 months. After this, EPA can impose a FIP, require higher offset ratios for sources seeking to construct new or modify existing facilities, and restrict highway funding. The FIP remains in place until a SIP is submitted and approved.</p>	<p>EPA <i>can</i> impose a federal plan effective when state plans are due, but has discretion over if or when to do so. EPA can negotiate remedies with states without a specified timetable for completion. If imposed, a federal plan remains in effect until a state plan is submitted and approved.</p>
Ability for states to comply via multi-state or regional plans	<p>Very limited. Section 184 of the Act established the Ozone Transport Commission (OTC), requiring that regionally consistent NOX and VOC measures be adopted in 13 Northeastern states.</p> <p>Multi-state metropolitan areas (e.g., New York, Chicago, Charlotte, Louisville, St. Louis) routinely collaborate on air quality plans, but SIPs are still submitted separately.</p> <p>The "Good Neighbor" provision of Section 110 requires states to attain NAAQS <i>and</i> not impede the ability of downwind states to do so.</p>	<p>States can develop multi-state 111(d) plans to meet some or all CPP reductions. Multi-state plans may address one or more building blocks (e.g., regional energy efficiency or renewable energy programs). Collaborating states need not be adjacent.</p> <p>Reporting and recordkeeping must establish reductions, ownership, and enforceability. Collaborating states may be able to submit one joint plan. Administration (e.g., tracking, registry) is likely to be done by a single regional entity.</p>
Role of Regional EPA Offices	<p>States submit SIPs to EPA Regional Offices for review and approval. Regional Offices have much experience, precedent, and guidance.</p>	<p>States submit 111(d) plans to EPA Regional Offices for review and approval. Neither states nor EPA Regional Offices have much experience, precedent, or guidance with 111(d), so glitches can be anticipated.</p>
Multi-pollutant co-benefits	<p>Measures to reduce PM or ozone may or may not provide GHG emissions reductions as well. (Some measures increase GHG emissions.) GHG reductions resulting from SIPs (e.g., for ozone, PM) should be acceptable for inclusion in 111(d) plans.</p>	<p>Measures to reduce GHG emissions are likely to provide criteria pollutant reductions as well. Criteria pollutant reductions resulting from 111(d) may or may not be acceptable for inclusion in SIPs (e.g., for ozone, PM).</p>

With Flexibility Come Challenges and Choices for States

CAA Section 111(d) allows EPA to provide states with far greater flexibility to design and implement emissions reduction strategies tailored to their specific needs than the prescriptive requirements of Section 110. The Act's flexibility has rarely been so manifest in EPA regulations as in the proposed Clean Power Plan. In its regulatory approach to reducing US power sector GHG emissions, EPA appears committed to enabling states to take advantage of a broad array of strategies, including multi-state efforts, in their compliance planning.

The lack of prior experience with Section 111(d), however, and the resulting absence of a well-trod path of regulatory or legal precedent for this provision, suggests that much new ground will be broken as states develop, submit, and seek approval of their 111(d) compliance plans. Groundbreaking invariably involves stumbles, and in order to reduce risk, some states may choose to approach 111(d) compliance planning as though it were a SIP. By doing so, however, they may endure higher costs, fewer options, and less innovation as a result.

Some states may choose to approach 111(d) compliance planning as though it were a SIP. By doing so, however, they may endure higher costs, fewer options, and less innovation as a result.

One readily acceptable option under this conservative approach, for instance, would be to construct additional natural gas generation. The planning and permitting of such sources is consistent with Section 110 and well understood by air regulators. As a strategy for reducing GHG emissions, however, new gas plants may not provide the cost savings, multi-pollutant reductions, and other benefits available through groundbreaking compliance

options that the proposed CPP makes available, such as energy efficiency. Energy efficiency (EE) is a particular example where EPA's assurances that Section 111(d) plans are "not a SIP" will have significant impact. For EE to thrive as an emissions reduction strategy under 111(d), the final EPA CPP rule, like the proposal, will need to provide fundamentally greater freedom to utilize GHG emissions reductions that are less-easily-quantified and less-traceable to specific generation units than SIPs typically require.

In short, EPA's proposed Clean Power Plan offers state regulators a continuum of opportunity analogous to that normally faced by financial investors: they may choose a compliance pathway that reflects far greater reward (in terms of lower costs, greater economic opportunity, multi-pollutant reductions, etc.) accompanied by greater risk (in terms of as yet unclear and unprecedented challenges in implementation, enforceability, and approvability by EPA). Or, they may choose a pathway characterized by greater certainty, less risk, and yes, less financial, economic, public health, or environmental upside.

Like investors, state regulators will undertake 111(d) compliance planning consistent with the risk-reward posture they deem most appropriate. All state regulators, however, would be wise to consider the variety of compliance options offered under EPA's proposed rule; consult with their sources, stakeholders, and fellow state regulatory agencies; compare notes with their counterparts in other states (whether or not they are engaged in a formal multi-state compliance planning effort); and communicate regularly with their EPA Regional Office to optimize plan effectiveness and avoid unpleasant surprises.

For its part, EPA must make every effort to reduce the understandable and avoidable risks that states will perceive in pursuing groundbreaking, higher-reward compliance pathways. New model rules and guidance to encourage innovative compliance plans – and their ultimate approvals – will best establish that Section 111(d) is indeed "not a SIP."

Related RAP Publications

Calculating Avoided Emissions Should be a Standard Part of EM&V and Potential Studies

<http://www.raponline.org/document/download/id/7270>

Thanks in large part to some recent guidance and proposed federal regulations by the U.S. Environmental Protection Agency (EPA), state and local air pollution regulators have a growing interest in using energy efficiency (EE) as a strategy to improve air quality. The largest challenge for air pollution regulators is to quantify the impacts of EE in a way that is suitable for regulatory purposes. To measure the air quality impacts of EE, one has to begin with an assessment of energy savings. However, assessing the timing and location of energy savings is also critically important for estimating avoided emissions. EE professionals are better suited to this task of quantifying current or potential future avoided emissions than the air pollution regulators themselves. This paper explains the enormous hurdles that air pollution regulators face in this area, and why the methods are more suitable for use by EE professionals. This paper also suggests how EE professionals might collaborate with air pollution regulators to better understand the data needed for regulatory purposes, and modify their standard practices accordingly. Further, it explains how EE professionals and the other audiences they serve (utilities, public utility commissions, and consumer advocates) will all benefit from a greater emphasis on the air quality benefits of EE. Finally, encouraging examples where these ideas are already being put into practice are discussed briefly.

Integrated, Multi-pollutant Planning for Energy and Air Quality (IMPEAQ)

<http://www.raponline.org/document/download/id/6440>

IMPEAQ is RAP's initial effort to develop a model process that states, local agencies, and EPA can apply to comprehensively and simultaneously reduce all air pollutants, including criteria, toxic, and greenhouse gases (GHGs). IMPEAQ seeks to identify least-cost pathways to reduce emissions of multiple pollutants by adhering to Integrated Resource Plan (IRP) principles. In doing so, IMPEAQ also seeks to minimize electric reliability impacts and other system impacts.

Legal Issues in Integrated, Multi-Pollutant Planning for Energy and Air Quality

<http://www.raponline.org/document/download/id/6568>

In the face of persistent air quality problems, as well as emerging air quality concerns, such as greenhouse gases and state budgetary constraints, states are looking for new ways to maximize air quality while minimizing costs. RAP's Integrated, Multi-Pollutant Planning for Energy and Air Quality (IMPEAQ) fosters long-range planning, multi-pollutant analysis, and cost optimization modeling to enable state air quality regulators to achieve efficient gains in air quality. In this white paper Columbia Law School assesses the general statutory and regulatory framework applicable to IMPEAQ as a voluntary program for states to adopt for their air quality planning. The paper first addresses threshold issues relevant to IMPEAQ: state authority under the Clean Air Act to voluntarily implement integrated planning using IMPEAQ and the permissibility of using a multi-pollutant approach to air quality planning. In addition, while this paper does not provide a detailed analysis of specific control measures, it examines two key issues concerning emerging control measures: how states can use energy efficiency and renewable energy (EERE) programs in their State Implementation Plans (SIPs) and to what extent states may allow novel measures to satisfy the Act's source-specific control technology requirements.

Quantifying the Air Quality Impacts of Energy Efficiency Policies and Programs

<http://www.raponline.org/document/download/id/6680>

In recent years, more and more regulators view energy efficiency as a viable air quality improvement strategy. While no regulator should expect to solve all air quality challenges through one strategy alone, efficiency has distinct advantages over pollution control methods. This report is premised on the belief that regulators should employ energy efficiency as a first step toward air quality improvement rather than as a last resort. The report provides an introduction for air quality regulators to the rationale and opportunities for using energy efficiency as an air quality improvement strategy, identifies useful data sources, and outlines four basic steps for quantifying the air quality impacts of energy efficiency policies and programs. In addition, the paper explores opportunities to work with energy agencies to communicate air regulators' energy efficiency data priorities, including ways to improve the data.

Recognizing the Full Value of Energy Efficiency

<http://www.raonline.org/document/download/id/6739>

Energy efficiency provides numerous benefits to utilities, to participants (including rate payers), and to society as a whole. However, many of these benefits are frequently undervalued or not valued at all when energy efficiency measures are assessed. This paper seeks to comprehensively identify, characterize, and provide guidance regarding the quantification of the benefits provided by energy efficiency investments that save electricity. It focuses on the benefits of electric energy efficiency, but many of the same concepts are equally applicable to demand response, renewable energy, and water conservation measures. Similarly, they may also apply to efficiency investments associated with natural gas, fuel oil, or other end-user fuels. This report is meant to provide a comprehensive guide to consideration and valuation (where possible) of energy efficiency benefits. It provides a real-world example that has accounted for many, but not all, of the energy efficiency benefits analyzed herein. We also provide a list of recommendations for regulators to consider when evaluating energy efficiency programs.

State Implementation Plans: What Are They and Why Do They Matter?

<http://www.raonline.org/document/download/id/508>

The U.S. electricity system faces multiple urgent challenges to address transmission needs, adapt to smart grid technologies, expand energy efficiency and renewable energy use, and meet increasingly stringent environmental requirements. Air quality management faces equally daunting challenges driven by the need for greater health and environmental protection, diminishing state and federal budgets, and aging regulatory approaches. Reliable, affordable, clean energy solutions are unlikely to occur unless energy and air regulators understand the obligations, structure, and processes in which each regulator acts, and use that knowledge to work together to simultaneously meet energy and air quality goals. The report begins by discussing some of the differences between state energy regulatory and air quality agencies and describing ways in which each can help

the other. The Clean Air Act is described briefly, including its history, main goals, types of pollutants regulated, impacts of those pollutants, and the roles of the EPA and states in implementing the law. It then considers NAAQS, how they are developed, their components, and what happens when states fail to attain them. Finally, the SIP process is described, including how air regulations are developed and updated through that process.

Preparing for 111(d): 10 Steps Regulators Can Take Now

<http://www.raonline.org/document/download/id/7208>

The publication of the U.S. Environmental Protection Agency's (EPA) proposed rule to reduce greenhouse gas (GHG) emissions from existing power plants under section 111(d) of the federal Clean Air Act in the Federal Register on June 18, 2014, marks the official launch of a multi-year engagement between EPA and state regulators. EPA's proposal reflects a comprehensive and flexible integration of energy and environmental policy, which EPA further extended by setting state-specific targets that allow each state to measure progress against itself. Moreover, it accepts policies that reduce GHG emissions both at the power plant level and more broadly through demand-side and renewable programs that reduce the need to utilize fossil-fueled supply resources. The typical response to a new federal regulation is to try to analyze all the options in order to determine the most cost-effective approaches for possible implementation.

For the 111(d) proposal, however, the number of options is too great, the available economic models are generally too limited or otherwise inadequate, the time window is too short, and states have too few resources to consume them analyzing rule provisions that may never take effect. Instead, state officials may be best served by doing what they already do best: undertaking expeditious planning with an eye toward underlying considerations that are often overlooked. This paper, offers ten concrete actions that state energy regulators, environmental regulators, consumer advocates, and energy officers can take now and over the next year to lay the groundwork for developing an effective, approvable state 111(d) plan.



The Regulatory Assistance Project (RAP)TM is a global, non-profit team of experts focused on the long-term economic and environmental sustainability of the power sector. We provide technical and policy assistance on regulatory and market policies that promote economic efficiency, environmental protection, system reliability, and the fair allocation of system benefits among consumers. We work extensively in the US, China, the European Union, and India. Visit our website at www.raonline.org to learn more about our work.



50 State Street, Suite 3
Montpelier, Vermont 05602
802-223-8199
www.raponline.org