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Power Over Pollution

Exploring State Plan Enforcement Under EPA's GHG Power Plant Rule

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In June 2014, the Federal Environmental Protection Agency (EPA) proposed CO₂ emission guidelines for existing power plants. Under Section 111(d) of the Clean Air Act, States must submit plans to EPA describing how they will implement CO₂ performance standards which are no less stringent than EPA's final emission guidelines.

Stakeholders are grappling with the practical design of State plans. We believe consideration of enforcement mechanisms – which EPA will require as a condition for plan approval – is a useful way to drive the discussion.

Part I provides an overview of how EPA and States generally enforce State plans submitted under the Clean Air Act. Part I also describes EPA's proposal for compliance approaches and enforcement features of State plans submitted under the 111(d) rule. Part II surveys laws in four States to assess whether existing enforceable programs to reduce CO₂ emissions from the power sector could be relied on in States' 111(d) plans.

Part I – Clean Air Act Program Enforcement: Principles and Practice

The Clean Air Act (CAA) “establishes a comprehensive program for controlling and improving the nation's air quality through state and federal regulation.”¹ Typically, EPA sets the Federal floor by establishing air quality standards, performance standards, or emission guidelines, and States take the lead on implementation and enforcement of those standards and guidelines.

The mechanics of this Federal-State relationship is delineated by the U.S. Constitution. Under Constitutional principles, “[t]he Federal Government may not compel the State to enact or administer a federal regulatory program”² or compel the State to enforce Federal law.³ However, the Supreme Court has “identified a variety of methods, short of outright coercion, by which Congress may urge a State to adopt a legislative program consistent with federal interests;” including the attachment of conditions to Federal funding, and the preemption of State regulation by Federal authorities.⁴

The CAA's structure generally fits this constitutional framework. Congress conditioned Federal funding on State compliance with the CAA, and wrote conditional preemption triggers into the statute. States have the option of writing and enforcing plans approved by EPA. If they do not, EPA may occupy the regulatory field, and write a plan or enforce a State plan directly against regulated entities.

Enforcement of a State Plan under the Clean Air Act

Under Section 111(d) of the CAA, once EPA issues an emission guideline, each State is responsible for submitting a plan to meet the performance standard it develops to comply with EPA's guideline. Although Section 111(d) is a little-used provision of the CAA, State plans are a core element of the CAA, and every State has experience submitting plans to EPA. The typical CAA State plan is designed to meet national ambient air quality standards, under Section 110. Section 110 details the process of writing, submitting, implementing and enforcing a plan. In fact, Section 111(d) references this detailed description. Therefore, reviewing the Section 110 process is highly relevant for a discussion about 111(d) planning.

Once EPA sets an ambient air quality standard for pollutants such as ozone and sulfur dioxide,⁵ Section 110 directs each State to submit a plan to EPA, describing how the State will meet the standard.⁶ EPA reviews each submittal to ensure it meets the Act's minimum requirements, as detailed by EPA in regulation.⁷

To meet with EPA approval, each plan must demonstrate that the State has legal authority to enforce the plan's requirements.⁸ Over the years, EPA has issued general guidance to States on crafting "practicably enforceable" requirements under the CAA. Under this guidance, a practicably enforceable requirement must specify: (1) a technically accurate limitation; (2) the time period for the limitation; (3) a method to determine compliance (including monitoring, record keeping, and reporting); (4) the categories of sources covered by the rule; and (5) the consequences for failing to meet the requirement.⁹ By following this format, States can craft clear standards that put regulated entities on notice of their obligations and facilitate compliance.

Beyond the minimum requirements set forth by the CAA and EPA's rules, a State may write an implementation plan as it sees fit. EPA cannot mandate the passage of specific State laws or otherwise prescribe the substantive contents of a State plan.¹⁰

If a State does not submit a plan, or submits a plan that "does not satisfy [EPA's] minimum criteria," EPA must promulgate a Federal plan and implement it directly in that State.¹¹ EPA may induce the State to write (and later, to implement) a plan by barring Federal highway funds to the State,¹² or by tightening emissions offset requirements in regions that have not attained an air quality standard.¹³

Once a State plan is approved, the State or EPA may enforce its requirements. Under Section 113, EPA may initiate an enforcement action against "any person" (including a State) that has violated a specific requirement or prohibition of a State plan or permit.¹⁴ This provision makes a requirement or prohibition in a State plan or permit "federally enforceable." The State, however, is charged with implementing the plan, and so is primarily responsible for determining compliance with plan requirements. Courts expect EPA to defer to the State's interpretation of its plan so long as it is reasonable and does not conflict with the Clean Air Act.¹⁵

If EPA finds that violations "are so widespread that they appear to result from a failure of the State to enforce the plan or program,"¹⁶ EPA can step in and assume all plan enforcement in that State. In addition, EPA may require a State to revise a plan, if EPA determines that strategies in the existing plan will not

achieve the Federal standard or guidelines.¹⁷ CAA Section 114 grants EPA broad information-gathering authority to facilitate this compliance monitoring.¹⁸

Congress also empowered private citizens to file a civil action against “any person” who has violated or is in violation of a CAA emission standard or limitation.¹⁹ Citizens may not seek to enforce an emissions standard or air quality standard against a State, but may enforce a “specific strategy or commitment.”²⁰ While EPA’s federal enforcement authority under Section 113 is broader than that for private citizens, both authorities (and State enforcement authority) can turn on the wording of State plans. Aspirational or “insufficiently clear”²¹ measures may not be enforceable by anyone.

Enforcement language in Section 111(d) grants EPA the “same authority” to enforce a State 111(d) plan “in cases where the State fails to enforce them as [EPA] would have under sections” 113 and 114.²² Likewise, private citizens may rely on Section 304 to file actions to enforce specific requirements of a Section 111(d) plan.

Enforcement in EPA’s June 2014 Section 111(d) Proposal

EPA has proposed CO₂ emission guidelines for existing power plants, expressed as a 2030 carbon intensity goal for each State’s power sector. These emission guidelines were derived from EPA’s determination that four “building blocks” make up the “best system of emission reduction” for existing power plants: (1) plant efficiency upgrades; (2) shifts in utilization from inefficient sources to lower-emitting natural gas combined cycle (NGCC) plants; (3) deployment of zero-emission generation, including renewable energy (RE) and nuclear; and (4) employment of end-use energy efficiency (EE) to reduce electricity demand.

Depending on the State, different entities could be responsible for implementing each block. In States with a vertically integrated electric sector, utilities could implement measures in all four blocks. On the other hand, in restructured States, merchant generators, distribution companies, and third-party EE providers may be better suited to implement particular measures.

States must submit Section 111(d) plans to EPA describing how they will implement a 2030 performance standard and demonstrate interim progress between 2020 and 2029. The 2030 standard must be no less stringent than EPA’s final emission guidelines.²³ In its June 2014 proposal, EPA suggested ways State plans could approach enforcement, given potential roles for multiple non-emitting actors in meeting State performance standards.

A State could choose to hold EGUs responsible for achieving the entire performance standard, directing them to demonstrate compliance through Continuous Emissions Monitoring Systems (CEMS) reporting, or by holding sufficient credits for strategies taken at the plant and beyond the fenceline. Under this approach, which is similar to the northeastern Regional Greenhouse Gas Initiative (RGGI), a State would not write RE and EE programs (and other beyond the fenceline measures) directly into the plan. Instead, these activities would be encouraged or required at the State level, to provide credits for EGUs. In such a scenario, only EGUs would be subject to federally enforceable requirements.

Alternatively, a State could choose a “portfolio” approach for its plan. Under that option, a State plan “could include enforceable CO₂ limits that apply to affected EGUs as well as other enforceable measures, such as RE and demand-side EE measures, that avoid EGU CO₂ emissions and are implemented by the state or by another entity.”²⁴ The limits and measures would be federally enforceable. The State would have to demonstrate to EPA that it has legal authority to enforce each element of the portfolio plan, by pointing to relevant statutes and regulations.

Finally, EPA is seeking comment on a “State commitment” approach, whereby a State would commit to implement and enforce RE and EE programs and other measures under State law. These State commitments might account for some or all of a plan. In this scenario, these State programs would not be federally enforceable.²⁵ Should a State not achieve expected results, EPA and citizen groups could enforce these programs only against the State, and not against any entity with an underlying State obligation to deliver RE or EE results.

EPA’s proposal also describes minimum enforcement features for any plan. These specific requirements track the requirements generally called for in CAA plans. First, regardless of the approach a State would take, any emission standard or measure described in the plan must be enforceable.²⁶ A measure is enforceable if (1) a technically accurate requirement and the time period for the requirement are specified; (2) compliance requirements are clearly defined; (3) enforcement targets can be identified; (4) the measure is enforceable as a practical matter; and (5) EPA and the State can enforce the measure.²⁷ Second, the State must demonstrate that all of the standards and measures, taken together, will achieve the 2030 performance standard.²⁸ Third, if the State plan opts for the portfolio or State commitment approach, the plan must include program implementation milestones and identify corrective measures that will be taken if the initial measures fall short of expectations.²⁹ Finally, after a plan is approved, the State must file annual progress reports with EPA.³⁰

States can draw from their experience submitting plans under Section 110 and EPA enforcement guidance to craft plans that work for them. They can also leverage existing environmental and power sector rules, programs, and expertise to minimize the effort of crafting a plan, and to embed Section 111(d) compliance into ongoing power sector planning and policy.

PART II – Survey of Four Sample States

In this section, we examine laws in four States and assess whether they provide regulators with sufficient authority to meet EPA’s proposed requirements. We conclude that for each building block, regulators in each State may rely on some existing authorities. With regards to Blocks 1 and 2, regulators can enforce emission limits at EGUs through operating permits, but have limited authority to reprioritize EGU dispatch so as to favor NGCC units over coal-fired EGUs. As for Blocks 3 and 4, many States have RE and EE programs in place, enforceable against EGU owners and other entities. These existing programs may provide a helpful starting place for States as they consider what to include in their 111(d) plans. However, some current programs have constraints, such as expiration dates, weak mandates, or mandates that cover only a portion of the State’s load, that may limit their effectiveness in meeting the State’s 2030 goal.

We surveyed Arizona, Florida, Illinois, and Pennsylvania. These States reflect some key differences among States' electric sectors. For instance, Arizona and Florida have vertically integrated utilities, while nearly all power plants in the other two States are owned by independent power producers and are dispatched by FERC-regulated regional transmission organizations (RTO).

When designing a plan to reduce power sector carbon intensity, most States will look to two State entities to implement and enforce the plans: the public utility commission (PUC) and State environmental protection agency.³¹ Typically, these entities are created by the legislature, so their authority is defined by statute. In some States, the State Constitution establishes the PUC, providing the PUC with a source of authority independent from the Legislature.

In all four surveyed States, environmental regulators have direct authority over power plant emissions. EPA has delegated to environmental regulators in each of these States the authority to issue and enforce CAA Title V (major source) permits. States could use this authority to write CO₂ emission rate and annual emission tonnage limits into those permits. PUCs, meanwhile, have indirect authority over power sector pollution. Some PUCs review utility decisions to install pollution controls or use particular fuels to generate power, and can set and enforce renewable energy and EE mandates.

Ideally, environmental agencies and PUCs will work together, with input from utilities, to craft a 111(d) plan. In most cases, environmental regulators will submit State plans under Section 111(d).³² However, in Arizona, a law passed by the Legislature in 2010 likely prohibits the State's Department of Environmental Quality (AZ-DEQ) from submitting a plan to EPA to reduce greenhouse gas emissions.³³

State Plan Designs

As discussed above, EPA has proposed to allow States to submit plans that hold various entities accountable for achieving the State's performance standard. A State's choice may depend on the structure of its electric sector.

In Arizona and Florida, utilities are vertically integrated and generate nearly all of the States' coal-fired power (co-generators are responsible for approximately three percent).³⁴ Utilities in these States are well-positioned to implement a wide range of measures, across all four building blocks, so holding EGUs responsible for meeting the entire performance standard could be the simplest approach.

To implement a utility-only plan, regulators would need some additional authority. In Florida, regulators do not have authority to require utilities to hold CO₂ emission allowances or to create credits representing RE or EE.³⁵ The Arizona utility commission (AZ-ACC) has more expansive authority, and may be able to allow entities to generate RE and EE credits under its Constitutional powers. However, an Arizona utility-only plan would face an additional implementation challenge. Salt River Project, a State entity, serves forty percent of the State's demand and owns plants that produce one-third of the State's coal-fired power.³⁶ And yet, it is exempt from most AZ-ACC regulations, including RE and EE requirements. Therefore, Arizona might need to write additional enforceable measures to increase RE deployment and reduce energy demand across Salt River's territory.

In Pennsylvania and Illinois, generation and distribution are mostly separate, and distribution is further split between distribution utilities and competitive suppliers who serve more than half of each retail market.³⁷ Merchant generators in these States are subject to State environmental regulation, while distribution utilities and competitive suppliers are regulated by PUCs. Under a portfolio or State commitment approach to the States' 111(d) plans, State environmental regulators could ensure merchant generator compliance with Block 1 and 2 programs. PUCs could enforce Block 3 and 4 programs against distribution utilities, competitive suppliers, and other entities with obligations under the plan.³⁸

Leveraging Existing Utility Planning Processes to Design a State 111(d) Plan

Under the EPA's proposed timetable, State-specific plans are due to EPA by 2016 or 2017. To develop a plan, State regulators may rely on existing State authority to initiate proceedings and invite submissions from utilities and other interested parties. Moreover, some States have established processes for long-term utility planning, which could provide a familiar forum and highly salient information for the crafting of a 111(d) plan. In Arizona and more than twenty-five other States³⁹ utilities are required to prepare long-term Integrated Resource Plans (IRP).

The AZ-ACC's IRP process makes it well-suited to inform a 111(d) plan. Every two years, the utilities must submit fifteen-year plans that are intended to "minimize the total societal cost of meeting the demand for electric energy services."⁴⁰ The rules require plans to reduce environmental impacts and meet renewable energy and EE goals.⁴¹ The IRP process does not, by itself, create enforceable requirements,⁴² but the rules allow utilities to request enforceable approvals of specific measures in the IRP.⁴³ These measures, then, would be enforceable under State law and could be written into a 111(d) plan.

In addition to taking the lead on developing a plan, the AZ-ACC's broad authority under the State's Constitution could allow it to submit the plan to EPA. As noted above, Arizona law likely prohibits the AZ-DEQ from submitting a plan. If the AZ-ACC finds that State inaction would lead to the imposition of a Federal plan that would raise rates, the AZ-ACC can argue that its constitutional duty to maintain just and reasonable rates authorizes it to submit a 111(d) plan to EPA.

Planning processes in other surveyed States are limited by statute and fall short of Arizona's IRP process. Florida law requires electric utilities to submit Ten-Year Site Plans to the PSC every two years.⁴⁴ Given the content of utility filings (primarily load forecasts and potential locations for future power plants), and the FL-PSC's minimal review, the Site Plans are insufficient for 111(d) planning.⁴⁵ That said, the FL-PSC has some authority to expand the process.⁴⁶ Illinois law requires the State's two investor-owned utilities to submit annual procurement plans for energy and EE.⁴⁷ Because these utilities serve less than half of the State's retail load and do not own generation, Illinois' procurement process is relevant but not comprehensive enough to support robust 111(d) planning.

The remainder of this article covers existing State authority relevant to each of the four blocks. Although EPA is proposing to allow States to submit regional plans, we look at each State in isolation.

Blocks 1 and 2

Blocks 1 and 2 will be implemented by EGU owners, regardless of whether they are vertically integrated utilities or merchant generators. State environmental regulators can enforce these measures by adding restrictions to plants' Title V operating permits.

For Block 1, improving the efficiency of coal-fired EGUs, States will likely consult with EGU owners to identify where efficiency upgrades are needed, feasible, and cost-effective, to determine how much of the State performance standard can be met through this approach. Regulators can ensure that identified projects will occur by writing the expected improved emission rates into the plants' operating permits. Based on the existence of cost recovery mechanisms in different States, some utilities may be more motivated than others to pursue plant efficiency upgrades as a 111(d) compliance tool. In Florida and Arizona, EGU owners may be able to recover costs from ratepayers for these upgrades,⁴⁸ but very few EGU owners in Illinois and Pennsylvania have that benefit.

Block 2 is shifting utilization from higher-emitting EGUs to lower-emitting NGCCs. States could consider setting operating or emission limits on higher-emitting plants to reduce their utilization. States have experience writing operating and emission limits into source permits, and EPA has offered guidance to States on how to ensure enforceability of these limits.⁴⁹ These limits have arisen where sources seek to avoid stricter "major source" requirements; while that motivation may not exist here (all covered EGUs are clearly "major sources" under the CAA), the mechanics of writing a limit into a permit is the same.

Including operating limits into the Title V permits of coal-fired EGUs would reduce emissions and help the State achieve its performance standard, but would not necessarily lead to an increase in generation from NGCC plants. In Arizona and Florida, utilities that own both coal and gas powered facilities could agree to shift utilization from coal-fired EGUs to NGCC units.⁵⁰ In Arizona, commitments to reprioritize dispatch could be made enforceable through the IRP process. In Illinois and Pennsylvania, EGUs are dispatched by regional grid operators, and State regulators lack authority to change the dispatch order to favor NGCCs.

States might also rely on EGU retirements as part of their Block 2 strategy. State environmental regulators can motivate retirements of older EGUs through new or existing air or water regulations.⁵¹ Those retirements can be enforceable through agreements with regulators or permit conditions. In Florida and Arizona, the AZ-ACC and FL-PSC do not typically order utilities to retire plants but do evaluate potential retirements in proceedings about environmental compliance and accounting practices.⁵² Regulators can induce utilities to retire older coal-fired plants by disallowing cost recovery for upgrades to those EGUs and providing more favorable accounting treatment for retiring plants.

All four States can include retirements, subject to reliability considerations, as enforceable measures in their 111(d) plans if regulators and plant owners finalize retirement agreements by EPA's deadline for plan submissions. Alternatively, given EPA's contemplation of milestones and corrective measures in its Section 111(d) proposal, a State could describe expected retirements in its Section 111(d) plan without framing them as enforceable limits. Instead, the retirements could be milestones that the State expects will help it achieve the 2030 performance standard. EPA might approve a plan containing an unenforceable retirement

milestone, so long as there was an enforceable contingency measure that the plan would trigger should retirements not occur as expected.

One complicating factor for Arizona's implementation of Blocks 1 and 2 is that its utilities own several coal-fired EGUs that are either located in other States or on Tribal lands that EPA has proposed to exempt from the 111(d) rule. These EGUs serve Arizona customers, are paid for by Arizona ratepayers, and are subject to regulation by the AZ-ACC,⁵³ but Arizona gets no benefit under 111(d) from taking measures to reduce emissions at these units.

Block 3

Block 3 relates to the deployment of zero-emission generation, including RE and newly constructed nuclear. Twenty-nine States, including Arizona, Illinois, and Pennsylvania, have Renewable Portfolio Standards (RPS) that are enforceable under State law. Regulators and entities that comply with these mandates can benefit from their experiences implementing these programs. At the same time, current laws feature restrictions that limit the roles they can play in achieving the States' 2030 performance standards.

Pennsylvania's RPS was passed by the General Assembly in 2004. The law requires eighteen percent of the State's retail sales to come from "alternative" sources by 2021.⁵⁴ Alternative sources include those fueled by coal gasification and coal waste, neither of which are RE as described in EPA's proposed 111(d) rule. The General Assembly would need to act, to expand the program beyond 2021 or limit the program to zero-emission generation.

The Illinois RPS, passed by the Legislature in 2007, requires utilities to procure twenty-five percent of their energy from renewables by 2025.⁵⁵ Procurement of renewable energy is falling short of expectations, primarily because a larger than expected number of utility customers switched to competitive suppliers.⁵⁶ This customer shift lowered utilities' renewable energy needs and undermined the design of the law. Regulators are constrained by the statute; new legislation is needed to fix these problems if the State is going to achieve a twenty-five percent statewide goal.

Regulators in Arizona have more flexibility than those in Pennsylvania and Illinois to extend and expand the State's existing renewable energy mandate. The AZ-ACC established the RPS based on its authority under the Arizona Constitution, so the RPS is not constrained by any specific statute.⁵⁷ The AZ-ACC adopted an RPS that requires utilities to procure fifteen percent of retail sales from renewable generators by 2025.⁵⁸ To increase the mandate, the AZ-ACC would have to follow ordinary rulemaking procedures and support the increase with sufficient facts. However, the AZ-ACC cannot apply the RPS to Salt River Project, so the mandate can only cover about sixty percent of the State's demand.

By statute, the FL-PSC may establish requirements for small-scale demand-side renewable generation such as rooftop solar. The FL-PSC relied on this authority to set modest goals for utilities in 2009.⁵⁹ When considering new generation projects, the FL-PSC holds additional authority that allows it to give a strong preference to new renewable energy projects over fossil fuel alternatives.⁶⁰ The FL-PSC could also increase the rate paid to renewable generators in standard offer contracts that utilities are required by law to offer.⁶¹

The demand-side generation requirement could be an enforceable component of a 111(d) plan. In addition, the FL-PSC can commit to reevaluating the standard offer rate, in light of the 111(d) rule. However, the PSC could only exercise a preference for new RE over fossil fuel generation when a utility proposes to construct new generation. Neither this authority nor an increase in the standard offer rate would guarantee a specific amount of RE generation. If the FL-PSC could make a reasonable projection about future RE deployment based on a higher standard offer contract and future proceedings to site new generation, it could include in its plan a milestone of a specified level of RE by a date certain, as discussed in Block 2. EPA would likely require an enforceable measure to kick in automatically under the plan, if the milestone was missed.

As for new nuclear generation, Florida regulators recently approved the construction of two 1,100 MW nuclear reactors.⁶² If approved by the Nuclear Regulatory Commission, these reactors could be operating by the mid 2020s and making significant contributions to the State's production of zero-emission electricity. None of the other three States we surveyed have new nuclear projects approved by State regulators.

Block 4

Regulators in all four States implement EE mandates that could form the basis for enforceable EE programs in their 111(d) plans. As currently structured, Arizona's EE mandate expires in 2020. However, the AZ-ACC has authority to extend it. In the other States, relevant laws require periodic evaluations of EE programs' costs and benefits. Extensions and changes to the programs must be derived from these evaluations, likely preventing regulators in some States from extending existing programs to 2030.

According to EPA, in 2012 Arizona achieved one of the highest levels of annual energy savings from EE of any State.⁶³ Like the State's renewable mandate, the EE mandate was established by the AZ-ACC and is not constrained by any specific statute. On the other hand, like the State's renewable mandate, the EE mandate does not cover Salt River Project customers. The AZ-ACC can extend the current program past its 2020 expiration if it finds that additional EE is cost effective and is necessary to maintain just and reasonable rates.⁶⁴ In making past determinations about cost-effectiveness, the AZ-ACC has considered environmental compliance costs and "non-energy benefits," including reduced water consumption and emissions.⁶⁵ It would be consistent with the AZ-ACC's existing analyses for it to include costs of meeting the State's 111(d) goal and the benefits achieved by reducing coal consumption.

The Florida Energy Efficiency and Conservation Act (FEECA), passed by the Legislature in 1980,⁶⁶ requires the FL-PSC to set EE goals for utilities, and review the goals at least every five years. In 2009, the FL-PSC set ten-year goals, and is currently reviewing those goals, consistent with the law's requirement, and may revise them.⁶⁷ FEECA does not prohibit the FL-PSC from setting EE goals over a longer period of time (for instance, through 2030). The stringency of the goals is based primarily on a cost-benefit analysis, which must account for "costs imposed by state and federal regulations on the emission of greenhouse gases."⁶⁸ FEECA allows Florida to include EE as an enforceable measure in its 111(d) plan, but the law might require the FL-PSC to modify the EE target included in the State's plan, depending on the outcome of future cost-benefit analyses.

In 2008, the Pennsylvania Legislature passed a law that required utilities to submit plans to the PA-PUC to reduce consumption through EE by three percent by 2013.⁶⁹ The law cannot be used to set enforceable goals that extend until 2030, as it only authorizes the PA-PUC to set EE goals for five-year terms. Moreover, before it can do so, the PA-PUC must determine that the previous five-year program passes a cost-benefit test.⁷⁰ Therefore, for instance, the PA-PUC is not authorized to set an EE goal for the period 2020–2024, until it has evaluated the outcomes from 2015–2019. A second limit is that the statute caps annual EE spending at two percent of a utility’s 2006 revenues.⁷¹

Illinois’ energy efficiency law sets an annual EE mandate that extends indefinitely.⁷² However, the annual target applies only to load served by utilities, and does not cover sixty percent of the State’s load that is served by competitive suppliers.⁷³ A separate law requires utilities to conduct an annual solicitation for additional cost-effective EE that is not included in utilities’ plans to meet the mandate.⁷⁴ A State agency must then select the measures it determines are cost-effective, which are then subject to approval by the Illinois Commerce Commission. These two laws allow Illinois to include in its 111(d) plan the current programs as enforceable measures that extends until 2030. However, the annual evaluations and solicitations make it difficult to project long-term savings.

The State could still set an EE target based on very conservative projections. The State could choose to write the target as enforceable against EE providers, making the EE program federally enforceable, or as a State commitment to administer the EE program and deliver specified results. If the EE program over-achieved, the State plan could use those additional savings as a contingency measure, if other measures in the plan fall short. Alternatively, Illinois could express the EE target as a milestone, as discussed above, so long as it committed to enforceable contingency measures if the EE program did not deliver expected energy savings.

CONCLUSION

State plans to reduce pollution are a central feature of the Clean Air Act. Consideration of enforcement mechanisms – which EPA will require as a condition of approval – can drive the design and implementation of State plans. To craft enforceable plans, States can look to existing guidance provided EPA and courts, as well as their own programs that reduce power sector carbon intensity. Our four-State survey illustrates that the structure of a State’s power sector and the jurisdiction of its regulatory agencies may suggest design choices for each State. Environmental regulators and PUCs are administering enforceable programs that could help achieve 2030 performance standards. Current laws may be insufficient, and in many States, new legislation will be necessary to extend programs or expand mandates. Although there are regulatory gaps to fill, no State is starting with a blank slate. Regulators have a long history of crafting State plans to meet EPA standards and experience implementing relevant programs that reduce power sector carbon intensity.

¹ *BCCA Appeal Group v. EPA*, 355 F.3d 817, 821-22 (5th Cir. 2003); see also *Oklahoma v EPA*, 723 F.3d 1201 (10th Cir. 2013) (the CAA “uses a cooperative-federalism approach to regulate air quality”).

² *New York v. United States*, 505 U.S. 144, 188 (1992); *see also Hodel v. Virginia Surface Mining & Reclamation Assn, Inc.*, 452 U.S. 264, 288 (1981), *FERC v. Mississippi*, 456 U.S. 742, 761-62 (1982).

³ *Printz v. United States*, 521 U.S. 898, 935 (1997).

⁴ *New York v. United States*, 505 U.S. at 166-67.

⁵ 42 U.S.C. § 7408.

⁶ 42 U.S.C. § 7410(a)(1).

⁷ 42 U.S.C. § 7410(a)(2) (detailing what each implementation plan shall contain); 42 U.S.C. § 7410(k)(1)(A) (directing EPA to spell out in regulation what “minimum criteria” a plan must satisfy); 40 C.F.R. § 60.20 et seq.

⁸ 40 C.F.R. § 60.26(a)(2).

⁹ *See, e.g.*, “Guidance on Enforceability Requirements for Limiting Potential to Emit through SIP and § 112 Rules and General Permits,” Jan. 25, 1995 Memorandum from Kathie A. Stein, Director, Air Enforcement, to Regional Directors of Air Enforcement, available at <http://www.epa.gov/region7/air/nsr/nsrmemos/potoem.pdf>. In addition, where coverage is optional, EPA’s guidance requires notice of a source’s election to be covered by the rule.

¹⁰ *See, Brown v. EPA*, 521 F.2d 827 (9th Cir. 1975); *Arizona v. EPA*, 521 F.2d 825 (9th Cir. 1975); *District of Columbia v. Train*, 521 F.2d 971 (D.C. Cir. 1975); *Maryland v. EPA*, 530 F.2d 215 (4th Cir. 1975). The Supreme Court vacated these decisions after the EPA backed down, announcing its intention to change the rules. *EPA v. Brown*, 431 U.S. 99, 103-04 (1977).

¹¹ 42 U.S.C. § 7410(c) (1990), Pub. Law 101-549, 104 Stat. 2422-2423 (Nov. 15, 1990).

¹² 42 U.S.C. § 7509(b)(1).

¹³ 42 U.S.C. § 7509(b)(2).

¹⁴ 42 U.S.C. § 7413(a)(1), (b).

¹⁵ *See, e.g., Wisconsin’s Env’tl Decade, Inc. v. Wisconsin Power & Light Co.*, 395 F. Supp. 313, 323 (W.D. Wis. 1975).

¹⁶ 42 U.S.C. § 7413(a)(2).

¹⁷ 42 U.S.C. § 7410(k)(5).

¹⁸ 42 U.S.C. § 7414(a).

¹⁹ 42 U.S.C. § 7604(a)(1).

²⁰ *See, e.g., Bayview Hunters Point Community Advocates v. Metropolitan Transp. Comm’n*, 366 F.3d 692 (9th Cir. 2004); *Conservation Law Fdn. v. Busey*, 79 F.3d 1250, 1258 (1st Cir. 1996); *Wilder v. Thomas*, 854 F.2d 605, 613-16 (2d. Cir. 1988); *Oregon Env’tl Council v. Oregon*, 775 F. Supp. 353, 361 (D. Or. 1991).

²¹ *See, e.g.*, Review of State Implementation Plans and Revisions for Enforceability and Legal Sufficiency, Sept. 23, 1987 Memorandum from J. Craig Potter, Assistant Administrator for Air and Radiation, Thomas L. Adams, Jr., Assistant Administrator for Enforcement and Compliance Monitoring, and Francis S. Blake, EPA General Counsel, to Regional EPA offices, available at <http://envinfo.com/caain/enforcement/caad137.html>.

²² 42 U.S.C. § 7411(d)(2).

²³ 40 C.F.R. § 60.24(c); *cf.* 40 C.F.R. § 60.24(f) (affording States the opportunity to seek source-by-source exemptions from the federal floor). EPA has proposed that its flexible “building blocks” framework has obviated the need for any unit-specific exemptions. Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units; EPA Proposed Rule, 79 Fed. Reg. 34925–26 (Jun. 18, 2014) (EPA Proposal).

²⁴ EPA Proposal, 79 Fed. Reg. 34837–38, 34901.

²⁵ EPA Proposal, 79 Fed. Reg. 34902.

²⁶ Generally speaking, EPA considers an “enforceable requirement” one that is quantifiable, verifiable, straightforward, and calculated over as short a term as reasonable. EPA Proposal at 34908 n. 281 (identifying EPA enforceability guidance).

²⁷ EPA Proposal, 79 Fed. Reg. 34953, 40 C.F.R. § 60.5780. Note how closely these factors track EPA’s general enforceability guidance. *See, supra*, at 2 n. 9.

²⁸ EPA Proposal, 79 Fed. Reg. 34951, 40 C.F.R. § 60.5740(a)(4).

²⁹ *Id.* at § 60.5740(a)(7).

³⁰ *Id.* at 79 Fed. Reg. 34955, 40 C.F.R. § 60.5815.

³¹ Many States also have State Energy Offices, which could play important roles in plan implementation. In Illinois, for example, the Illinois Power Agency

³² *See, e.g.*; 40 CFR § 62.600 (stating that Arizona DEQ submitted Arizona’s 111(d) plan for existing municipal solid waste landfills); Environmental Protection Agency, Approval of Plan of the Commonwealth of Pennsylvania, Clean Air Mercury Rule, 72 Fed. Reg. 52,235 (Sep. 13, 2007) (EPA approval of 111(d) plan submitted by Pennsylvania DEP); F.A.C. 62-204.800(9)(g)–(h) (Florida’s 111(d) plans incorporated into DEP rules).

³³ Ariz. Rev. Stat. § 49-191 (prohibiting AZ-DEQ or an agency created by the Governor from “adopt[ing] or enforc[ing] a state or regional program to regulate the emission of greenhouse gas”).

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- ³⁴ Energy Information Administration, State Electricity Profiles (May 1, 2014), available at: <http://www.eia.gov/electricity/state/>; See also Environmental Protection Agency, Technical Support Document: 2012 Data Using EGrid Methodology (XLSX), Jun. 2, 2014, available at: <http://www2.epa.gov/carbon-pollution-standards/clean-power-plan-proposed-rule-technical-documents-spreadsheets> (showing plants regulated under 111(d)) (EPA EGrid Spreadsheet); Energy Information Administration, Form EIA-860 Detailed Data (Dec. 4, 2013), available at: <http://www.eia.gov/electricity/data/eia860/> (showing plant ownership) (EIA Generator Data)
- ³⁵ In 2008, the Florida Legislature repealed a cap-and-trade bill that was passed in 2008 but never implemented. The Legislature also failed to implement an RPS proposed by the FL-PSC.
- ³⁶ Energy Information Administration, Arizona Electricity Profile (May 1, 2014), available at: <http://www.eia.gov/electricity/state/arizona>; EPA EGrid Spreadsheet,
- ³⁷ Energy Information Administration, State Electricity Profiles. May 1, 2014, available at: <http://www.eia.gov/electricity/state/>.
- ³⁸ For example, the Illinois Power Agency procures renewable energy and renewable energy credits using funds paid by the State's competitive suppliers. 220 Ill. Comp. Stat. § 16-111.
- ³⁹ Bruce Biewald and Rachel Wilson, Best Practices in Electric Utility Integrated Resource Planning (June 2013) available at: <http://www.raonline.org/document/download/id/6608>.
- ⁴⁰ Decision No. 71722, ACC Docket No. RE-0000A-09-0249 (Jun. 3, 2010) (codified at A.A.C. R14-2-701–706).
- ⁴¹ A.A.C. R14-2-703 (including requirement that each utility submit a “plan for reducing environmental impacts related to air emissions, solid waste [including coal ash], and other environmental factors, and for reducing water consumption”).
- ⁴² Decision No. 73884, ACC Docket No. E-0000A-11-0113 (May 8, 2013).
- ⁴³ A.A.C. R14-2-704.
- ⁴⁴ Fla. Stat. §186.801
- ⁴⁵ *Id.*; see also F.A.C. 25-22-.070; Florida PSC, Review of the 2013 Ten-Year Site Plans, at p 5 (Oct. 2013) (plans do “not constitute a finding or determination in docketed matters before the Commission” and the “primary purpose” of the FL-PSC’s review is to provide information to FL-DEP about new power plants); Re Florida Light & Power Company, PSC Docket No. 110312-EQ (Apr. 3, 2012) (“10-year site plans are tentative information for planning purposes only, amendable at the utility’s discretion with written notification to this Commission . . .”).
- ⁴⁶ See Fla. Stat. §186.801.
- ⁴⁷ 220 Ill. Comp. Stat. § 16-111.5.
- ⁴⁸ Investor-owned utilities can benefit from a law that allows utilities to petition for cost recovery for “environmental compliance costs.” Fla. Stat. § 366.8255. Other utilities can seek recovery in ratemaking proceedings.
- ⁴⁹ See, *supra*, at n. 9; see also Guidance for State Rules for Optional Federally-Enforceable Emissions Limits Based on Volatile Organic Compound (VOC) Use, Oct. 15, 1993 Memorandum from D. Kent Berry, Acting Director, Air Quality Management Division, EPA to Regional Air Division Directors, *available at* <http://www.epa.gov/region07/air/title5/t5memos/voclmit.pdf>.
- ⁵⁰ For example, Tampa Electric Company, which in 2012 generated 21 percent of Florida’s coal-fired electricity, could cut the output of those EGUs in half by increasing the utilization of its existing NGCC plants to achieve EPA’s target capacity factor of 0.70. See EPA EGrid Spreadsheet; EIA Generator Data. Tampa Electric’s Big Bend facility generated 9.5 million megawatt-hours in 2012. Its 2 GW of NGCC plants at the H L Culbreath Bayside Power Station had a capacity factor of 0.4 in 2012. Increasing their capacity factors to 0.7 would generate an additional 5.3 million megawatt hours.
- ⁵¹ Cf. Illinois Power Holdings, et al., v. Illinois Environmental Protection Agency, Illinois Pollution Control Board Decision PCB 14-10, 2013 WL 618922 (Ill.Pol.Control.Bd.) (Nov. 21, 2013) (granting variances from state environmental regulations for several coal plants through 2019, subject to certain restrictions).
- ⁵² See, e.g., Order No. PSC-14-0173-PAA-EI, PSC Docket No. 130301-EI (Apr. 16, 2014).
- ⁵³ See, e.g., Decision No. 73130, ACC Docket E-01345A-0474 (approving APS’s purchase of two units at the Four Corners facility in New Mexico and noting that APS already owns three units at that facility but plans to retire them).
- ⁵⁴ 75 PS. § 1648.
- ⁵⁵ 20 Ill. Comp. Stat. § 3855/1-75(c).
- ⁵⁶ Order, Petition for Approval of the 2014 IPA Procurement Plan Pursuant to Section 16-111.5(d)(4) of the Public Utilities Act, Illinois Commerce Commission, Docket 13-0546, pp 5–7, 54–55 (Dec. 18, 2013).
- ⁵⁷ Decision No. 69127, ACC Docket No. RE-00000C-05-0030 (Nov. 14, 2006) (codified at A.A.C. R14-2-1801–15). The ACC’s authority was upheld by Arizona courts. Miller v. Arizona Corp. Com’n, Court of Appeals of Arizona, Division 1, 227 Ariz. 21 (2011) (review denied Sep 20, 2011).
- ⁵⁸ *Id.*
- ⁵⁹ Order PSC-09-0855-FOF-EG, PSC Docket No. 080407-EG, (Dec. 30, 2009) (citing Fla Stat. § 366.82 (2)).

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- ⁶⁰ See Fla Stat. § 366.05 (requiring consideration of fuel diversity and supply reliability); Fla Stat. § 403.519 (3) (requiring consideration of renewable energy when evaluating new generation proposals);
- ⁶¹ Fla Stat. § 366.91, F.A.C. 25-17.250. FERC allows States to include environmental costs in these PURPA rates if they are “real costs that would be incurred by utilities.” California Public Utilities Commission, 133 FERC ¶ 61,059 at P 31 (2010) (citing SoCal Edison, 71 FERC ¶ 61,269, at 62,080 (1995). Meeting the State’s 2030 goal is a “real cost.”
- ⁶² In re: Florida Power & Light Company Turkey Point Units 6 & 7 Power Plant Siting, Application No. PA 03-45A3, DOAH Case No. 09-3575EPP, OGC Case No. 09-3107, 2014 WL 2434648 (Fla.Dept.Env.Prot.) (May 19, 2014).
- ⁶³ Environmental Protection Agency, Technical Support Document: GHG Abatement Measures, Table 5–4, Jun. 10, 2014, available at: <http://www2.epa.gov/sites/production/files/2014-06/documents/20140602tsd-ghg-abatement-measures.pdf>.
- ⁶⁴ Decision No. 71819, ACC Docket No. RE-0000C-09-0427 (Aug. 10, 2010) (codified at A.A.C. R14-2-2401–2419).
- ⁶⁵ Decision No. 73912, ACC Docket No. E-01933A-12-0291 (Jun. 27, 2013).
- ⁶⁶ Fla Stat. § 366.80–83.
- ⁶⁷ See FL-PSC Docket No. 130202-EI
- ⁶⁸ Fla Stat. § 366.82(3); see also Order PSC-09-0855-FOF-EG, Docket No. 080407-EG (Dec. 30, 2009) (adopting a cost-effectiveness test that “include[s] an estimate of avoided carbon compliance costs”).
- ⁶⁹ HB 2200 (codified at 66 Pa. C.S. §2806.1).
- ⁷⁰ The PA-PUC has thus far excluded costs of greenhouse gas emissions from its cost-benefit formula because avoided carbon emissions have had no real cost to utilities. 2012 PA Total Resource Cost (TRC) Test, PSC Docket M-2012-2300653 (Aug. 30, 2012).
- ⁷¹ 66 Pa. Cons. Stat. §2806.1(g).
- ⁷² 220 Ill. Comp. Stat. § 8-103.
- ⁷³ Energy Information Administration, State Electricity Profile: Illinois, May 1, 2014, available at: <http://www.eia.gov/electricity/state/illinois/>.
- ⁷⁴ 220 Ill. Comp. Stat. § 16-111.5B.