

MEMORANDUM

To: NARUC Executive Director

From: Miles Keogh, Director of Grants and Research

Date: October 1, 2013

Re: Informational Brief on Section 111(d) Rules for Existing power Plant Greenhouse Gas Emissions.

Summary: This Brief provides an introduction to Section 111(d), which would establish regulations for greenhouse gas emissions from existing power plants. It outlines a menu of 13 design principles that regulators may wish to consider recommending to EPA as it writes the rules for programs under Section 111(d). This menu is not prescriptive to States and is based entirely on my personal observations from having attended a number of meetings in Washington DC on the subject.

Background

In 2007 while cap & trade language was being crafted on Capitol Hill, one of the worries that kept both parties talking to each other was that legislative inaction would lead to EPA's regulating greenhouse gas (GHG) emissions from power plants using its authority under the Clean Air Act. This was regarded as so awkward a use of the Clean Air Act that compliance would be unbearable and costly, and faced with this purported threat Congress was briefly eager to find common ground using a legislative approach.

Congress didn't succeed, and EPA has moved forward under its stated obligations to promulgate restrictions on the emissions of carbon dioxide (CO₂) and other GHGs, both from mobile sources and from the power sector¹. The latter is facing proposals to use two parts of Section 111 of the Clean Air Act to this end: Section 111(b) would set emissions performance standards for *new* units, and Section 111(d) would set performance standards for *existing* units. As of this writing (October 2013), EPA has set out a proposed standard under Section 111(b), which would govern as-yet-unbuilt units. EPA will soon begin the process of generating new language under its Section 111(d) authority that would serve as the basis for the regulation of the GHG emissions of existing power plants². EPA's rule writers start work in November/December 2013, with a written proposal to be aired in the spring of 2014.

With an eye towards helping Commissions provide input to EPA before writing starts in November/December 2013, this brief describes Section 111(d). It touches on the relevance of existing NARUC resolutions pertaining to climate change, and explores some of the principles raised in discussions in policy circles about how Section 111(d) could be designed. These principles are shared not as recommendations, but rather as a "pick and choose menu" to help State decision-makers understand the options and determine their own preferences. And it goes without saying that the opinions expressed are my own, and are not reflective of NARUC policy or those of our members.

¹ The legal history that provides the basis for EPA's position starts with *Massachusetts V. EPA*, winds through other cases like *American Electric Power v. Connecticut*, and endangerment finding by EPA, and other twists and turns well documented by others. This brief focuses primarily on Section 111(d) itself.

² The language of the section is included at the end of this document.

One final note is that there may also be States whose preferred stance will be to oppose the use of Section 111(d) to regulate GHGs at all, and this brief does not comment on directions pertaining to legally challenging its use. Instead it merely focuses on Section 111(d) itself and design considerations for a regulatory program based on the section, whether or not it is ultimately brought under legal challenge.

What is Section 111(d)?

Section 111 of the Clean Air Act requires EPA to develop guidelines that yield standards that limit emissions of air pollution which may endanger public health or welfare. While much of the Clean Air Act explicitly focuses on restricting emissions of criteria pollutants (like ground-level ozone- and acid rain-precursors) this section of the Act serves as a catch-all for new pollutants identified as time goes on. The specific regulatory program authority conferred to EPA is called “new source performance standards”, or NSPS. Section 111(d) of the Act requires states to develop plans for existing sources of noncriteria pollutants (i.e., a pollutant for which there is no national ambient air quality standard) whenever EPA promulgates a standard for a new source.

The authority to set NSPS standards under Section 111 is well-used – almost all the plants permitted in the United States today underwent NSPS review. However, Section 111(d) authority - applying new source standards to existing sources - has not often been used. Existing examples of source categories that were made subject to 111(d) are existing municipal solid waste landfills, municipal waste combustors, sulfuric acid plants, primary aluminum reduction plants, and the phosphate fertilizer manufacturing facilities.

How does Section 111(d) work?

Regulating under Section 111(d) involves a three-step process. First, the EPA releases “guideline documents” that identify systems of emission reduction and the best system of emission reduction (BSER) for the covered pollutant (in this case, greenhouse gases like CO₂). The BSER must consider cost, energy requirements, and environmental impacts. Guideline documents also include an emission guideline showing what kind of emission reductions are possible through application of the BSER. (In practice, this may serve to set a de-facto standard for State plans to adhere to.)

Second, each state creates a plan that establishes a standard of performance and provides for implementation and enforcement of that standard. Section 111 defines “standard of performance” as “a standard for emissions of air pollutants which reflects the degree of emission limitation achievable through the application of the [BSER].” It is the states, not the EPA, that establish standards of performance and determine how their jurisdictional emitters will meet those standards, though states use EPA guidance as a reference, (and as mentioned above, in fact the EPA guidelines will likely set the standard in practice, leaving most of the latitude for states in the “how to go” rather than “how far to go”.)

In the third and final step, each state submits to the EPA a section 111(d) plan, which the Agency approves or denies based upon whether the plan satisfies the criteria laid out in the EPA’s guidelines. From here, the process looks a lot like the State Implementation Plans used to regulate criteria pollutants. If a state fails to submit a plan or submits a plan that the EPA determines is unsatisfactory, the EPA may develop a plan for the state.

The exact language of the Section 111(d) is included at the end of this brief.

Design Principles that State Decision-makers May Wish To Consider

The design specifics that are included in the final rule will be critically important to State decision-makers. A national, unit-specific requirement would lead to one set of outcomes and affect different regions differently; likewise, incorporation of flexible mechanisms—such as averaging, trading, or

incorporating renewables and energy efficiency—into state plans would likely have different impacts across states and regions. Again, the intent is for rule-writing is for EPA to put out proposed guideline documents in mid-2014, which could be finalized mid-2015, with State-led implementation in mid-2016. This means any overall system design input is most usefully provided by States to EPA before December 1, 2013.

Design principles that are in the marketplace of ideas that State decision-makers may wish to consider offering, opposing, modifying, or ignoring include:

1. Establish certainty in implementation by building the 111(d) program on a strong legal foundation.
 - a. EPA should avoid attempting over-reach with this program and focus only on activities that the law clearly allows. While lawsuits are probably inevitable, more expansive interpretations by EPA will challenge supporters by creating a risk that the program will be thrown out, and opponents of its use will be challenged by the risk that a more broadly-reaching program will stand up to attempts to strike it down in court. Lengthy uncertainty helps the sector the least.
2. Keep it simple.
 - a. Reduction requirements should be based on, and include, a consistent, long-term signal, such as a standard that clearly establishes a reduction goal, consistently declines over time, and spans over a multi-year period that realistically accommodates “cost, energy requirements, and environmental impacts”.
 - b. Although this issue may be paramount to Air regulators, I have no recommendations for Commissions on using an “emission mass-based” mechanism for metering compliance and an “emission rate-based” mechanism. (The difference? A mass-based system would set a total limit on the tons emitted per year by a regulated source, while a rate-based system would regulate the rate by which emissions were produced by a source at any given time, in tons/MW.) Each has advantages that may be important to different States. Mass-based reductions would be easier to measure and report, and would guarantee emissions reductions with more certainty. Rate-based systems hew more closely to the language of Section 111(d) and have other advantages. Translating an emission rate-basis for performance into an emission mass-basis for performance is pretty straightforward if you assume the number of hours a unit will be operating/emitting. One option would be to recommend that EPA allow a state to base its plan on a rate-basis or on a mass-basis, as long the approach taken is adequately supported and justified.
3. Mobilize cost-effective and demonstrated systems of emission reduction.
 - a. While technology cannot be assumed away in a program, nor should it be “assumed in”. Any future program design element that is unsettled by unforeseen technology integration underscores the need for program design that allows “tweaking” later on.
 - b. Maintaining a strong role for Commissions assures that affordability will be considered and that strategies are not “gold-plated”, regardless of the strategies implemented in response to the program.
4. Reflect existing institutions and authorities – particularly for resource choices made by State regulators.
 - a. EPA should not let SIPs become a proxy for directing Commission activities that drive resource choices (like IRPs, certification processes, loading orders, competitive procurements, interregional planning, RPSs, EERSs, etc.)

- b. A host of examples, ranging from siting boards to RGGI, demonstrate the ability of State air regulators, Commissions, and others to work together and create synergies in policymaking. This should be supported by EPA as a companion implementation strategy to its rule deployment.
5. Be specific, but not too specific. Be flexible, but not too flexible.
 - a. On the one hand, less specificity on the part of the EPA would give the states more flexibility to craft plans for satisfying section 111(d). On the other hand, providing more specificity in the guideline documents, such as identifying specific emission rates or identifying flexibility mechanisms available under 111(d), would provide states with more certainty. In addition, identifying available flexibility mechanisms at the outset would enable the EPA to consider them when identifying the best system of emission reduction. How should EPA find this balance? By listening to the States. While a national forum is useful, it may miss nuances that will be key to success; although comparatively more difficult, if possible EPA should engage on a state-by-state, or at least sub-regional, level to get the balance right.
6. Assure reliability by giving off-ramps, adjustments, and points of revisitation/revision.
 - a. EPA should commit to review and update the standards at regular, appropriate intervals.
 - b. In addition to a time threshold for technical tweaking or larger revisions, events such as reliability challenges and price thresholds should be explicitly identified as triggers for implementing pre-determined technical processes to pause and correct technical elements of the rule that may be designed imperfectly.
7. Reflect progress already being made.
 - a. States like Georgia and Pennsylvania are already rapidly decarbonizing because of low gas prices and MATS-driven retirements. States in the heartland are introducing large amounts of wind energy. EPA may be challenged to construct a rule that fairly accommodates these realities. Much of this may be driven by the baseline year chosen, so this baseline should be chosen carefully.
 - b. Some States have already taken early action, and this may need to be considered (for example, with grandfathering or other exemptions) for States like Colorado.
8. Credit & build upon existing policies.
 - a. Incorporation of existing policies such as RPSs, loading orders, EERSs, or participation in a regional cap and trade program may enable cost-effective compliance using proven mechanisms.
 - b. The well documented reductions in carbon emissions that first mover States and companies have already achieved could be recognized in an appropriate, calibrated way. Discounts for activities taken in anticipation of carbon restrictions, such as the work done in Colorado under Clean Air Clean Jobs, regardless of the baseline year, provide equity for early movers.
9. Provide Flexibility.
 - a. Mechanisms to allow innovation
 - i. Banking and borrowing of credits over time may be an alternative to the Feds enforcing a strong annual cap should a State not meet its goals. That way, if an efficiency program (or something else innovative) under-delivers reductions, a State plan can “pay back” the emissions with a premium in later years.
 - ii. Using alternative compliance payments may also be useful if redirected back into end-use efficiency and carbon reductions. Early data from RGGI indicate that

allowance revenues in that program that have been re-invested in efficiency have yielded substantial economic benefits overall.

- b. Emissions averaging
 - i. Across units: instead of requiring unit-by-unit reductions, average across the fossil (or entire) fleet as is done with corporate average fuel economy standards for vehicles. This will provide incentives for fleet turnover to lower emitting sources, while smoothing out specific unit retirement impacts on reliability and rates.
 - ii. Across and between States and regions: multi-state utilities would most-noticeably be able to manage cost and reliability impacts, but any organizations seeking reductions will have a bigger pool to find the most effective and cost-effective reductions. More choices often means better choices.
- c. Trading
 - i. One effective means of facilitating averaging would be to allow trading of credits representing emissions reduced or avoided.

10. Encourage interstate coordination.

- a. Multi-state trading, such as RGGI, might slot neatly into a 111(d) program if the rules allow this. However, mechanisms to encourage regional coordination should not be left vague and alternatives to regional cap and trade should be explicitly floated.
- b. State “SIP-Swap” – this idea would enable elements of one State’s SIP to occur in another State, assuming mutual agreement. This may be essential to address program fairness when a state imports power.
- c. Allowing aggregated emission budgets, for example allowing California EE investments to happen in Nevada. Unlike criteria pollutants, greenhouse gases are generally indifferent to the location they are emitted from, so reductions anywhere provide the same program benefits everywhere. Cost containment and other benefits are more likely if States work together.
- d. Facilitating institutional coordination (such as 3Ns meetings, etc.). While this is useful at a national level, a lesson learned from RGGI is that it is paramount that these kinds of institutional synergies are created at the State and regional level. EPA outreach to air and utility regulators, along with other stakeholders, will be most effective if it gets down into each State capital.

11. Be non-discriminatory:

- a. Treat emitters equally, regardless of the kind of organization that owns it or the kind of market structure it resides in. Exempting PMAs, IOUs, munis, coops, or IPPs may create perverse incentives.
- b. Enable all supply resources to participate, not only reductions at fossil sources. Expanding the program to allow for emissions reductions outside the power sector is tempting but may have important trade-offs.
- c. Treat every ton reduced or avoided in the power sector equally, with common metrics and benchmarks. In its most simplified form, this would mean having a single unit to work from, say, “Tons of CO2 equivalent avoided” or the like.
- d. Allow for – and provide specific guidance on – the inclusion of efficiency and other non-traditional resources (on both demand-side and among distributed resources.) As discussed later, this may hinge on adequate EM&V, though it should not wait around for perfect EM&V.

12. Give the program time to work *well*.
 - a. Provide certainty and allow more strategic moves by allowing a longer decision & reward timeframe (instead of clearing out all the low hanging fruit first).
 - b. Understanding that a strong program takes time to find its feet by using a ramp-up may also be very helpful in assuring a durable, cost-effective program – it took RGGI ten years to become institutionally aligned.

13. Ensure environmental progress:
 - a. The total of all State programs should be backstopped by an enforceable cap, possibly moderated by the possibility of the use of safety-valves such as multi-year compliance paths that allow missed tons to be “made up” in later years.
 - b. Allow for policies and programs that use cost-effective integrated multi-pollutant emissions considerations and strategies.

Other things EPA can do:

Tell us what you want

One way EPA can help is to promulgate clear requirements about what constitutes compliance or sufficiency under a state plan. Understanding the criteria for approval or disapproval of a SIP will be of great assistance to our Air Regulator colleagues. Outreach at the national level is going to be less detailed and beneficial than outreach at the State level, even though that will be more effort-intensive.

Give us tools

Even better would be tools and resources that provide States a menu to select, consider, build from, or invent their own strategies (as long as the clearly identified requirements are met.)

Tools to make this easier may include:

1. Model rules. Ideally, EPA would offer a menu with a few flavors for States to choose from, each including:
 - a. All the required technical details, including unit-specific rules that enable application of rate- or mass-based measures,
 - b. The kinds of market mechanisms that could be included, with more flexible structures allowing for trading or aggregation and the inclusion of other resources,
 - c. Specifics about the crediting (or not) of energy efficiency, renewable resources, and other non-fossil resources
 - d. Specifics about the details of reporting and tracking.
2. Modeling and tracking tools
 - a. This would include tools that model the outputs of different approaches to programs, either through averaging, trading, the inclusion of EE/RE programs, etc. Models should help identify the rate impacts of different approaches and would be most useful on a state-by-state basis, and
 - b. A tracking system to help assure progress and compliance and consistency among States.
3. Help in using end-use energy efficiency programs for section 111(d) compliance.
 - a. Section 111(d) may require unit-level compliance and the nature of electricity markets and electricity transmission makes it difficult to link energy efficiency–driven reductions in electricity demand to avoided generation at a particular unit. Second, while evaluation, measurement, and verification (EM&V) methods for energy efficiency are well developed in some contexts, section 111(d) poses unique EM&V challenges. In the building efficiency context, for example, evaluating and measuring efficiency focuses on the relationship between efficiency upgrades and any change in the building’s energy usage. Under section 111(d), however, EM&V efforts would analyze the relationship

between reductions in consumer demand for electricity and CO2 emissions at particular generation units. Simply promulgating universal methods may not be possible in a timely way, and excellent efficiency programs should not be left waiting while EM&V methods are created for merely good efficiency programs. Some EE may need to be left out of the program if it is too hard to evaluate.

4. Convening institutions
 - a. Convene States and other stakeholders to provide input and build the smartest rule possible. Use the power to listen and collaborate in regulatory design, rather than establishing standards without collaborative input and counting on a strategy of effective legal defense.
 - b. More than one agency at each State will need to provide expertise and effort for successful Section 111(d) compliance – this will require a careful balance of what works best for clean air compliance, with what works best to provide reliable, affordable, sustainable service. EPA can support air-regulator dialogue within States and in regions to help the State response be as effective as possible.

Appendix A: The language of Section 111(d).

The language of the Section reads as follows:

(d) Standards of performance for existing sources; remaining useful life of source

(1) The Administrator shall prescribe regulations which shall establish a procedure similar to that provided by section [7410](#) of this title under which each State shall submit to the Administrator a plan which

(A) establishes standards of performance for any existing source for any air pollutant

(i) for which air quality criteria have not been issued or which is not included on a list published under section [7408 \(a\)](#) of this title or emitted from a source category which is regulated under section [7412](#) of this title but

(ii) to which a standard of performance under this section would apply if such existing source were a new source, and

(B) provides for the implementation and enforcement of such standards of performance. Regulations of the Administrator under this paragraph shall permit the State in applying a standard of performance to any particular source under a plan submitted under this paragraph to take into consideration, among other factors, the remaining useful life of the existing source to which such standard applies.

(2) The Administrator shall have the same authority—

(A) to prescribe a plan for a State in cases where the State fails to submit a satisfactory plan as he would have under section [7410 \(c\)](#) of this title in the case of failure to submit an implementation plan, and

(B) to enforce the provisions of such plan in cases where the State fails to enforce them as he would have under sections [7413](#) and [7414](#) of this title with respect to an implementation plan.

In promulgating a standard of performance under a plan prescribed under this paragraph, the Administrator shall take into consideration, among other factors, remaining useful lives of the sources in the category of sources to which such standard applies.