

How Can Multi-State Compliance Programs in State Implementation Plans under Section 110 of the Clean Air Act Inform the Potential Use of Multi-State, Market-Based Mechanisms for Compliance with Section 111 of the Clean Air Act?

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I. Executive Summary¹

The Environmental Protection Agency (“EPA”) has committed to regulating greenhouse gas (“GHG”) emissions from stationary sources under section 111(d) of the Clean Air Act (“CAA”). There are only a few established regulatory programs under section 111(d) that EPA can reference as guidance during this process. Furthermore, the courts have not ruled on whether EPA may authorize the use of multi-state or market-based compliance mechanisms under section 111(d). However, section 111(d) explains that the regulatory process in 111(d) should be “similar to that provided by [section] 110.” Many states use multi-state, market-based compliance mechanisms to meet the requirements of section 110. Three section 110 programs, specifically, the NO_x SIP Call, the Regional Haze program, and the Transportation Conformity program, serve as legal and structural examples of how EPA could develop regulations for GHG emissions under 111(d).

Based on experiences with these 110 programs, EPA can learn valuable lessons for the development of a regulatory program that provides flexibility for states to use multi-state, market-based mechanisms for compliance. First, the NO_x SIP Call and Clean Air Interstate Rule (“CAIR”) litigation demonstrate the D.C. Circuit’s commitment to the exact language in the CAA. The court was, and could be suspicious of any programs that deviate from the source specific language of 111(d), making it important for EPA to provide sound legal ground for varying from the source-specific nature of 111(d). Furthermore, EPA should not create a program that forces states to impose regulations outside of the states’ statutory responsibilities. EPA should not restrain states choices, but instead, allow states the flexibility in the development standards of performance. EPA should also develop backstops for flexible programs to ensure all states and all sources meet their emissions reductions, regardless of what happens in the courts. This would allow EPA to give states the authority to implement flexible mechanisms while ensuring that all states will reduce GHG emissions, even if the court strikes down EPA’s authorization of non-source-specific programs, thereby avoiding the “unpromulgated limbo” problems that arose in the Regional Haze litigation. Finally, Transportation Conformity stands as an example of a flexible compliance mechanism under 110 that could be used as a model for justifying the use of similarly flexible mechanisms in a 110-like program under section 111(d). The regional

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budget setting process that states use under the Transportation Conformity program provides a concrete example of states working together to achieve compliance under section 110.

After analyzing these three programs, this paper considers two lines of policy arguments supporting the use of multi-state, market-based programs under 111(d). This paper assumes that EPA has the authority to create regulations under 111(d) that are not source-specific, technology standards. Rather, the language of 111(d) authorizes the agency to create the “best system of emissions reduction” which could include market-based programs.

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I. Introduction

In December 2010, the Environmental Protection Agency (“EPA” or “the Agency”) committed to regulating greenhouse gas (“GHG”) emissions from stationary sources under the Clean Air Act (“CAA”).² Because GHG emissions from existing sources are not regulated as a criteria pollutant in the National Ambient Air Quality Standards (“NAAQS”) program or as a hazardous air pollutant (“HAP”), EPA will promulgate regulations for existing sources under section 111(d).³ Section 111(d) provides EPA with authority to establish a regulatory procedure “similar to” the State Implementation Plan (“SIP”) process under section 110 of the CAA, whereby states are required to set performance standards for covered sources and EPA approves the state plans.⁴ Because EPA has primarily relied on the NAAQS and HAP processes for air pollution regulation, EPA has promulgated regulations pursuant to 111(d) only a few times.⁵ As a result, there are a limited number of section 111(d) programs that EPA can use as precedent for building a program for GHG emissions.

Because the language in 111(d) explicitly states that EPA should develop a regulatory program “similar to” 110,⁶ legal scholars and policy experts have suggested EPA has the authority to develop a program under 111(d) that includes flexible, multi-state, market-based mechanisms often found in section 110 programs.⁷ In some cases, states have already developed regional cap-and-trade programs that could possibly serve as the “best system of emissions reduction” as required under section 111(d). In other cases, states might choose to develop similar regional market-based systems for compliance. Regardless, empirical research shows that market-based mechanisms tend to be more effective at reducing emissions at lower costs. Furthermore, by working together, states can achieve greater economies of scale and other gains from trade. This suggests the importance of understanding the structure, advantages, and disadvantages of different multi-state and market-based programs that states use to comply with the requirements of section 110. These programs can inform EPA’s development of a similar program under 111(d).

² Fossil fuel-fired power plant settlement agreement and amendment to settlement agreement, *New York v. EPA*, 2007 U.S. App. LEXIS 22688 (D.C. Cir. 2007) available at <http://www.epa.gov/airquality/ghgsettlement.html> [hereinafter Settlement Agreement].

³ See JONAS MONAST *ET AL.*, REGULATING GREENHOUSE GAS EMISSIONS FROM EXISTING SOURCES: SECTION 111(D) AND STATE EQUIVALENCY (Duke Univ. Nicholas Inst. for Envtl. Pol’y Solutions, March 2012) available at <http://nicholasinstitute.duke.edu/climate/policydesign/regulating-greenhouse-gas-emissions-from-existing-sources>.

⁴ See *infra* “B. Overview of 111”.

⁵ MONAST *ET AL.*, *supra* note 3.

⁶ CAA § 111; 42 U.S.C. § 7411 (2013).

⁷ Much of the analysis in this paper assumes that it is legally permissible for EPA to authorize states to use multi-state and market-based compliance mechanisms to achieve compliance under section 111(d).

This paper examines three programs promulgated under section 110 that all contain market-based, multi-state compliance mechanisms: the NO_x SIP Call, the Regional Haze program, and the Transportation Conformity program. The goal of this paper is to provide a thorough background on the structure of those programs and to evaluate the precedential value of those programs for use in the creation of a 111(d) program that contains market-based, multi-state compliance mechanisms. After reviewing the section 110 programs, this paper considers two lines of policy arguments supporting the use of multi-state, market-based programs under 111(d). This paper assumes that EPA has the authority to create regulations under 111(d) that are not source specific, technology standards. Rather, the language of 111(d) authorizes the agency to create the “best system of emissions reduction” which could include market-based programs.⁸

A. EPA Settlement

In December 2010, EPA entered into two settlement agreements to issue rules under section 111 of the CAA that will address GHG emissions from certain fossil fuel-fired power plants, electric generating units (“EGUs”) and refineries (collectively “power plants”).⁹ These rules will establish New Source Performance Standards (“NSPS”) for new and modified power plants.¹⁰ In the original agreement, EPA committed to issuing proposed regulations by September 30, 2011 and final regulations by May 26, 2012.¹¹ However, in September 2012, EPA announced it would not be able to meet the original deadlines but would establish a new timetable for promulgating the regulations “soon.”¹² EPA has proposed section 111(b) standards for new and modified power plants. If the agency finalizes those standards, then under the language of section 111(d), EPA would be required to regulate GHG emissions for existing sources in those categories, unless EPA proposed to regulate GHG emissions as criteria pollutants or Hazardous Air Pollutants (HAPs).

⁸ See INIMAI CHETTIAR AND JASON SCHWARTZ, THE ROAD AHEAD: EPA’S OPTIONS AND OBLIGATIONS FOR REGULATING GREENHOUSE GASES REPORT NO. 3 86-88 (Inst. for Pol’y Integrity, New York Univ. Sch. of Law Apr. 2009) (providing a legal analysis of the use of market-based programs under 111(d)).

⁹ Settlement Agreement *supra* note 2. See also U.S. E.P.A., SETTLEMENT AGREEMENTS TO ADDRESS GREENHOUSE GAS EMISSIONS FROM ELECTRIC GENERATING UNITS AND REFINERIES FACT SHEET *available at* <http://epa.gov/carbonpollutionstandard/pdfs/settlementfactsheet.pdf>; GEORGETOWN CLIMATE CENTER, ISSUE BRIEF FOR STATES: EPA’S FORTHCOMING PERFORMANCE STANDARDS FOR REGULATING GREENHOUSE GAS POLLUTION FROM POWER PLANTS (CLEAN AIR ACT SECTION 111) (Georgetown Climate Center, Sept. 2011) (*available at*: <http://www.georgetownclimate.org/issue-brief-epas-forthcoming-performance-standards-for-regulating-ghg-pollution>).

¹⁰ Settlement Agreement *supra* note 2.

¹¹ *Id.*

¹² GEORGETOWN CLIMATE CENTER *supra* note 9.

B. Overview of Section 111

Section 111 of the CAA details the requirements of the NSPS program.¹³ Under section 111(b), EPA sets standards of performance for new and modified stationary sources. First, EPA publishes a list of categories of new sources that cause or contribute greatly to air pollution “which may reasonably be anticipated to endanger public health or welfare.”¹⁴ The statute allows the Agency to distinguish among, “classes, types, and sizes within categories of new sources” when establishing standards.¹⁵ As a result, it seems to allow fairly general source categories with any number of subcategories.¹⁶

Next, EPA proposes “standard of performance” for new and modified sources within that category.¹⁷ The emission standards for new sources in listed categories are set at a level “which reflects the degree of emissions limitation achievable through the application of the best system of emissions reduction which (taking into account the cost of achieving such reduction and any nonair quality health and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated.”¹⁸ EPA describes the process of setting standards of performance as follows:

EPA typically conducts a technology review that identifies what emission reduction systems exist and how much they reduce air pollution in practice. This allows EPA to identify potential emission limits. Next, EPA evaluates each limit in conjunction with costs, secondary air benefits (or disbenefits) resulting from energy requirements, and non-air quality impacts such as solid waste generation. The resultant standard is commonly a numerical emissions limit, expressed as a performance level (i.e. a rate-based standard). While such standards are based on the effectiveness of one or more specific technological systems of emissions control, unless certain conditions are met, EPA may not prescribe a particular technological system that must be used to comply with a NSPS. Rather, sources

¹³ CAA § 111; 42 U.S.C. § 7411 (2013).

¹⁴ *Id.* § 111(b)(1)(A).

¹⁵ *Id.*

¹⁶ *Id.* See also FRANZ LITZ *ET AL.* WORKING PAPER: WHAT’S AHEAD FOR POWER PLANTS AND INDUSTRY? USING THE CLEAN AIR ACT TO REDUCE GREENHOUSE GAS EMISSIONS, BUILDING ON EXISTING REGIONAL PROGRAMS (Columbia Law Sch. Ctr. for Climate Change and World Res. Inst., Feb. 2011) available at http://pdf.wri.org/working_papers/whats_ahead_for_power_plants_and_industry.pdf.

¹⁷ CAA § 111(b)(1)(B); 42 U.S.C. § 7411(b)(1)(B) (2013).

¹⁸ *Id.* at (a)(1).

remain free to elect whatever combination of measures will achieve equivalent or greater control of emissions.¹⁹

After EPA sets the standards of performance, the Agency delegates implementation of the standards to the states.²⁰ The states submit to EPA their plans for implementing the standards detailing how the state will meet and enforce the requirements of the program.²¹ If EPA determines that the state's plan is adequate, the Administrator must delegate the implementation of the program to the state.²² If a state does not submit a plan, or if EPA does not approve a plan, the Agency retains concurrent authority to enforce NSPS in all states.²³

While 111(b) explains the regulation of new and modified sources, section 111(d) controls the regulation of existing sources. Section 111(d) states that standards of performance must be established for: "any existing sources for an 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) . . . or emitted from a source category which is regulated under [section] 7412 of this title but (ii) to which a standard of performance would apply if such existing source were a new source."²⁴ In other words, EPA must create NSPS for existing sources if (1) a category of sources is determined to require NSPS under 111(a) and (2) the regulated pollutant is neither a HAP regulated under National Emission Standards for Hazardous Air Pollutants ("NESHAPS") nor a criteria pollutant with National Ambient Air Quality Standards ("NAAQS") under section 108 of the CAA.²⁵ If those criteria are met, section 111(d) requires EPA to promulgate regulations that create an emissions guideline for existing sources.²⁶

Once EPA has established that the criteria for regulation under 111(d) are met, EPA must establish a regulatory procedure "similar to" the State Implementation ("SIP") process under section 110. This 110-like process provides states with a more significant role in the

¹⁹ Env'tl. Prot. Agency, Background on Establishing New Source Performance Standards (NSPS) Under the Clean Air Act 2, available at <http://www.epa.gov/airquality/pdfs/111background.pdf>.

M. Rhead Enion, *Using Section 111 of the Clean Air Act for Cap-and-Trade of Greenhouse Gas Emissions: Obstacles and Solutions*, 30 UCLA J. ENVTL. L. & POL'Y 1, 5 (2012).

²⁰ CAA § 111(c)(1); 42 U.S.C. § 7411(c)(1) (2013).

²¹ *Id.* Regulating Greenhouse Gas Emissions Under the Clean Air Act (Advanced Notice of Proposed Rulemaking), 73 Fed. Reg. 44486 (July 30, 2008).

²² CAA § 111(c)(1); 42 U.S.C. § 7411(c)(1) (2013).

²³ *Id.* at (c)(2).

²⁴ *Id.* at (d).

²⁵ MONAST *ET AL.*, *supra* note 3.

²⁶ CAA § 111(d); 42 U.S.C. § 7411(d) (2013); EPA has regulated several existing sources under Section 111(d) including existing landfills, municipal waste combustors, sulfuric acid, phosphate fertilizer and pulp and paper production facilities, petroleum refineries, and hospital/medical/infectious waste incinerators.

development of the performance standards than section 111(b).²⁷ Under section 110, states submit plans to EPA that establish the standards of performance for sources and detail the procedures “for the implementation and enforcement of such standards of performance.”²⁸ When developing their plans, states may “take into consideration, among other factors, the remaining useful life of the existing source to which such standard applies.”²⁹ This language likely allows states freedom to propose alternative approaches to meeting the emissions guidelines.³⁰

The statute explains that the process under 111(d) should be “similar to that provided by [section] 110.”³¹ Section 110 describes the process for state plans for the attainment of NAAQS for the regulation of concentration of pollutants in the air, rather than the sources of the pollution.³² The Agency sets a federal NAAQS for a particular pollutant and states submit SIPs detailing how they will meet the standard. EPA retains authority to review and approve the SIPs but does not tell states how to meet the standard.³³ In fact, section 110(a)(2)(A) lists a broad array of policy mechanisms that states may use in their SIPs, “including economic incentives such as fees, marketable permits, and auctions of emissions rights.”³⁴ Many states have chosen to use flexible market-based policy mechanisms to meet the requirements in their SIPs. Despite this connection, however, there are no existing examples of states using flexible mechanisms to meet the requirements of 111(d).³⁵

C. Multi-State, Market-Based Policy Proposals

Many policy experts have proposed that EPA may allow for flexibility in achieving compliance with section 111(d) requirements.³⁶ In particular, many believe that section 111(d)

²⁷ MONAST *ET AL.*, *supra* note 3, at 2.

²⁸ *Id.*

²⁹ 40 C.F.R. § 60.24(c).

³⁰ See Nathan Richardson *et al.*, *Greenhouse Gas Regulation Under the Clean Air Act: Structure, Effects, and Implications of a Knowable Pathway*, 41 ENVTL. L. REP. NEWS & ANALYSIS 10,098, 10,105 (Feb. 2011).

³¹ CAA § 111(d); 42 U.S.C. 7411(d) (2013).

³² MONAST *ET AL.*, *supra* note 3.

³³ *Id.*

³⁴ CAA § 110(a)(1)(A); 42 U.S.C. § 7410(a)(1)(A) (2013).

³⁵ See MONAST *ET AL.*, *supra* note 3 (“Of the performance standards that have been established under §111(d) for existing sources, all but two are expressed as a rate-based standard that is met on a facility-by-facility basis. Two significant exceptions include the emission guidelines for Large Municipal Waste Combustors (LMWCs) and the Clean Air Mercury Rule (CAMR), which, though it was eventually struck down on grounds unrelated to the §111(d) interpretation, contained an emission guideline for mercury emitted by existing power plants. EPA’s emission guidelines in these two cases include a rate-based standard, but also explicitly give states the option to adopt a plan allowing facilities to trade emissions.”).

³⁶ See, e.g., Richardson *et al.*, *supra* note 30 at 10,098; JONAS MONAST *ET AL.*, *AVOIDING THE GLORIOUS MESS: A SENSIBLE APPROACH TO CLIMATE CHANGE AND THE CLEAN AIR ACT 1-14* (Duke Univ. Nicholas Inst. for Env’tl. Policy Solutions, Oct. 2010); Timothy J. Mullins & M. Rhead Enion, *(If) Things Fall Apart: Searching for Optimal Regulatory Solutions to*

allows for a variety of multi-state and market-based programs by which states could work together to achieve compliance.³⁷ Allowing for the use of market-based programs, like cap-and-trade, could potentially drive cost-effective GHG emissions reductions.³⁸ EPA has proposed using market-based mechanisms in 111(d) before.³⁹ Specifically, the Clean Air Mercury Rule (“CAMR”), promulgated pursuant to section 111, created a cap-and-trade system for mercury.⁴⁰ Similarly, the municipal waste combustor NSPS contains a small cap-and-trade program.⁴¹ Neither CAMR nor the municipal waste combustor rule, however, ever had its approach adjudicated in the courts.⁴²

Combating Climate Change Under Title I of the Existing CAA if Congressional Action Fails, 40 ENVTL. L. REP. 10864, 10,868-86 (2010); Hannah Chang, *Cap-and-Trade Under the Clean Air Act?: Rethinking Section 115*, 40 ENVTL. L. REP. NEWS & ANALYSIS 10894, 10,901-04 (2010); David M. Driesen, *Capping Carbon*, 40 ENVTL. L. 1, 1-43 (2010). *But see* Craig N. Oren, *Is the Clean Air Act at a Crossroads*, 40 ENVTL. L. 1231, 1232 (2010) (“The Act is unlikely to be the means to address global climate disruption because the Act’s mechanisms do not fit the problem well. At most, the Act can contribute interstitially.”). *See generally* GREGORY E. WANNIER *ET AL.*, *PREVAILING ACADEMIC VIEW ON COMPLIANCE FLEXIBILITY UNDER § 111 OF THE CLEAN AIR ACT 1-14* (Res. for the Future, 2011), *available at* <http://www.law.columbia.edu/centers/climatechange/resources/caa111>.

³⁷ *See e.g.*, Enion *supra* note 19.

³⁸ *Id.* at 5.

³⁹ *Id.* *But see* Memorandum from Jonathan Cannon, EPA General Counsel to Carol Browner, EPA Administrator, Apr. 10, 1998, *available at*

<http://www.law.umaryland.edu/environment/casebook/documents/EPACO2memo1.pdf>.

⁴⁰ Enion *supra* note 19. *See* *New Jersey v. EPA*, 517 F.3d 574, 583 (D.C. Cir. 2008), (striking down CAMR and finding that, because mercury is a hazardous air pollutant regulated under section 112, not section 111, EPA failed to follow proper procedure to remove power plants from the list of regulated sources under section 112).

⁴¹ Enion *supra* note 19. *See also* 40 C.F.R. § 60.33 (d) (2010); MONAST *ET AL.*, *supra* note 3 at 11.

⁴² *See* MONAST *ET AL.*, *AVOIDING THE GLORIOUS MESS* *supra* note 36 (“The DC Court did not address the legality of emissions trading under section 111, instead striking down the rule because the EPA should have regulated mercury as a toxic air pollutant.”).

II. Flexibility in Section 111

Despite this encouragement from the policy world, the language of section 111 does not explicitly allow for regulatory flexibility. Some policy experts argue that the definition of “standards of performance,” prevents EPA from allowing states to work together and employ market-based mechanisms under a section 111(d) regulatory scheme.⁴³ Others contend that the definition of “standards of performance” is flexible and could include multi-state, market-based programs. EPA would be assuming some legal risk by allowing flexible mechanisms in a 111(d) program, but EPA, states, and sources would all benefit from the use of flexible mechanisms. This section provides a brief analysis of the language in 111(d), concluding that the statute likely authorizes states to use flexible market-based and multi-state mechanisms to comply with 111(d) requirements.

A. Standards of Performance

Section 111(d) requires EPA to “assist states in promulgating *standards of performance* for existing sources.”⁴⁴ The definition of “standard of performance” in section 111 has five parts:

- (i) a standard for emissions of air pollutants,
- (ii) which reflects the degree of emission limitation achievable,
- (iii) through the application of the best system of emission reduction,
- (iv) which (taking into account the cost of achieving such reduction and any non-air quality health and environmental impact and energy requirements),
- (v) the Administrator determines has been adequately demonstrated.⁴⁵

Section 302, which defines terms “[w]hen used in this Act,” also defines the term “standard of performance.”⁴⁶ It states, “the term ‘standard of performance’ means a

⁴³ See CHETTIAR AND SCHWARTZ, *supra* note 8 (explaining that cap-and-trade might not fit within the definition of “standard of performance”).

⁴⁴ Enion *supra* note 19, at 7 (emphasis added).

⁴⁵ CAA § 111(a)(1), 42 U.S.C. § 7411(a)(1) (2013); *see also* Enion *supra* note 19, at 7-8.

⁴⁶ CAA § 302(l), 42 U.S.C. § 7602(l) (2013).

requirement of continuous emission reduction, including any requirement relating to the operation or maintenance of a source to assure continuous emission reduction.”⁴⁷

Some litigants⁴⁸ and policy experts⁴⁹ have argued that EPA cannot authorize market-based programs under these definitions. While no court has ruled upon the issue, the parties in *New Jersey v. EPA*, 517 F.3d 574 (D.C. Cir. 2008) challenged the legality of a cap-and-trade system under section 111 in the CAMR litigation.⁵⁰ The opponents to CAMR briefed the issue of EPA’s authority to allow market-based programs under section 111. The states and environmental groups argued that a market-based cap-and-trade program does not fit within either the 111 or the 302 definition of standard of performance.⁵¹ Their arguments focused on two parts of the statutory language: (1) standard of performance is *source specific* and requires emission reductions from each and every source, and (2) the definition of standard of performance requires *continuous* emission reductions from each of those sources.⁵² The litigants argued that the market-based program in CAMR did not meet either of these requirements so could fit within the definition of standard of performance.⁵³ According to this argument, states must develop source-specific standards, and EPA may not allow for the use of flexible mechanisms under section 111(d).

However, others contend that the definition of standard of performance does not pose this problem.⁵⁴ In other words, EPA and the states can establish or use regional cap-and-trade programs to meet the requirements of 111(d). Some proponents of this argument explain that the broader definition of standard of performance from section 302(l) does not apply to section 111(d). In the CAMR litigation, EPA argued that section 302(l) was inapplicable

⁴⁷ *Id.*

⁴⁸ Opening Brief of Government Petitioners at 4, *New Jersey v. EPA*, 517 F.3d 574 (D.C. Cir. 2008) (No. 05-1097)[Hereinafter Petitioners’ Brief]; see also Nicholas Morales, *New Jersey v. Environmental Protection Agency*, 33 HARV. ENVTL. L. REV. 263, 271 (2009) (“Petitioners contested whether the cap-and-trade program qualified as a ‘best system of emission reduction which . . . has been adequately demonstrated’ as required per section 111(a)(1). Petitioners also argued that because the emissions trading system did not require ‘continuous’ reduction from ‘particular’ sources, it did not meet the requirements of section 111(d).”)

⁴⁹ See CHETTIAR AND SCHWARTZ, *supra* note 8 (explaining that cap-and-trade might not fit within the definition of “standard of performance”).

⁵⁰ *New Jersey v. EPA*, 517 F.3d 574 (D.C. Cir. 2008). In that case, the D.C. Circuit did not address the legality of emissions trading under section 111. Instead, the court struck down the rule because EPA should have regulated mercury as a toxic pollutant under section 112. *Id.*

⁵¹ See Opening Brief of Government Petitioners *supra* note 48.

⁵² *Id.* See also Enion *supra* note 19, at 16-18; MONAST *ET AL.*, AVOIDING THE GLORIOUS MESS *supra* note 36.

⁵³ *Id.*

⁵⁴ See e.g., Enion *supra* note 19; FRANZ T. LITZ *ET AL.*, WHAT’S AHEAD FOR POWER PLANTS AND INDUSTRY? USING THE CLEAN AIR ACT TO REDUCE GREENHOUSE GAS EMISSIONS, BUILDING ON EXISTING REGIONAL PROGRAMS (World Res. Inst. Feb. 2011); WANNIER *ET AL.* *supra* note 36.

because the more specific definition in 111(a) took precedence.⁵⁵ EPA explained that “[w]hile section 302’s definitions do apply to the ‘chapter,’” the definitions in 302 “are still subject to the well-settled canon of statutory construction that “[h]owever inclusive may be the general language of a statute, it will not be held to apply to a matter specifically dealt with in another part of the same enactment.”⁵⁶ EPA explained that “[s]pecific terms prevail over the general in the same or another statute which otherwise might be controlling.”⁵⁷ Consequently, the definition of standard of performance in 111 prevails over the definition in 302.⁵⁸

If the definition in section 302(l) does not apply, as EPA argued, a cap-and-trade program for existing sources “satisf[ies] the three substantive components of the section 111(a)(1) definition of “standard of performance.”⁵⁹ First, a cap-and-trade program fits within the Supreme Court’s definition of “standard” because it is “a ‘model’ or ‘criterion’ for emissions ‘established by authority.’”⁶⁰ Any cap-and-trade program that states use will inherently include emissions budgets that fit within the definition of “standard” “since each state must remain within its state budget regardless of how it allocates allowances to specific sources, and each source still must possess allowances sufficient to cover its emissions.”⁶¹ EPA also argued that a cap-and-trade program would “reflect the degree of emission limitation available” because any program will likely be based upon an assessment by EPA regarding the “overall level of emission reduction achievable”⁶² by the regulated sources.⁶³ Third, a cap-and-trade program could be considered the “best system of emission reduction available” due to the ambiguity of the term “system,”⁶⁴ and it may be “best” if it could achieve the most reductions at the lowest cost.⁶⁵ The “best system” is just EPA’s determination of which *plan* for emissions reduction is the approach most likely to succeed in achieving the most emissions reduction; plans of emission reduction can encompass a wide variety of regulatory tools, including cap and trade, technical mandates, and voluntary measures.⁶⁶

⁵⁵ Final Brief of Respondent United States Environmental Protection Agency at 129, *New Jersey v. EPA*, 517 F.3d 574 (No. 05-1097) [Hereinafter Respondent Brief].

⁵⁶ *Id.* (citing *Fourco Glass Co. v. Transmirra Prods. Corp.*, 353 U.S. 222, 228 (1957)).

⁵⁷ *Id.*

⁵⁸ *Id.* See also Mullins & Enion *supra* note 36, at 10879.

⁵⁹ See, e.g., *Regulating Greenhouse Gas Emissions Under the CAA*, 73 Fed. Reg. 44354, 44490 (July 30, 2008) (arguing that a cap-and-trade program is a “standard for emissions of air pollutants” because it is a “system created by EPA for control of emissions”). See also Respondent Brief, *supra* note 55, at 122; Mullins & Enion *supra* note 36, at 10886.

⁶⁰ Mullins & Enion *supra* note 36, at 10879 (citing Respondent Brief, *supra* note 55, at 123 (quoting *Engine Mfrs. Ass’n v. S. Coast Air Quality Mgmt. Dist.*, 541 U.S. 246, 252-53(2004))).

⁶¹ Respondent Brief, *supra* note 55, at 123.

⁶² *Id.*

⁶³ Mullins & Enion *supra* note 36, at 10879.

⁶⁴ Respondent Brief, *supra* note 55, at 123.

⁶⁵ *Id.* Mullins & Enion *supra* note 36, at 10879.

⁶⁶ Respondent Brief, *supra* note 55, at 125; Mullins & Enion *supra* note 36, at 10879.

B. Reference to Section 110

As described above,⁶⁷ section 111(d) specifically references section 110 as a model for how EPA should build a regulatory program.⁶⁸ Section 110 authorizes states to use flexible approaches to compliance. This includes “economic incentives such as fees, marketable permits, and auctions of emissions rights.”⁶⁹ This reference to the 110 SIP process “tends to support substantial state discretion in selecting the appropriate ‘standard of performance’ mechanism . . . [and] supports the use of market-based mechanisms.”⁷⁰

C. Cost Consideration

Unlike section 110, section 111(d) requires EPA to consider cost in setting the standard of performance.⁷¹ This difference is significant because, as scholars have pointed out, it likely allows EPA and states greater flexibility to use multi-state and market-based programs for compliance with 111(d) regulations than 110 regulations.⁷² Under 110, by contrast, EPA may not consider cost when setting air quality standards. States may consider cost in setting goals in their SIPs. This could allow EPA and states flexibility to create price control mechanisms, including strategic reserves or safety valves.⁷³ This, in turn, could “reduce uncertainty around the question of state equivalency and price ceilings”⁷⁴ In essence, “[c]onsideration of costs should lead to a more efficient regulatory program”⁷⁵

⁶⁷ See *supra* text accompanying notes 28-35.

⁶⁸ CAA § 111(d); 42 U.S.C. § 7411(d) (2013).

⁶⁹ CAA § 110(a)(2)(A), 42 U.S.C. § 7410(a)(2)(A) (2013).

⁷⁰ LITZ *ET AL.* *supra* note 54, at 9.

⁷¹ CAA § 111(d); 42 U.S.C. § 7411(d) (2013) (“The term ‘standard of performance’ means a standard for emissions of air pollutants which reflects the degree of emission limitation achievable through the application of the best system of emission reduction which (*taking into account the cost of achieving such reduction and any nonair quality health and environmental impact and energy requirements*) the Administrator determines has been adequately demonstrated.”) (emphasis added).

⁷² See, e.g., Mullins & Enion *supra* note 36, at 10884; WANNIER *ET AL.* *supra* note 36, at 12. Richardson *et al.* *supra* note 36, at 32.

⁷³ Mullins & Enion *supra* note 36, at 10884; WANNIER *ET AL.* *supra* note 36.

⁷⁴ WANNIER *ET AL.* *supra* note 36, at 12.

⁷⁵ Richardson *et al.* *supra* note 36, at 32.

III. Evaluation of Multi-State Programs in Section 110 SIPs

Section 110 allows for state plans to include flexible mechanisms in their SIPs, including market-based and multi-state programs. The use of flexible mechanisms under section 110 suggests that states could adopt flexible approaches to meet their section 111(d) requirements. Given that such flexible mechanisms usually provide greater reductions in emissions at lower costs than traditional command-and-control programs, allowing states to use such approaches in meeting their section 111(d) requirements would likely be more efficient than requiring states to use traditional source-based performance standards.

There are no existing examples of states using multi-state, market-based compliance mechanisms to meet current section 111(d) requirements. However, there are many examples of multi-state programs that states use as elements of their SIPs under section 110. This section will review three examples of multi-state, market-based programs states use for compliance under section 110: the NO_x SIP Call, the Regional Haze program, and the Transportation Conformity program. It provides an overview of each program and analysis of how those programs could inform the establishment or use of multi-state programs for compliance with a section 111(d) regulatory scheme.

A. NO_x SIP Call

1. Background

Issued in 1998, the NO_x SIP Call required 23 upwind states, primarily in the Midwest and southeast to reduce emissions of NO_x to help abate ozone levels in downwind states along the eastern seaboard.⁷⁶ EPA promulgated the NO_x SIP Call pursuant the CAA’s Good Neighbor Provision, section 110(a)(2)(D), which requires each state to ensure that emissions from its pollution sources do not *contribute significantly* to pollutant levels in another state.⁷⁷ The provision provides that EPA should regulate “any source or other type of emissions activity within the State from emitting any air pollutant in amounts which will . . . contribute significantly to nonattainment in, or interfere with maintenance by, any other State with respect to any . . . national primary or secondary ambient air quality standard.”⁷⁸ The Good Neighbor Provision is one of the only provisions in the CAA designed to address interstate transport of pollution. Under section 110, after EPA reviews and approves each state’s SIP, the agency may require a SIP’s revision—or “call” the SIP – if it fails to comply with all of the relevant provisions of the Act.⁷⁹ To address the problem of interstate ozone pollution, “EPA planned to call the SIPs of certain upwind states to require them to reduce their NO_x emissions.”⁸⁰

i. Defining “Contribute Significantly.” The statute does not define “contribute significantly.” EPA interpreted this provision and came up with a definition that accounted for three factors: (1) the amount of ozone an upwind state contributed to downwind areas, (2) the types of pollution sources that were found in the state and (3) whether affordable pollution controls were available for those sources.⁸¹ First, EPA determined which states emissions were causing increases in ozone levels in neighboring states by employing sophisticated air quality modeling.⁸² The Agency then identified “highly cost effective” emission control options for certain sources and inventoried what pollution sources were in each state.⁸³ Using this information, EPA then calculated the total NO_x emissions a state would emit if those sources

⁷⁶ Finding of Significant Contribution and Rulemaking for Certain States in the Ozone Transport Assessment Group Region for Purposes of Reducing Regional Transport of Ozone, 63 Fed. Reg. 57,358 [Hereinafter NO_x SIP Call]; see also Patricia Ross McCubbin, *Cap and Trade Programs Under the Clean Air Act: Lessons from the Clean Air Interstate Rule and the NO_x SIP Call*, 18 PENN ST. ENVTL. L. REV. 1, 50 (2009).

⁷⁷ CAA § 110(a)(2)(D)(i)(I), 42 U.S.C. § 7410(a)(2)(D)(i)(I) (2013) (emphasis added).

⁷⁸ *Id.*

⁷⁹ *Id.* § 7410(k)(5).

⁸⁰ McCubbin *supra* note 76, at 6-7.

⁸¹ *Id.* (explaining EPA’s methodology for defining “contribute significantly”); NO_x SIP Call *supra* note 76, at 57,377-78.

⁸² See McCubbin *supra* note 76, at 6.

⁸³ *Id.*

implemented the identified “highly cost-effective” technologies.⁸⁴ This subset of each state’s NO_x emissions became the budgets for each state and “any NO_x emissions above that level were deemed to be the ‘significant’ contributions that had to be eliminated” under section 110(a)(2)(D).⁸⁵

ii. Cap-and-Trade. Instead of requiring each state to impose the highly cost-effective controls on the sub-set of sources, EPA allowed states to choose what controls it wanted to use, so long as the entire state stayed within its budget.⁸⁶ The NO_x SIP Call established an optional cap-and-trade system to allow states flexibility in meeting their budgets.⁸⁷ While each state was assigned a specific budget, EPA calculated the “cap” for the region by adding the state budgets together so that sources could trade across the region.

The system allowed states to allocate allowances to sources which in turn gave sources several compliance options: a source could emit NO_x emissions covered by the allowances it held, it could over-control its emissions and sell its unneeded allowances to other sources or bank them for future use, or it could emit more NO_x than it had allowances and purchase additional allowances from other sources. Thus, while some states might have emissions higher than their budgets, other states will have lower emissions than their budgets and the entire region will stay within the cap. The trading program included provisions for applicability, allocations, monitoring, banking, penalties, trading protocols, and program administration.⁸⁸

iii. Clean Air Interstate Rule. Despite the efforts to establish an innovative trading program under the Good Neighbor Provision, the NO_x SIP Call failed to have the intended effects on air pollution in down wind states.⁸⁹ In response, North Carolina, a downwind state, submitted a section 126 petition to EPA to adopt a more stringent regulatory scheme.⁹⁰ EPA

⁸⁴ *Id.*; NO_x SIP Call *supra* note 76, at 57,403.

⁸⁵ McCubbin *supra* note 76, at 7; NO_x SIP Call *supra* note 76, at 57,377-78.

⁸⁶ NO_x SIP Call *supra* note 76, at 57,378.

⁸⁷ *Id.*

⁸⁸ Markus W. Gehring & Charlotte Streck, *Emissions Trading: Lessons from SO_x and Emissions Allowance and Credit Systems Legal Nature, Title, Transfer, and Taxation of Emission Allowances and Credits*, 35 ENVTL. L. REP. NEWS & ANALYSIS 10219 (Apr. 2005).

⁸⁹ McCubbin *supra* note 76, at 9; *see also* Pamela Najor, *Utilities: Report Says Major Switch from Coal to Gas Would Achieve Reductions in Key Pollutants*, 31 ENV'T REP. 2459 (Nov. 24, 2000).

⁹⁰ *See* Rulemaking on Section 126 Petition From North Carolina to Reduce Interstate Transport of Fine Particulate Matter and Ozone; Federal Implementation Plans to Reduce Interstate Transport of Fine Particulate Matter and Ozone; Revisions to the Clean Air Interstate Rule [hereinafter Section 126 Denial]. Section 126 is related to section 110(a)(2)(D). *See* McCubbin *supra* note 76, at 9. In essence, section 126 creates “a formal process for downwind states to enforce the § 110 prohibition by bringing interstate pollution concerns to EPA’s attention and thereby enabling injured states to safeguard their interests.” Vickie L. Patton, *The New Air Quality Standards, Regional Haze, and Interstate Air Pollution Transport*, 28 ENVTL. L. REP. 10,155, 10,166 (Apr. 1998); *see also* Karl James Simon,

determined that it would be more efficient to use multi-state efforts to reduce NO_x emissions, rather than the coordinated federal control that would be required by the section 126 petition, so the agency denied the petition. In place of a federal program, EPA created the Clean Air Interstate Rule (“CAIR”) to reduce interstate transport of pollution.⁹¹ CAIR had many of the same features as the NO_x SIP Call, including a cap-and-trade program,⁹² but the D.C. Circuit struck down the rule based on characteristics unique to CAIR.⁹³

2. Lessons Learned

i. Importance of State Responsibility for Significant Contributions. One important lesson learned from the NO_x SIP Call can be found in a comparison of the NO_x SIP Call and CAIR. In *North Carolina v. EPA*, 531 F.3d 896 (D.C. Cir. 2008), the D.C. Circuit vacated CAIR as arbitrary and capricious.⁹⁴ The court cited EPA’s method for establishing the regional cap for the trading program in CAIR as one of the reasons the rule could not stand. As explained before, in the NO_x SIP Call, EPA “clearly tailored each state’s budget to its own contribution to downwind pollution.”⁹⁵ The Agency did so by cataloging the specific sources and pollution from those sources found in each state.⁹⁶

Conversely, in CAIR, EPA used a method that impermissibly deviated from the approved method from the NO_x SIP Call.⁹⁷ The D.C. Circuit struck down CAIR because, contrary to the central mandate of section 110(a)(2)(D), EPA imposed obligations on the states that were unrelated to the states’ contribution to downwind pollution.⁹⁸ Specifically, when establishing the NO_x budget for each state under CAIR, EPA first “[multiplied] NO_x emissions rates . . . by the heat input of states in the [region].”⁹⁹ During this first step, when determining the heat input of

The Application and Adequacy of the Clean Air Act in Addressing Interstate Ozone Transport, 5 ENVTL. LAW. 129, 175 (1998).

⁹¹ McCubbin *supra* note 76, at 9; *see also* Section 126 Denial, *supra* note 90.

⁹² CAIR was promulgated pursuant to CAA section 110(a)(2)(D), the good neighbor provision. Similarly when EPA set the state emissions budgets, the agency considered the cost-effectiveness of pollution control technologies but allowed states flexibility in choosing their own mix of controls so long as they achieved the required reductions. Rule to Reduce Interstate Transport of Fine Particulate Matter and Ozone (Clean Air Interstate Rule); Revisions to Acid Rain Program; Revisions to the NO_x SIP Call, 70 Fed. Reg. 25,162, 25,273-85 (2005) [hereinafter CAIR].

⁹³ *See infra* “2. Lessons Learned” for details of the D.C. Circuit’s opinion.

⁹⁴ *North Carolina v. EPA* 531 F.3d 896, 896 (D.C. Cir. 2008).

⁹⁵ McCubbin *supra* note 76 (citing NO_x SIP Call *supra* note 76, at 57,403).

⁹⁶ *Id.*

⁹⁷ *North Carolina v. EPA*, 531 F.3d 896, 916 (D.C. Cir. 2008).

⁹⁸ *Id.* at 917.

⁹⁹ *Id.* at 918.

the states, EPA took into consideration the fuels burned in the state.¹⁰⁰ However, when determining the regional cap, EPA did not make the same fuel-related considerations.¹⁰¹ Instead, the agency assumed “that all power plants burned the same fuel and could achieve the same emissions rate at the same cost.”¹⁰² EPA then went back and adjusted the state budgets based on the regional cap, some budgets got bigger and others got smaller.¹⁰³

EPA justified this adjustment based on fairness, but the D.C. Circuit held that “EPA’s notion of fairness has nothing to do with the states’ [Good Neighbor Provision] obligations to prohibit significant contributions to downwind attainment.”¹⁰⁴ In essence, the D.C. Circuit determined that the language in the statute that prohibits sources “within one state” from “contribut[ing] significantly to [air pollution] in . . . any other State” confirms that Congress thought that “individual state contributions to downwind [pollution] do matter” and each state must address its own emissions.¹⁰⁵ The NO_x SIP Call satisfied this requirement of individual state responsibility, but CAIR did not.¹⁰⁶ Where the NO_x SIP Call focused on the individual state responsibilities, CAIR was more concerned with the goals of the 28-state region as a whole. This difference proved fatal.¹⁰⁷

This distinction provides valuable insight for EPA in establishing a multi-state, market-based system under section 111(d). It is clear that the D.C. Circuit was unwilling to allow EPA to redistribute states’ obligations under the Good Neighbor Provision. This commitment to individual states’ responsibility suggests that it is of vital importance that future multi-state, cap-and-trade programs “clearly tailor[] each state’s budget to its own contribution to downwind pollution.”¹⁰⁸ EPA should ensure that all states reduce some emissions and “avoid the appearance of imposing policy goals on a multi-state region without carefully demonstrating how those goals relate to the conditions on the ground in each state.”¹⁰⁹

¹⁰⁰ See *id.* See also CAIR *supra* note 92, 25,230-31. “Natural gas-fired power plants, for example, released fewer NO_x emissions than coal-fired power plants for each unit of “heat input” to the boiler (a measure of the energy content of the fuel, expressed in British thermal units (Btus)). If EPA required all power plants to emit no more than, say, 0.15 pounds of per million Btus (lbs/mmBtu), coal-fired power plants might have to spend as much as \$2,000 per ton of reduced emissions, whereas natural gas-fired plants would spend less than half that.” McCubbin *supra* note 76, at 14.

¹⁰¹ CAIR *supra* note 92.

¹⁰² McCubbin *supra* note 76, at 15.

¹⁰³ *Id.*

¹⁰⁴ North Carolina, 531 F.3d at 918.

¹⁰⁵ North Carolina, 531 F.3d at 907.

¹⁰⁶ McCubbin *supra* note 76, at 15.

¹⁰⁷ *Id.*

¹⁰⁸ McCubbin *supra* note 76 (citing NO_x SIP Call *supra* note 76, at 57,403).

¹⁰⁹ *Id.*

On the other hand, the court's commitment to individual states' responsibility is arguably specific to the language of the Good Neighbor Provision and not section 110 as a whole. The Good Neighbor Provision explicitly requires that pollution sources in one state do not contribute significantly to pollutant levels in another state.¹¹⁰ The court determined EPA's methods were arbitrary and capricious because "section 110(a)(2)(D)(i)(I) gives EPA no authority to force an upwind state to share the burden of reducing other upwind states' emissions[,]"¹¹¹ but did not comment on the agency's authority to allow burden sharing among states in a 110 program not under the Good Neighbor Provision. This analysis suggests that the D.C. Circuit's opinion in *North Carolina* would likely not apply to EPA's regulations promulgated pursuant to section 111(d), so long as the regulations did not reference the Good Neighbor Provision. Furthermore, GHG emissions cause a global problem unlike the localized air pollution problems the NO_x SIP Call and CAIR sought to solve. As a result, the upwind, downwind state distinction is irrelevant when considering regulation of GHG emissions.

ii. Broader Implications. Some scholars posit that the NO_x SIP Call and CAIR litigation provides evidence that the D.C. Circuit is likely unwilling to "allow the implementation of regulatory initiatives that stretch the statute beyond recognition."¹¹² Given the court's commitment to the individual state responsibility provision of 110(a)(2)(D) in striking down CAIR, it is foreseeable that the D.C. Circuit would be equally loyal to the specific language of 111(d). Section 111(d) expressly requires EPA to set standards of performance based on the "best system of emission reduction," a term that EPA has interpreted to require source-specific standards under 111(b), suggesting that emissions reductions must be made at each individual source.¹¹³ In other words, the court could find that 111(d) regulations must require emission reductions at the source in the same way the court found that the Good Neighbor Provision requires individual states to reduce emissions that "contribute significantly" pollution in other states. This line of reasoning strongly suggests the importance of developing arguments for why 111(d) regulations are not required to be source-specific.

¹¹⁰ CAA § 110(a)(2)(D)(i)(I), 42 U.S.C. § 7410(a)(2)(D)(i)(I) (2013).

¹¹¹ *North Carolina*, 531 F.3d at 921.

¹¹² McCubbin *supra* note 76, at 22.

¹¹³ CAA § 111(a)(1), 42 U.S.C. § 7411(a)(1) (2013).

B. Regional Haze Program

1. Background

“Regional haze” is visibility impairment caused by geographically dispersed sources emitting fine particles and their precursors into the air.¹¹⁴ The “visibility problem is caused primarily by emission into the atmosphere of SO₂, NO_x, and particulate matter, especially fine particulate matter, from inadequate[ly] controlled sources.”¹¹⁵ The emission and movement of these pollutants from sources, such as power plants, contribute to haze. Fine particulate matter scatters and absorbs light.¹¹⁶ Haze has reduced visibility considerably across the entire country, but EPA has focused on reducing haze and increasing visibility in Class I Federal areas.¹¹⁷

EPA promulgated the Regional Haze Regulations in 1999 pursuant to section 169B of the CAA.¹¹⁸ The statute requires EPA to conduct visibility impairment research and to assess current sources of visibility-impairing pollution.¹¹⁹ The Statute also authorizes EPA to create Visibility Transport Regions if the agency finds that the interstate transport of air pollutants contributes to visibility impairment in Class I areas. More specifically, the statute requires EPA to establish a Visibility Transport Commission for ‘the region affecting visibility of the Grand Canyon National Park.’¹²⁰ The Commission was required to present EPA with a report on how to improve current visibility problems and whether and how to promulgate new regulations to address regional haze in Class I areas.¹²¹ The Grand Canyon Visibility Transport Commission (“GCVTC”) made recommendations to EPA to establish a regional, collaborative regional haze visibility improvement program that allowed states maximum flexibility to address the regional

¹¹⁴ See Regional Haze Regulations, 64 Fed. Reg. 35714, 35,715 (codified at 40 C.F.R. § 51.308(f)) [hereinafter Regional Haze Regulations]

¹¹⁵ *Id.* quoting U.S. EPA. Air Quality Criteria for Particulate Matter. Office of Research and Development, National Center for Environmental Assessment. EPA/600/P-95/001bF. Research Triangle Park, NC. 1996.

¹¹⁶ See *id.*

¹¹⁷ Regional Haze Regulations, *supra* note 114, at 35714. “Class I” areas include all international parks, national wilderness areas which exceed 5,000 acres in size, national memorial parks which exceed 5,000 acres in size, and national parks which exceed 6,000 acres in size and which were in existence on August 7, 1977. See 42 U.S.C. § 7472(a). The term “mandatory class I Federal areas” is defined as “Federal areas which may not be designated as other than class I.” *Id.* § 7491(g)(5). At the time the Haze Rule was promulgated, there were 156 Class I areas across the country. See Regional Haze Regulations, *supra* note 114, at 35714.

¹¹⁸ CAA §169B, 42 U.S.C. § 7492 (2013).

¹¹⁹ *Id.* at (a)(1).

¹²⁰ *Id.* at (f).

¹²¹ *Id.* at (d)(2)(A)-(C).

haze problem.¹²² However, EPA did not follow the GCVTC's recommendations in developing the 1999 Regional Haze Rule.¹²³

i. 1999 Rule. In 1999, EPA issued the Regional Haze Regulations.¹²⁴ In the Rule, EPA implemented a comprehensive National Regional Haze Program framework requiring all states to revise their SIPs to cover an initial implementation period through the year 2018.¹²⁵ The Regulations explain the provisions of the National Regional Haze Program with provisions that include nationwide applicability and plan submittal timetables.¹²⁶ The “core requirements” of the program include monitoring, determining baseline and natural visibility conditions, and establishing reasonable progress goals and long-term emissions reduction strategies for improving manmade visibility impairment in all 156 protected mandatory Class I areas.¹²⁷ The Rule also contained specific provisions allowing western states that participated in the GCVTC to implement the Commission's recommendations within the framework of the national regional haze program.¹²⁸ It did not, however, implement the GCVTC's recommendations on a larger scale.¹²⁹

ii. Regional Planning Option. The Regional Haze Rule allowed states the option to work together to meet the requirements of the Regional Haze Program. If a state chooses to work with others in a coordinated regional planning process, the state may defer submitting the part

¹²² See *Grand Canyon Visibility Transport Commission (GCVTC), Report to the U.S. EPA, at <http://www.westgov.org/wga/publicat/final.doc> (last modified June 10, 1996)* [hereinafter “GCVTC Final Report”], available at <http://www.nmia.com/gcvtc/> (last modified Oct. 9, 1999).

¹²³ After making its recommendations, the GCVTC recognized the need for continued interstate cooperation on the issue of regional haze. The states involved formed the Western Regional Air Partnership (WRAP) composed of 10 western states, 10 tribal governments and three federal agencies.

¹²⁴ 40 C.F.R. § 51.300(a); see also Michael Palmer, *The Regional Haze Rule: EPA's Next Phase in Protecting Visibility Under the Clean Air Act*, 7 ENVTL. LAW. 555,590 (2001).

¹²⁵ Regional Haze Regulations, *supra* note 114, at 35,734.

¹²⁶ *Id.* Palmer *supra* note 124. The Haze Rule applies to all fifty states because EPA determined that all states contain sources whose emissions contribute to regional haze. See Regional Haze Regulations, *supra* note 114, at 35,721 (applying rule to all fifty states and explaining reasons why). EPA considered three factors in making this decision. See *id.* First, EPA looked at the statutory language of CAA. Section 169A(b)(2) of CAA required SIPs from states where emissions “may reasonably be anticipated to cause or contribute to any impairment of visibility” in the Class I areas. See 42 U.S.C. § 7491(b)(2). The Ninth Circuit interpreted the national applicability in *Central Arizona Water Conservation District v. EPA* and found that the language in the statute established an “extremely low triggering threshold” for requiring a source to control emissions. See *Central Arizona Water Conservation*, 990 F.2d 1531, 1541 (9th Cir. 1993). EPA believed they could apply this interpretation to program applicability of the Haze Rule. See 64 Fed. Reg. at 35,721. The program is thus applicable to all states that have a mandatory Class I federal area within their boundaries and to all states with sources of air pollutants that may be reasonably expected to cause or contribute to any impairment of visibility in any such areas located within another state or states.

¹²⁷ 40 C.F.R. § 51.308 (2013).

¹²⁸ Palmer *supra* note 124.

¹²⁹ *Id.*

of its SIP that addresses its program's substantive requirements.¹³⁰ Instead, the state must first submit a SIP that outlines its participation in regional planning. This preliminary plan must do the following:

1. Demonstrate the state's ongoing participation in a regional planning process to address regional haze and an agreement to continue future participation;¹³¹
2. Indicate a need for regional planning by showing that available inventory, monitoring, or modeling information indicate emissions from sources within the state contribute to regional haze visibility impairment in Class I areas in another state, or that emissions from other states contribute to visibility impairment in any mandatory Class I areas in the state.¹³²
3. Describe a credible regional planning process that all parties are committed to follow.¹³³ This description must include a list of states constituting the regional planning group, its goals, objectives, management, decision-making structure, deadlines for completing significant technical analyses and developing emission management strategies, and a schedule for state review and adoption of regulations implementing the recommendations of the regional group;¹³⁴
4. Include an enforceable state commitment to submit a coordinated control strategy implementation plan revision that meets all the requirements of the regional haze rule no later than 2008. The state must also commit to develop its plan revision in coordination with the other members of the regional planning group and fully address the its recommendations of the regional planning group;¹³⁵ and
5. List all sources eligible to install the Best Available Retrofit Technology (“BART”) located within the state.¹³⁶ This information will enable both the state and regional planning organizations to begin evaluating options for meeting the BART requirement or for implementing an emissions trading program or alternative measure that is expected to make greater progress.¹³⁷

After the state submits the first stage of the SIP, the state submits a second stage SIP that addresses the core requirements of the Regional Haze Regulations.¹³⁸

¹³⁰ 40 C.F.R. § 51.308 (2013).

¹³¹ *Id.* § 51.308(c)(i).

¹³² *Id.* § 51.308(c)(1)(ii).

¹³³ 40 C.F.R. § 51.308(c)(1)(iii).

¹³⁴ *Id.*

¹³⁵ 40 C.F.R. § 51.308(c)(1)(iv).

¹³⁶ *Id.* § 51.308(c)(1)(v). *See infra* “BART Applicability and Determination” for a detailed explanation of BART.

¹³⁷ 40 C.F.R. § 51.308(e).

¹³⁸ *Id.* § 51.308(c)(2); *see also* Palmer *supra* note 124, at 595 (“To meet the national regional haze program's minimal core requirements, states must submit an implementation plan containing calculations of baseline and

iii. BART Applicability and Determination. Each state’s SIP must contain emissions limitations that represent the emissions reductions achievable if all BART-eligible sources installed BART.¹³⁹ The SIPs must also include schedules for compliance with BART for each BART-eligible source that may reasonably be anticipated to cause to contribute to any impairment of visibility in a mandatory Class I Federal area—unless the state demonstrates that an emissions trading program or other alternative will achieve greater reasonable progress toward natural visibility conditions.¹⁴⁰ In *American Corn Growers v. EPA*, 291 F.3d 1 (D.C. Cir. 2002), discussed below, the D.C. Circuit vacated the BART provisions of the 1999 Regional Haze Rule.¹⁴¹ This decision provides insight into the development of regulations that allow for multi-state, market-based mechanisms.

The BART process, explained in section 169A(b)(2)(A) consists of two steps. First, in the attribution or applicability step, states must review each “BART-eligible source” within the state to determine whether any source emits “any air pollutant which may reasonably be anticipated to cause or contribute to any impairment of visibility in any mandatory Class I Federal area.”¹⁴² These sources are “subject to BART.”¹⁴³

Secondly, in the BART determination step, the state determines what BART controls to place on a particular source. The statute lays out five factors a state must consider when deciding what BART controls to place on a source:

1. Cost of compliance;
2. Energy and non-air quality environmental impacts of compliance;
3. Any existing pollution control technology used at the source;
4. The remaining useful life of the source;
5. And the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology.¹⁴⁴

In analyzing these factors, EPA explained that the state must analyze “the degree of visibility improvement that would be achieved in each mandatory Class I Federal area as a

natural visibility conditions, reasonable progress goals, long-term strategies for addressing regional haze, monitoring strategies, and other implementation plan requirements.”).

¹³⁹ 40 C.F.R. § 51.308(e)(1)(i).

¹⁴⁰ *Id.* See also Palmer *supra* note 124, at 595.

¹⁴¹ *Am. Corn Growers Ass'n v. EPA*, 291 F.3d 1 (D.C. Cir. 2002).

¹⁴² CAA § 169A, 42 U.S.C. § 7491 (2013); 40 CFR 51.308(e)(1)(ii)

¹⁴³ George Cameron Coggins & Robert L. Glicksman, *EPA’s regional haze regulations*, 2 PUB. NAT. RESOURCES L. § 18:30 (2nd ed.).

¹⁴⁴ CAA § 169A(g)(2), 42 U.S.C. § 7491(g)(2) (2013).

result of the emission reductions achievable from *all sources* subject to BART located within the region that contributes to visibility impairment in the Class I area.”¹⁴⁵ In other words, when analyzing the five statutory factors from 169A(g)(2), the state should only consider the first four factors on a source-specific basis.¹⁴⁶ The Rule requires that states consider the fifth factor, the degree of improvement, on an “area wide” basis. This became known as the “collective contribution” approach.¹⁴⁷ This “collective contribution” approach, according to EPA, was “consistent with [the approach] taken in the programs for acid rain and ozone, programs which also address regional air quality problems caused by transported pollutants.”¹⁴⁸ However, both industry and environmental groups challenged the “collective contribution” approach in *American Corn Growers v. EPA*, 291 F.3d 1 (D.C. Cir. 2002).

iv. *American Corn Growers v. EPA*. In 2002, the D.C. Circuit vacated the BART provisions of the Haze Rule in *American Corn Growers v. EPA*, 291 F.3d 1 (D.C. Cir. 2002).¹⁴⁹ In the case, the court concluded that both the applicability step and the BART determination step of the rule violated the CAA by requiring states to engage in regional rather than source-by-source analysis. As discussed above, the 1999 Rule provided that any source located within an upwind area from which pollutants may be transported downwind to a Class I area “may reasonably be anticipated to cause or contribute to” visibility impairment in a Class I area in the applicability step. The court concluded that this interpretation unreasonably constrained the authority Congress had conferred on the states.¹⁵⁰

The court also found the BART determination step problematic because it required states to consider the degree of visibility improvement that would result from the cumulative impact of applying controls when determining BART.¹⁵¹ The court concluded that this interpretation was inconsistent with the CAA since it required states to impose BART without any empirical evidence that a particular source was contributing to visibility impairment in a Class I area. The court did suggest that the collective contribution approach might be acceptable if it allowed for a state exemption process based on an individualized contribution determination and remanded the rule to EPA.¹⁵²

¹⁴⁵ 40 C.F.R. § 51.308(e)(1)(ii)(B) (emphasis added). *Am. Corn Growers Ass'n*, 291 F.3d at 6.

¹⁴⁶ See CAA § 169A(g)(2), 42 U.S.C. § 7491(g)(2) (the costs of compliance, the environmental impacts of compliance, any existing pollution control technology in use at the source, and the remaining useful life of the source).

¹⁴⁷ *Am. Corn Growers Ass'n*, 291 F.3d at 5.

¹⁴⁸ Regional Haze Regulations, *supra* note 114, at 35,740, 57,376.

¹⁴⁹ *Am. Corn Growers Ass'n*, 291 F.3d at 5.

¹⁵⁰ *Id.*

¹⁵¹ *Id.*

¹⁵² *Id.*

v. CEED v. EPA. The D.C. Circuit invalidated another aspect of the 1999 Haze Rule in *CEED v. EPA*, 398 F.3d 653 (D.C. Cir. 2005).¹⁵³ The western states that had worked together under the GCVTC created the Western Regional Air Partnership (WRAP) to coordinate their compliance with the Regional Haze Rule.¹⁵⁴ The court pointed out that WRAP compliance plan contained “a number of important similarities to and differences from the [provisions struck down in *American Corn Growers*].”¹⁵⁵ Most significantly, the program did not directly impose restrictions on any individual sources, but set emissions milestones that declined overtime.¹⁵⁶ These milestones were intended to meet the Haze Rule’s better-than-BART standard, but WRAP calculated the milestones using essentially the same methodology EPA had used to define BART in the 1999 Rule—the same method that was struck down in *American Corn Growers*.¹⁵⁷ It applied four of the five factors the statute sets forth for determining BART on a source specific basis.¹⁵⁸ It evaluated the fifth factor—the degree of improvement in visibility which may reasonably be anticipated to result from the use of BART—by reference to all sources affecting a geographic area, taking the “collective contribution” approach.¹⁵⁹ Because the court found this approach impermissible in *American Corn Growers*, the court also found its use impermissible in *CEED*.¹⁶⁰

vi. Regulations on Remand. In July 2005, EPA issued its regulations on remand from the *American Corn Growers* decision.¹⁶¹ The preamble to the regulations explained that the process of establishing BART emission limitations is composed of three steps.¹⁶² First, states identify those sources that meet the definition of a “BART-eligible source” in the regulations.¹⁶³ Second, states determine whether BART-eligible sources emit any air pollutant “which may reasonably be anticipated to cause or contribute to any impairment of visibility” in a Class I area.¹⁶⁴ In response to the defects in the 1999 regulations identified in *American Corn Growers*,

¹⁵³ Center for Energy & Econ. Dev. v. EPA, 398 F.3d 653 (D.C. Cir. 2005) [Hereinafter “CEED”].

¹⁵⁴ *Id.* at 655.

¹⁵⁵ *Id.*

¹⁵⁶ *Id.* If sources in the aggregate failed to meet the milestones on a voluntary basis, a backstop emissions trading program would come into effect. *Id.*

¹⁵⁷ CEED, 398 F.3d at 656.

¹⁵⁸ *Id.* (“[WRAP] applied the four factors other than visibility improvement by source category rather than individually, but, just as had the approach rejected in *American Corn Growers*, it measured visibility improvement in terms of the cumulative effect on particular Class I areas of changes in emissions from all covered sources in the transport region. . . . Ultimately, the milestones were negotiated numbers, . . . but these estimations were evidently a core basis for the negotiations.”) *Id.* (citations omitted) (internal quotation marks omitted).

¹⁵⁹ *Id.*

¹⁶⁰ *Id.*

¹⁶¹ Regional Haze Regulations and Guidelines for Best Available Retrofit Technology (BART) Determinations, 70 Fed. Reg. 39104, 39106 (2013) [hereinafter 2005 Regional Haze Regulations].

¹⁶² *Id.*

¹⁶³ *Id.* The term “BART-eligible source” is defined in § 51.301 of the regulations.

¹⁶⁴ *Id.*

the 2005 regulations included four approaches that the states may use in making this determination.¹⁶⁵

The third step is for the states to identify the appropriate type and level of control for reducing emissions for each source subject to BART.¹⁶⁶ As explained above, the statute requires states to consider five factors in determining what constitutes BART. The *American Corn Growers* decision required EPA to allow states to consider the fifth factor—the degree of improvement in visibility that may result from the use of BART—on a source-by-source basis.¹⁶⁷ In other words, the new regulations do not require states to use the “collective contribution” approach for the fifth factor.¹⁶⁸

In 2006, EPA issued regulations in response to the D.C. Circuit’s decision in *CEED v. EPA*. The regulations removed the requirement that the determination of the BART milestones be based on cumulative visibility analyses and clarified the process for making such determinations.¹⁶⁹

vii. *Utility Air Regulatory Group v. EPA*. After EPA issued the 2005 Haze Rule to reflect the *American Corn Growers* decision, industry petitioners challenged the new regulations in the D.C. Circuit.¹⁷⁰ In 2006, the D.C. Circuit upheld the 2005 Haze Rule in *Utility Air Regulatory Group v. EPA*, 471 F.3d 1333 (D.C. Cir. 2006).¹⁷¹ The industry petitioners argued that the 2005 Haze Rule violated the CAA in two ways: “first, by authorizing a state to infer, from evidence

¹⁶⁵ The 2005 regulations give states four options: (1) States may conclude that all BART-eligible sources within the state are subject to BART because all BART-eligible sources satisfy the impairment test by causing or contributing to visibility impairment to some degree; (2) States may also opt to perform an analysis that shows that the full group of BART-eligible sources in a state cumulatively may not reasonably be anticipated to cause or contribute to any visibility impairment in Class I areas; (3) States may consider the individualized contribution of a BART-eligible source to determine whether a specific source is subject to BART. A state choosing this option must undertake an analysis of each BART-eligible source in the state in considering whether each such source emits any air pollutant which may reasonably be anticipated to cause or contribute to visibility impairment in a Class I area; and (4) A state may presume that all BART-eligible sources within the state meet the applicability test, but provide sources with the opportunity to demonstrate on a case-by-case basis that they do not meet the test. This includes include “a process in which the states would use an air quality model able to estimate a single source’s contribution to visibility impairment and a different process in which states could exempt groups of sources with common characteristics based on representative model plant analyses.” States may also opt to use cumulative modeling to show that no sources in a state are subject to BART. The court rejected these contentions and upheld the 2005 Haze Rule. Coggins & Glicksman *supra* note 143.

¹⁶⁶ 2005 Regional Haze Regulations *supra* note 161, at 39106 (2005).

¹⁶⁷ *Id.*

¹⁶⁸ *Id.*

¹⁶⁹ Regional Haze Regulations; Revisions to Provisions Governing Alternative to Source-Specific Best Available Retrofit Technology (BART) Determinations, 71 Fed. Reg. 60612 (2006).

¹⁷⁰ *Utility Air Regulatory Group v. EPA*, 471 F.3d 1333 (D.C. Cir. 2006).

¹⁷¹ *Id.*

that its BART-eligible sources collectively contribute to visibility impairment in at least one Class I area, that all such sources may reasonably be anticipated to cause or contribute to visibility at such an area, without a source-by-source analysis-i.e., by authorizing the use of collective attribution-and, second, by issuing mandatory guidelines for the states' attribution determinations for power plants exceeding 750 megawatts ("MW").¹⁷² The court rejected these contentions and upheld the 2005 Haze Rule.¹⁷³

viii. Regional Cap-and-Trade. The Regional Haze Rule, as it currently exists, allows states to opt out of the program requirement that sources maintain BART controls.¹⁷⁴ To use this option, "the states must demonstrate in their implementation plans that the adopted program or other measures will achieve greater reasonable progress in emission reductions and visibility improvement than would be achieved through source-by-source BART controls."¹⁷⁵ Under this "better-than-BART" option, states must compare emissions reductions and corresponding visibility improvement from the use of BART controls to those that could be achieved with proposed alternative programs.¹⁷⁶

EPA established guidelines for states that take advantage of the better-than-BART alternative by developing emissions trading programs. States that want to use emissions trading programs must show that their programs meet the following criteria:

1. The emissions trading program or other alternative measure will achieve "greater-than-BART" reasonable progress.¹⁷⁷ To make this demonstration, the state must list all BART-eligible sources within the state, determine the best system of continuous emission control technology available and associated emissions reductions achievable for each

¹⁷² Utility Air Regulatory Group, 471 F.3d at 1337-38.

¹⁷³ *Id.* "The first argument reflected industry's concern that EPA's regulations would force sources to install BART even when doing so would serve no purpose. The court found this concern unwarranted. EPA had conceded that if an individual source is found subject to BART during the process of reviewing BART-eligible sources to determine whether any such source emits air pollutants which may reasonably be anticipated to cause or contribute to visibility impairment in a mandatory Class I area on the basis of the collective contributions of a group of sources within a geographical area, that source can still challenge the necessity of installing BART when the state determines the particular technology that an individual source subject to BART must install. During that second step, the applicability of BART to the individual source is subject to de novo review by the state. That result does not render the collective attribution determination step a meaningless exercise because the function of the first step is to place on individual sources the burden of demonstrating that they do not contribute to visibility impairment, even though the group of sources located in the same geographical area does. The court rejected industry's second contention on the ground that the guidelines for power plants exceeding 750 megawatts are advisory, not mandatory." Coggins & Glicksman *supra* note 143.

¹⁷⁴ 40 C.F.R. § 51.308(e)(2).

¹⁷⁵ *Id.* Palmer *supra* note 124.

¹⁷⁶ 40 C.F.R. § 51.308(e)(2).

¹⁷⁷ *Id.* § 51.308(e)(2)(i).

BART-eligible source or source category, and determine the degree of visibility improvement expected to be achieved in Class I areas through the application of BART;¹⁷⁸

2. Demonstrate that the emissions trading program or other alternative measures will apply, at a minimum, to all BART-eligible sources located within the state.¹⁷⁹
3. Show that the emissions trading program or other alternative measures will be fully implemented within the period of the first long-term implementation strategy;¹⁸⁰ and
4. Show that resulting emissions reductions from the alternative measures will be in surplus of other federal requirements as of the baseline date of the implementation plan.¹⁸¹

2. Lessons Learned

i. State Authority. The Regional Haze Rule provides insight into how EPA should structure regulations under section 111 that allow for multi-state, cooperative compliance efforts. The D.C. Circuit upheld the alternative program option that allows for multi-state cap-and-trade programs in *Utility Air Regulatory Group v. EPA*,¹⁸² and it seems likely that EPA could develop a similar program under section 111. As explained above, the D.C. Circuit struck down the 1999 Haze Rule in *American Corn Growers* based on EPA's mandate that states use the "collective contribution" approach when determining both BART applicability and the appropriate level of control.¹⁸³ Specifically, the court found the approach "inconsistent with the [CAA's] provisions giving the states broad authority over BART determinations."¹⁸⁴ Regulations must not "tie[] the states' hands and force[] them to require . . . controls at sources without any empirical evidence of a particular source's contribution to [the specific air pollution problem]." In the original Haze Rule, EPA forced states to regulate emissions from sources that did not necessarily impact the haze problem.

In developing regulations for GHG emissions under section 111, EPA should only include sources whose GHG emissions are confirmed with empirical evidence. A 111(d) regulatory

¹⁷⁸ *Id.* § 51.308(e)(2)(i)(A)-(C)

¹⁷⁹ *Id.* § 51.308(e)(2)(ii).

¹⁸⁰ *Id.* § 51.308(e)(2)(iii); At a minimum, the states can meet this requirement by submitting implementation schedules, the required program emission reductions, all necessary administrative and technical procedures for implementing the program, rules for emission accounting and monitoring, and applicable enforcement procedures. Palmer *supra* note 124.

¹⁸¹ *Id.* § 51.308(e)(2)(iv).

¹⁸² *Utility Air Regulatory Group v. EPA*, 471 F.3d 1333 (D.C. Cir. 2006).

¹⁸³ *Am. Corn Growers Ass'n v. EPA*, 291 F.3d 1 (D.C. Cir. 2002).

¹⁸⁴ *Id.* citing CAA § 169A(b)(2)(A) 42 U.S.C. § 7491(b)(2)(A); see also *id.* § 7491(g)(2).

program should contain some sort of mechanism by which states can exempt sources based on individual contribution determinations, if necessary.¹⁸⁵ Furthermore, EPA may not “tie the states’ hands” and force them to impose regulations outside of the states’ statutory responsibilities. In essence, EPA should not restrain states choices, but instead, allow states the flexibility to develop standards of performance under section 111(d), however the state decides.

*ii. Avoiding “Unpromulgated Limbo.”*¹⁸⁶ Secondly, the *CEED* case raises the issue of what happens if EPA offers states regulatory options and the D.C. Circuit upholds some options, but not others. If EPA allows states to work together in regional programs based on an EPA model or designed relative to an EPA model, then the state programs run the risk of being struck down if EPA model is struck down. With the Regional Haze Rule, one state could to impose source-specific BART under the 1999 Regulations and another state could opt into a regional program under section 309. When the D.C. Circuit struck down section 308 BART, those regulations “languish[ed] in unpromulgated limbo”¹⁸⁷ while the section 309 Annex states proceeded to regulate sources. If programs are based on each other, if one falls, inevitably, the others will fall too. This also raises the question of what happens to states that chose options that do not get struck down. Those states will continue to regulate under the upheld regimes which in turn could raise equity issues for sources of GHG emissions in those states.

When designing the 111(d) regulations for GHG emissions, EPA should develop backstops for flexible programs to ensure all states and all sources meet their emissions reductions, regardless of what happens in the courts. This would allow EPA to give states the authority to implement flexible mechanisms while ensuring that all states will reduce GHG emissions, even if the court strikes down EPA’s authorization of non-source specific programs.

¹⁸⁵ *Am. Corn Growers Ass'n v. EPA*, 291 F.3d 1 (D.C. Cir. 2002).

¹⁸⁶ *CEED v. EPA*, 398 F.3d 653 (D.C. Cir. 2005).

¹⁸⁷ *CEED v. EPA*, 398 F.3d 653 (D.C. Cir. 2005).

C. Transportation Conformity

1. Background

Transportation Conformity is required by CAA section 176(c) (42 U.S.C. 7506(c)) to ensure that the Department of Transportation (“DOT”) only approves and funds transportation projects that are consistent with (“conform to”) the air quality goals established in SIPs.¹⁸⁸ Conformity to a SIP means that transportation activities will not (1) cause or contribute to any new violation of NAAQS in any area, (2) increase the frequency or severity of any existing violation of NAAQS in any area, or (3) delay timely attainment of NAAQS in any area.¹⁸⁹ The Transportation Conformity Program is relevant to the section 111(d) discussion because many multi-jurisdictional nonattainment areas work together to comply with their obligations under the rule. The procedures for ensuring conformity in multi-jurisdictional areas are described below in detail.¹⁹⁰

CAA section 176(c)(2) requires that transportation plans¹⁹¹ and transportation improvement programs (“TIPs” or “programs”)¹⁹² implement the transportation provisions of any SIP that applies to all or part of the area covered by such transportation plan or program.¹⁹³ This requirement entails providing emissions estimates from a plan or TIP before it is deemed consistent with the SIP. This means that an individual transportation project will meet the conformity requirements only if it is part of a conforming plan or TIP, or if it demonstrates that projected emissions from the project, when considered with emissions projected for the conforming transportation plan, are consistent to the emissions reduction projections and

¹⁸⁸ CAA § 176, 42 U.S.C. § 7506 (2013).

¹⁸⁹ *Id.* § 7506(c)(1)(B)

¹⁹⁰ See *infra* “ii. Multi-Jurisdictional Areas”

¹⁹¹ See Arnold W. Reitze, Jr., *Improving Transportation-Related Air Quality Under the Clean Air Act's Conformity Requirement and the Intermodal Surface Transportation Efficiency Act of 1991*, 3 ENVTL. LAW. 631, 659-60 (1997) (“A transportation plan is a twenty-year plan that describes policies, strategies, and facilities to accommodate current and projected travel demands and to make efficient use of the existing transportation system. . . . A plan must be revised and updated at least once every three years in air pollution nonattainment areas and at least once every five years in other areas.” See also 23 C.F.R. § 450.214 (2013), 23 C.F.R. § 450.322 (2013).

¹⁹² Reitze *supra* note 191, at 307. “A TIP is a program of transportation projects, consistent with the transportation plan, that includes a priority list of projects to be carried out within each three-year period after the initial adoption of the TIP. The MPO develops the TIP and updates it at least every two years. The Governor must then approve the TIP. Upon approval, it is included in the state TIP and is subject to review and approval by the FHWA and the FTA. In nonattainment areas, the TIP must conform to the SIP and give priority to TCMs in the SIP. Every year each State must prepare and submit to DOT a statewide program of projects that the State proposes for federal assistance. Projects are expected to be consistent with the State's transportation plan and the applicable TIP.” *Id.*

¹⁹³ CAA § 176(c)(2)(A)–(D), 42 U.S.C. § 7506(c)(2)(A)–(D) (2013).

schedules in the SIP.¹⁹⁴ If a transportation project is not within a conforming plan or TIP, or its emissions estimates are not consistent with the emissions reductions projections and schedules in the SIP, DOT will not approve, accept, or fund the project.¹⁹⁵ In other words, funding for transportation projects is contingent on conformity. This ensures that only conforming plans, TIPs, and independent projects are approved and completed.

In addition, section 176(d) provides that federal agencies must give funding priority to Transportation Control Measures (“TCMs”) in SIPs.¹⁹⁶ TCMs are strategies identified in SIPs that are listed in section 108 of the CAA or will reduce transportation related emissions by reducing vehicle use or improving traffic flow.¹⁹⁷

i. Transportation Planning. The agencies primarily responsible for executing transportation conformity are Metropolitan Planning Organizations (“MPOs”).¹⁹⁸ As explained

¹⁹⁴ Reitze *supra* note 191, at 305; CAA § 176(c)(2), 42 U.S.C. § 7506(c)(2) (2013) (setting out requirements for federal agency approval, funding and acceptance of transportation plan).

¹⁹⁵ *Id.*

¹⁹⁶ Reitze *supra* note 191, at 305; CAA § 176(d), 42 U.S.C. § 7506(d) (2013) (requiring priority be given to TCMs in SIP which achieve and maintain national primary ambient air-quality standards).

¹⁹⁷ See CAA § 108(f)(1)(A), 42 U.S.C. § 7408(f)(1)(A) (2013). TCMs listed in the statute include: (1) programs for improved public transit; (2) restriction of certain roads or lanes to, or construction of such roads or lanes for use by, passenger buses or high occupancy vehicles; (3) employer-based transportation management plans, including incentives; (4) trip-reduction ordinances; (5) traffic flow improvement programs that achieve emission reductions; (6) fringe and transportation corridor parking facilities serving multiple occupancy vehicle programs or transit service; (7) programs to limit or restrict vehicle use in downtown areas or other areas of emission concentration particularly during periods of peak use; (8) programs for the provision of all forms of high-occupancy, shared-ride services; (9) programs to limit portions of road surfaces or certain sections of the metropolitan area to the use of non-motorized vehicles or pedestrian use, both as to time and place; (10) programs for secure bicycle storage facilities and other facilities, including bicycle lanes, for the convenience and protection of bicyclists, in both public and private areas; (11) programs to control extended idling of vehicles; (12) programs to reduce motor vehicle emissions, consistent with subchapter II of this chapter, which are caused by extreme cold start conditions; (13) employer-sponsored programs to permit flexible work schedules; (14) programs and ordinances to facilitate non-automobile travel, provision and utilization of mass transit, and to generally reduce the need for single-occupant vehicle travel, as part of transportation planning and development efforts of a locality, including programs and ordinances applicable to new shopping centers, special events, and other centers of vehicle activity; (15) programs for new construction and major reconstructions of paths, tracks or areas solely for the use by pedestrian or other non-motorized means of transportation when economically feasible and in the public interest. For purposes of this clause, the Administrator shall also consult with the Secretary of the Interior; and (16) program to encourage the voluntary removal from use and the marketplace of pre-1980 model year light duty vehicles and pre-1980 model light duty trucks. See also TRANSPORTATION CONTROL MEASURES http://www.fhwa.dot.gov/environment/air_quality/conformity/research/transportation_control_measures/ (last visited Apr. 16, 2013).

¹⁹⁸ An MPO is established for each metropolitan area that has an urbanized population of 50,000 or more according to 23 U.S.C. § 134 of Title 23, 49 U.S.C. 5303. Section 93.101 of the conformity rule includes the following definition of an MPO: “that organization designated as being responsible, together with the state, for conducting the continuing, cooperative, and comprehensive planning process under 23 U.S.C. 134 and 49 U.S.C. 5303. It is the forum for cooperative transportation decision-making.” 40 C.F.R. 93.101; see also U.S. ENV’T L. PROT.

above, transportation plans, programs, and projects must conform to the applicable SIPs before the MPO can approve them and before DOT can approve, accept, or fund them. Specifically, the federal statutes require MPOs, in cooperation with the state, to develop transportation plans and TIPs for urbanized areas of the state.¹⁹⁹ For the most part, nonattainment areas for ozone and CO are included in their entirety in one metropolitan area.²⁰⁰ If there is more than one MPO in a metropolitan area, those MPOs must consult and work with the state to coordinate plans and programs.²⁰¹

Prior to the 1990 CAA Amendments, MPOs were not required to plan demand management measures.²⁰² Instead, the Act only required SIP revisions for nonattainment areas and encouraged MPOs to develop TCMs.²⁰³ The 1990 CAA Amendments linked these requirements by tying transportation funding to states' adoption of transportation plans that conformed with SIPs.²⁰⁴ As a result of the 1990 changes, federal-aid transportation funds may be denied if a state or MPO fails to plan or implement plans that conform to the SIP.²⁰⁵ These changes represent an increase in the responsibility of the MPOs to achieve conformity and a strengthening of the relationship between transportation planning and SIP attainment.²⁰⁶ When making transportation decisions, MPOs must consider the social, economic, energy, and environmental, land-use, and energy-use effects of those decisions to ensure the plan is consistent with CAA requirements.²⁰⁷

In most cases, a conformity determination for a transportation plan, TIP, or independent project includes a regional emissions analysis in which emissions from the planned transportation system are estimated according to the guidelines in the Transportation

AGENCY, EPA-420-B-04-012, COMPANION GUIDANCE FOR THE JULY 1, 2004, FINAL TRANSPORTATION CONFORMITY RULE CONFORMITY IMPLEMENTATION IN MULTI-JURISDICTIONAL NONATTAINMENT AND MAINTENANCE AREAS FOR EXISTING AND NEW AIR QUALITY STANDARDS (July 2004) [hereinafter EPA-420-B-04-012].

¹⁹⁹ See 23 U.S.C. § 134 (2013).

²⁰⁰ See CAA § 107(d)(4)(A)(iv), 42 U.S.C. § 7407(d)(4)(A)(iv) (2013).

²⁰¹ 23 U.S.C. § 134(e) (2013).

²⁰² Arnold W. Reitze, *Improving Transportation-Related Air Quality Under the Clean Air Act's Conformity Requirement and the Intermodal Surface Transportation Efficiency Act of 1991*, 3 ENVTL. LAW. 631, 670 (1997).

²⁰³ *Id.* See also U.S. GEN. ACCOUNTING OFFICE, GAO/PEMD-93-2, TRAFFIC CONGESTION: ACTIVITIES TO REDUCE TRAVEL DEMAND AND AIR POLLUTION ARE NOT WIDELY IMPLEMENTED, at 4 (Nov. 1992) [hereinafter GAO/PEMD-93-2].

²⁰⁴ Reitze *supra* note 202, at 670 (citing Clean Air Act Amendments of 1990, Pub. L. No. 101-549, sec. 101(f), § 176(c)(2), 104 Stat. at 2410 (codified at 42 U.S.C. § 7506(c)(2) (2013))).

²⁰⁵ *Id.* at 670-71.

²⁰⁶ *Id.* at 671. It is important to note that while MPOs play an important role in air quality and transportation planning, MPOs are not required to engage in air quality planning. CAA section 174(a) provides for the SIP to be prepared by an organization certified by the State. CAA § 174(a), 42 U.S.C. § 7504(a) (2013).

²⁰⁷ Reitze *supra* note 202, at 671.

Conformity Rule.²⁰⁸ In the case where an MPO's boundaries are the same as the nonattainment area's boundaries, the MPO is responsible for the regional emission analysis in the entire area.

ii. Multi-jurisdictional Areas. In most jurisdictions, there is a single jurisdiction responsible for transportation planning, and a single jurisdiction responsible for air quality planning.²⁰⁹ In other areas, like the Washington, D.C. metropolitan area, for example, multiple jurisdictions must work together under the Transportation Conformity Rule. In the simplest case, a nonattainment or maintenance area is located entirely within one state, and the boundary of the nonattainment/maintenance area is exactly the same as the MPO boundary.²¹⁰ However, these boundaries do not always correspond with each other: the boundaries of the MPO can differ from the nonattainment area boundary or there could be more than one MPO within a single nonattainment area. Furthermore, a nonattainment area boundary may encompass portions of more than one state. The conformity rule does not dictate how MPO planning boundaries are established; MPOs are established according to Titles 23 and 49 of the U.S. Code and DOT's metropolitan planning regulations.²¹¹

Of particular interest are cases where a nonattainment area's boundary includes parts of more than one state. One MPO may cover the entire multi-state nonattainment area, or MPOs may be established for each state's portion of the area. According to EPA guidance documents, in these situations, states may submit SIPs with identical budgets for the entire nonattainment area, or may submit SIPs with budgets that cover only their state's portion of the area.²¹²

Inter-agency Consultation. Local, state, and federal agencies must all work together under the Transportation Conformity Rule. The Rule sets out procedures for inter-agency consultation and those procedures are integrated into the SIP and are legally enforceable.²¹³ The Regulations and the SIP govern the decision-making process and "specifically require that a process be established to evaluate and choose a model, associated methods, and assumptions to be used in the regional emissions analysis."²¹⁴ These procedures exist to ensure that the agencies implementing transportation conformity coordinate their schedules, meet on a regular basis, share information, and identify problems and solutions in the process.²¹⁵

²⁰⁸ 40 C.F.R. §93.122 (2013).

²⁰⁹ EPA-420-B-04-012 *supra* note 198.

²¹⁰ *Id.*

²¹¹ *Id.*

²¹² *Id.*

²¹³ ENV'TL PROT. AGENCY, EPA-420-B-12-046, GUIDANCE FOR TRANSPORTATION CONFORMITY IMPLEMENTATION IN MULTI-JURISDICTIONAL NONATTAINMENT AND MAINTENANCE AREAS (July 2012) [hereinafter EPA-420-B-12-046].

²¹⁴ *Id.*

²¹⁵ *Id.*

In multi-jurisdictional areas, the relevant agencies must develop inter-agency consultation for making decisions, including:

- The timing of individual transportation plan and TIP conformity determinations if they need to be coordinated;²¹⁶
- The analysis years that will be examined in the regional emissions analysis;²¹⁷
- If there is more than one emissions model to choose from, what emissions model will be used for the regional emissions analysis, per 40 C.F.R. 93.111;²¹⁸
- The planning assumptions to be used in the regional emissions analysis and the sources of that information.²¹⁹

“Per 40 CFR 93.105(b)(1), state air agencies must use the interagency consultation process in developing SIP budgets, including establishing subarea budgets for MPOs or individual state budgets in multi-jurisdictional areas.”²²⁰

EPA has published guidance documents for multi-state nonattainment and maintenance areas where each state has submitted a SIP that contains the same budgets for the entire multi-state area and for multi-state areas where each state has a SIP that contains budgets only for its own state’s portion of the area. These guidance documents are useful for considering how states might work together to comply with the requirements of section 111(d) regulations.

If a multi-state area has a SIP that contains budgets for the multi-state area as a whole, one regional emissions analysis would be completed for the entire area using the budget test, according to the requirements in 40 C.F.R. 93.118.²²¹ The MPO involved completes the regional emissions analysis for the entire multi-state area and submits it to DOT with its transportation plan and TIP conformity determination. One regional emissions analysis would be made for the entire area and the conformity determinations for the MPO’s transportation plan and TIP are

²¹⁶ *Id.*

²¹⁷ *Id.*

²¹⁸ *Id.*

²¹⁹ *Id.*

²²⁰ EPA-420-B-04-012 *supra* note 198.

²²¹ 40 C.F.R. § 93.118 defines the motor vehicle emission budgets. *See also* 40 C.F.R. § 93.109 (2013). “In order for each transportation plan, program, and project to be found to conform, the MPO and DOT must demonstrate that the applicable criteria and procedures in this subpart are satisfied, and the MPO and DOT must comply with all applicable conformity requirements of implementation plans and of court orders for the area which pertain specifically to conformity. The criteria for making conformity determinations differ based on the action under review (transportation plans, TIPs, and projects), the relevant pollutant(s), and the status of the implementation plan.” *Id.*

based on this regional emissions analysis. If there are multiple MPOs within a nonattainment area, the MPOs must collectively develop a regional emissions analysis for the entire area that meets the requirements of 40 C.F.R. 93.118 and 93.122 that would accompany all transportation plan and TIP conformity determinations. DOT would not make its conformity determinations for the transportation plans and TIPs until it receives the conformity determinations from all of the MPOs in the area.

States that contain multi-state nonattainment or maintenance areas also have the option of submitting SIPs with budgets for just their own portion of the area that, when taken together, meet the applicable CAA requirement. Where states have done so and EPA has found such budgets adequate or approved the SIP containing the budgets, the MPO or MPOs in each state with such budgets can determine conformity completely independently of the other states.²²²

2. Lessons Learned

The Transportation Conformity Program provides an example of a viable multi-state program that states use to comply with the requirements in their 110 SIPs. While the legality of the program has not been challenged in the courts, Transportation Conformity stands as an example of a flexible compliance mechanism under 110 that could be used as a model for justifying the use of similarly flexible mechanisms in a 110-like program under section 111(d).

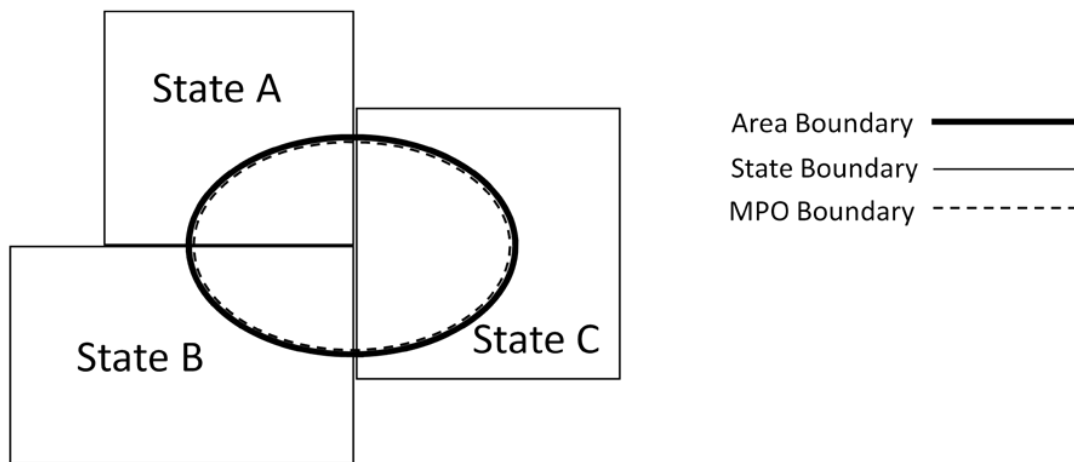
i. Regional Budget-Setting. If an entire nonattainment area is within one MPO within one state, the MPO and the state coordinate together to submit to EPA a motor vehicle emissions budget that meets the six budgetary requirements in 40 C.F.R. 93.118.²²³ In multi-jurisdictional areas, state agencies and MPOs must work together to submit SIPs that contain

²²² For example, this is the case even when one state has a maintenance plan for a NAAQS and the other state(s) have budgets for another type of SIP for that pollutant.

²²³ 40 C.F.R. § 93.118 (2013). “(1) The submitted control strategy implementation plan revision or maintenance plan was endorsed by the Governor (or his or her designee) and was subject to a State public hearing; (2) Before the control strategy implementation plan or maintenance plan was submitted to EPA, consultation among federal, State, and local agencies occurred; full implementation plan documentation was provided to EPA; and EPA’s stated concerns, if any, were addressed; (3) The motor vehicle emissions budget(s) is clearly identified and precisely quantified; (4) The motor vehicle emissions budget(s), when considered together with all other emissions sources, is consistent with applicable requirements for reasonable further progress, attainment, or maintenance (whichever is relevant to the given implementation plan submission); (5) The motor vehicle emissions budget(s) is consistent with and clearly related to the emissions inventory and the control measures in the submitted control strategy implementation plan revision or maintenance plan; and (6) Revisions to previously submitted control strategy implementation plans or maintenance plans explain and document any changes to previously submitted budgets and control measures; impacts on point and area source emissions; any changes to established safety margins (see § 93.101 for definition); and reasons for the changes (including the basis for any changes related to emission factors or estimates of vehicle miles traveled).” *Id.*

budgets that cover all of the emissions reductions for the nonattainment area.²²⁴ Figure 1 shows an example of a nonattainment area with one MPO that covers multiple states. In this case one regional emissions analysis would be made for the entire area and the conformity determinations for the MPO's plan and TIP would be based on that emissions analysis.²²⁵

Figure 1. A Multi-State Nonattainment or Maintenance Area with one MPO²²⁶



In this scenario, the Transportation Conformity Rule allows states two options: (1) the state air agencies in a multi-state nonattainment area may submit SIPs with budgets that apply to the entire area or (2) the state air agencies may submit SIPs that contain budgets only for their own portion of the area. Under the first option, EPA determines conformity by looking at the regional emissions analysis as a whole. If the emissions analysis and regional budget based on the analysis conforms to the goals of the SIP of one state, it conforms to the goals of the SIPs of the other states in the area.²²⁷ Under the second option, EPA looks to see if, taken together, the individual budgets meet the SIP requirements.²²⁸ This option allows states to determine conformity independently of the other states involved.²²⁹

While the regional budget-setting process for multi-state nonattainment is not directly analogous to the regulation of GHG emissions, it provides an example of how states may work together to comply with the requirements of their 110 SIPs. When establishing regulations for

²²⁴ EPA-420-B-12-046 *supra* note 213.

²²⁵ *Id.*

²²⁶ *Id.*

²²⁷ *Id.*

²²⁸ *Id.*

²²⁹ EPA-420-B-12-046 *supra* note 213.

GHG emissions under 111(d), EPA should consider the regional budget-setting guidelines used in multi-jurisdictional areas in the Transportation Conformity Program.

D. Combined Analysis & Recommendations

The NO_x SIP Call, Regional Haze Regulations, and the Transportation Conformity Rule all provide important precedent for EPA's regulations for GHG emissions under section 111(d). Based on these experiences, EPA can learn valuable lessons for the development of a regulatory program that provides flexibility for states to use multi-state, market-based mechanisms for compliance.

First, the NO_x SIP Call and CAIR litigation offer insight into the D.C. Circuit's interpretation of the CAA.²³⁰ In *North Carolina v. EPA* the court rejected EPA's methods that required some burden sharing among states under CAIR. The court found that EPA impermissibly required states to reduce more or less than the emissions that "contributed significantly" to the downwind air pollution problem. Whether or not the language from the Good Neighbor Provision applies to section 111(d) regulations, this commitment to the specific statutory language suggests that the D.C. Circuit will be suspicious of any programs that deviate from the source specific language of 111(d). As a result, it is of utmost importance that interested parties provide sound legal analysis demonstrating that 111(d) authorizes EPA and states to deviate from source-specific technological standards. When constructing 111(d) regulations that authorize the use of flexible mechanisms, EPA must put forth water-tight legal analysis justifying moving away from source-specific standards.²³¹

Secondly, assuming that EPA can get past the statutory interpretation barrier posed in the NO_x SIP Call and CAIR litigation, EPA must provide states with authority and flexibility under a 111(d) program. In the Regional Haze litigation, the D.C. Circuit made clear that EPA may not take away states' authority to develop regulatory programs that meet the goals of their individual SIPs. EPA may not "tie the states' hands" and force them to impose regulations outside of the states' statutory responsibilities. In essence, EPA should not restrain states choices, but instead, allow states the flexibility to develop standards of performance under section 111(d), however the state decides.²³²

Furthermore, when designing the 111(d) regulations for GHG emissions, EPA should develop backstops for flexible programs to ensure all states and all sources meet their emissions reductions, regardless of what happens in the courts. This would allow EPA to give states the authority to implement flexible mechanisms while ensuring that all states will reduce GHG emissions, even if the court strikes down EPA's authorization of non-source specific

²³⁰ See NO_x SIP Call "Lessons Learned" *supra* text accompanying notes 94-113

²³¹ *Id.*

²³² See Regional Haze "2. Lessons Learned" *supra* text accompanying notes 182-187.

programs, thereby avoiding the “unpromulgated limbo” problems that arose in the Regional Haze litigation.²³³

Finally, the Transportation Conformity program provides a practical example of a multi-state policy mechanism states use to comply with their SIPs under section 110. Transportation Conformity stands as an example of a flexible compliance mechanism under 110 that could be used as a model for justifying the use of similarly flexible mechanisms in a 110-like program under section 111(d). The regional budget setting process that states use under the Transportation Conformity program provides a concrete example of states working together to achieve compliance under section 110.²³⁴

²³³ *Id.*

²³⁴ See Transportation Conformity “Lessons Learned” *supra* text accompanying notes 223-229.

IV. Policy Rationale for Encouraging Flexibility in 111 Regulations

Independent of whether or not allowing states to use multi-state, market-based mechanisms is legal, there are policy benefits to allowing states more flexibility in a section 111(d) GHG regulatory regime. Market-based mechanisms tend to be more efficient and cost-effective than traditional command-and control or standard-based policies. Similarly, market based policies provide dynamic incentives for the development and adoption of improved pollution control technologies. Allowing flexibility under section 111 also provides evolutionary policy benefits. If EPA regulates GHG emissions as a criteria pollutant and issues NAAQS under section 110, a market-based SIP-like approach to 111(d) could allow for a seamless transition to a more traditional 110 regulatory scheme. Furthermore, even if EPA does not establish NAAQS for GHG emissions, allowing states and multi-state groups to serve as “laboratories of democracy” by experimenting with market-based programs under 111(d), could prove useful if Congress decides to pass climate legislation. Congress could learn from states’ creative compliance with 111(d) regulations to craft an efficient, flexible, market-based federal system to regulate GHG emissions outside of the CAA. This section discusses the stand-alone benefits of market-based policy mechanisms over traditional command-and-control policies and then analyzes the evolutionary rationales for allowing multi-state, market-based programs under section 111(d).

A. Stand-Alone Rationales for Encouraging Multi-State, Market-Based Policies

When designing 111(d) regulations for GHG emissions, EPA should allow interstate cooperation and trading because market-based, flexible policy mechanisms are generally more efficient and effective than traditional command-and-control alternatives.

1. Economic Efficiency

Market based policy mechanisms are more efficient and effective than traditional command-and-control mechanisms because they align the financial incentives of firms with environmental objectives. These policy mechanisms encourage behavior through market signals, rather than burdensome directives. For example, one simulation showed that a market-based program designed to curb acid rain saved \$ 1 billion annually in comparison to a command-and-control program that had the same impact on acid rain.²³⁵ In general, market-based policies provide an economically efficient form of environmental regulation for industry, government, and society.²³⁶

Industry benefits from market-based programs because they allow companies to minimize the overall transaction costs of compliance.²³⁷ These lower transaction costs result from the reduced burdens not only on industry, but also government. From another perspective, the lower transaction costs result from the increased benefits that both government and industry receive in a market-based system.²³⁸ Industry receives additional benefits from market-based policies because polluters may choose the methods and technologies that are best suited for the mandated reductions.²³⁹ By allowing industry the choice of how to comply, whether through traditional pollution control devices, process changes, fuel switches, or other means, market-based mechanisms integrate environmental decision-making into business decision-making, streamlining the process for polluters. When regulators decide how a firm will comply, industry does not have the flexibility to choose the option that achieves the greatest reduction at the least cost for its specific needs.²⁴⁰

²³⁵ Robert Hahn & Robert Stavins, *Economic Incentives for Environmental Protection: Integrating Theory and Practice*, 82 Am. Econ. Rev. 464-468 (1992).

²³⁶ Jeffrey M. Hirsch, Note, *Emissions Allowance Trading Under the Clean Air Act: A Model for Future Environmental Regulations?*, 7 N.Y.U. ENVTL. L.J. 352, 355 (1999).

²³⁷ Byron Swift, *Command Without Control: Why Cap-and-Trade Should Replace Rate Standards for Regional Pollutants*, 31 ENVTL. L. RPTR. 10,330, 10,341 (2001).

²³⁸ See *id.*

²³⁹ *Id.* at 10,331-32, 10,340; Gregory Gotwald, *Cap-and-Trade Systems, with or Without New Source Review? An Analysis of the Proper Statutory Framework for Future Electric Utility Air Pollution Regulation*, 28 VT. L. REV. 423, 465 (2004); see also Swift, *supra* note 237, at 10,340.

²⁴⁰ Gotwald, *supra* note 239.

Furthermore, industry benefits because market-based programs lower operational and administrative costs.

This contrasts with traditional command-and-control regulations that force firms to share equally in the pollution control burden, regardless of the relative cost to each firm, by setting uniform standards. “Holding all firms to the same target can be expensive and, in some circumstances, counterproductive.”²⁴¹ Of course, setting uniform standards effectively limits emissions of pollutants, but it does so at high costs, forcing some firms to purchase extremely expensive means of controlling pollution. Under a command-and-control system, all firms must adopt the same pollution controls, even though the cost of controlling the emissions may vary greatly among firms. Production design, physical configuration, age of assets, and other factors all contribute to variance in compliance cost across firms and even across sources within a firm.²⁴²

Empirical research has shown the inefficiencies of command and control programs.²⁴³ For example, an ICF International study produced in the context of the 1990 Clean Air Act debate showed that by just allowing a facility to trade emissions within its own units would save thirty to sixty percent of the cost of the impending regulations at that time.²⁴⁴ Moreover, “[e]xpanding the trading possibilities to other utilities within the same state permitted a further reduction of 20 percent, while allowing interstate trading permitted another 15 percent reduction in costs.”²⁴⁵

In addition to the benefits industry gets from market-based mechanisms, government achieves greater efficiencies with market-based systems too. These government benefits come in the form of reduced administrative and enforcement burdens. With a strict cap-and-trade program, the government must only enforce one standard. Furthermore, cap-and-trade systems eliminate “different standards between old and new facilities or case-by-case technology [and] routine maintenance determinations.”²⁴⁶ EPA’s acid rain cap-and-trade program provides evidence of this reduced administrative burden.²⁴⁷ The administrative costs

²⁴¹ ROBERT STAVINS, MARKET-BASED ENVIRONMENTAL POLICIES, DISCUSSION PAPER 98-26 (Res. for the Future, 1998).

²⁴² *Id.*

²⁴³ See T.H. Tietenberg, *Economic Instruments for Environmental Regulation*, 6 OXFORD REV. OF ECON. POL’Y 17 (1990), reprinted in ECON. & ENVTL. POL’Y 197, 204 (Wallace E. Oates ed., 1994) (showing a high ratio of command-and-control cost to the least cost method of control in eleven studies concerning various regulations and pollutants).

²⁴⁴ *Id.* at 206.

²⁴⁵ *Id.*

²⁴⁶ Gotwald, *supra* note 239, at 465; see also Swift, *supra* note 237, at 10,340.

²⁴⁷ Jennifer Yelin-Kefer, Note, *Warming Up to an International Greenhouse Gas Market: Lessons from the U.S. Acid Rain Experience*, 20 STAN. ENVTL. L.J. 221, 238 (2001).

for that program are a “surprisingly low ... \$1.50 per ton of pollution reduced,”²⁴⁸ and it “only takes 75 EPA employees to run.”²⁴⁹

Additionally, governments may improve their ability to expand the scope of environmental laws. Because trading establishes actual market prices for environmental goals, policymakers are more informed regarding the cost of their decisions.¹⁶³ The more informed decision makers are, the less likely they will consider the “wildly disparate claims that are a staple of today’s environmental debates.”¹⁶⁴ Thus, policymakers can ignore the scare tactics used by special interest groups to stop further environmental legislation.²⁵⁰

Society benefits from the use of market-based policies in a number of ways. There are indirect benefits gained through the efficiencies in industry and government.²⁵¹ Society can benefit directly because market-based policies often eliminate grandfathering of old, dirty facilities. With a cap-and-trade system, for example, all facilities, regardless of age, must comply with their allowances or purchase allowances from other compliant sources.²⁵²

2. Technology Innovation

Not only do market-based mechanisms provide a cost-effective strategy for polluters to comply with environmental regulations, but they also provide dynamic incentives for the development and adoption of improved pollution control technologies.²⁵³ Cap-and-trade programs encourage firms “to reduce emissions at a cost lower than the allowance price.”²⁵⁴ This means firms will reduce their compliance costs because they will need to purchase fewer allowances, or they will develop a surplus of allowance and sell those allowances to other sources. By creating a financial incentive to comply, market-based mechanisms “[drive] the private sector toward more substantial and meaningful innovation than might occur under a

²⁴⁸ *Id.*

²⁴⁹ U.S. ENVTL. PROT. AGENCY, EXECUTIVE SUMMARY—THE CLEAR SKIES INITIATIVE 8(2002) available at http://www.epa.gov/clearskies/ro_clear_skies_book.pdf.

²⁵⁰ Gotwald, *supra* note 239, at 442-44.

²⁵¹ *Id.*

²⁵² *Id.*

²⁵³ STAVINS, *supra* note 241. For a theoretical analysis of the dynamic incentives of technological change under alternative policy instruments, see generally, Paul Downing & Lawrence White, *Innovation in Pollution Control*, 13 J. OF ENVTL. ECON. & MGMT. 18-27 (1986); David Malueg, *Emission Credit Trading and the Incentive to Adopt New Pollution Abatement Technology*, 16 J. OF ENVTL. ECON. & MGMT. 52-57 (1989); Scott Milliman & Raymond Prince, *Firm Incentives to Promote Technological Change in Pollution Control*, 17 J. OF ENVTL. ECON. & MGMT. 247-265 (1989). See also Adam Jaffe & Robert Stavins, *Dynamic Incentives of Environmental Regulations: The Effects of Alternative Policy Instruments on Technology Diffusion*, 29 J. OF ENVTL. ECON. & MGMT. S43, S43-S63 (1995).

²⁵⁴ Jason Schaefer, *A Market-Based Approach: The Best Way to Transition to A New Energy Economy While Meeting the Responsibility to Address Global Climate Change-A North Dakota Perspective*, 85 N.D. L. Rev. 849, 854 (2009).

more prescriptive command-and-control regulatory scheme.”²⁵⁵ “This incentive to innovate is particularly important in the context of climate change, a challenge that will require new technology to achieve the deep emission cuts necessary.”²⁵⁶

In contrast, command-and-control programs tend to disincentive technology innovation “because demonstrating the feasibility of low-emission technologies or an ability to exceed emissions targets may result in more stringent regulations in the future.”²⁵⁷ Firms have no financial incentive to exceed their control targets under both technology-based and performance-based standards.²⁵⁸ Regulators might “reward” a source for over-compliance by developing a higher standard of performance, but there is no financial incentive for this, “except to the extent its competitors have even more difficulty reaching the new standard.”²⁵⁹

3. Economies of Scale

Furthermore, regional, multi-state programs have advantages over state-only programs because regions are more able to benefit from economies of scale. Achieving economies of scale is a common justification for developing a federal GHG emissions regulatory program.²⁶⁰ Arguably, without any federal action, states might work independently to develop regulation, which could lead to duplicative work or free riding.²⁶¹ By allowing states to work together to develop market-based mechanisms, they can avoid the pitfalls of competition and achieve economies of scale, not only making regional programs more effective, but also serving as more realistic models for a federal program that could be developed in the future.²⁶²

4. Empirical Evidence of Efficiency Gains through Regional Cooperation

Many influential economic studies have used Marginal Abatement Cost curves (“MACs”) to show the benefits of cap-and-trade programs as well as the benefits of increasing the

²⁵⁵ *Id.*

²⁵⁶ *Id.*

²⁵⁷ *Id.*

²⁵⁸ STAVINS, *supra* note 241.

²⁵⁹ *Id.* See also Hahn & Stavins *supra* note 235 (“In the long run, the effect of public policies on technological change may be among the most important determinants of success in environmental protection.”).

²⁶⁰ Lesley K. McAllister, *Regional Climate Regulation: From State Competition to State Collaboration*, 1 SAN DIEGO J. CLIMATE & ENERGY L. 81, 93-94 (2009).

²⁶¹ *Id.*

²⁶² *Id.*

geographic scope of emission trading programs.²⁶³ MACs show the relationship between tons of emissions abated and the GHG price. Marginal abatement cost refers to the cost of eliminating an additional unit of emissions. These studies have illustrated the benefits of emissions trading over traditional command-and-control policies.

Many states have commissioned studies to evaluate the benefits of cooperating in regional emissions trading programs over enacting individual state-based programs. For example, in 2001, a group of stakeholders convened by the Governor of New York conducted a study that concluded that a regional cap-and-trade approach was preferable to a unilateral state approach.²⁶⁴ A similar study in Connecticut led stakeholders to recommend the state pursue a cap-and-trade program with the broadest geographic scope possible.²⁶⁵

Another study highlighted the efficiency gains individual states could achieve by participating in regional cap-and-trade programs, like the Regional Greenhouse Gas Initiative (“RGGI”).²⁶⁶ The study found that “all states are better off after trading, . . . and even states that are relatively large buyers of permits have as much or more to gain, in both absolute and relative terms, than do permit sellers.”²⁶⁷

²⁶³ See e.g. A.DENNY ELLERMAN & ANNALENE DECAUX, ANALYSIS OF POST-KYOTO CO₂ EMISSIONS TRADING USING MARGINAL ABATEMENT CURVES (1998), available at http://dspace.mit.edu/bitstream/handle/1721.1/3608/mitjpspgc_rpt40.pdf?sequence=1; Gernot Klepper & Sonja Peterson, *Marginal Abatement Cost Curves in General Equilibrium: The Influence of World Energy Prices*, 28 RES. & ENERGY ECON. 1 (2006). See also DALLAS BURTRAW ET AL. RETAIL ELECTRICITY PRICE SAVINGS FROM COMPLIANCE FLEXIBILITY IN GHG STANDARDS FOR STATIONARY SOURCES (Res. for the Future, 2011).

²⁶⁴ See ADAM ROSE ET AL., REGIONAL CARBON DIOXIDE PERMIT TRADING IN THE UNITED STATES: COALITION CHOICES FOR PENNSYLVANIA (Feb. 2006) available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1345437. The study found that a regional program was preferable to a unilateral approach due to potential competitiveness impacts, leakage of emissions, and the likely efficiency gains from including more low-cost sources. *Id.*

²⁶⁵ *Id.*

²⁶⁶ See *id.*

²⁶⁷ *Id.* at 12.

B. Evolutionary Policy Rationales

While allowing for the use of market-based policies has inherent benefits over requiring traditional command-and-control regulations, including flexible mechanisms in a section 111(d) regulatory scheme can also be justified by two evolutionary policy rationales.

1. Laboratories of Democracy

Letting states to choose to work together to develop market-based mechanisms to comply with section 111(d) regulations allows states, as well as multi-state regions, to act as “laboratories of democracy.”²⁶⁸ This idea of “laboratories of democracy,” that states can experiment with policies, free from judicial interference, and thus benefit the nation as a whole has been used to justify state controlled policies for over 70 years. Dissenting in *New State Ice Co. v. Liebmann*, 285 U.S. 262, 311 (1932) (Brandeis, J. dissenting), Justice Brandeis noted “[i]t is one of the happy incidents of the federal system that a single courageous State may, if its citizens choose, serve as a laboratory; and try novel social and economic experiments without risk to the rest of the country.”²⁶⁹ Justice Brandeis argued that allowing states freedom to develop policy programs could lead to discoveries in physical science or triumphs in invention that attest to the value of the process of trial and error.²⁷⁰

Since Brandeis coined the term, numerous legal scholars have acknowledged a role for states as laboratories in the realm of environmental protection.²⁷¹ Many have agreed that “innovations at the state level are likely to hold a great deal of promise as potential strategies for addressing concerns about federal approaches to environmental regulation.”²⁷² Even EPA has encouraged states to serve as laboratories of environmental policy. In 1998, EPA signed onto an agreement that declared “[s]tates are a natural laboratory for testing new ideas. State and local environmental professionals are closest to environmental problems and communities, and can often develop the most practical solutions.”²⁷³ Most scholars point to three

²⁶⁸ *New State Ice Co. v. Liebmann*, 285 U.S. 262, 311 (1932) (Brandeis, J. dissenting)

²⁶⁹ *Id.*

²⁷⁰ Madeline June Kass, *Vantage Point*, NAT. RESOURCES & ENV'T, Fall 2010, 1, 1 (2010).

²⁷¹ *Id.*

²⁷² David L. Markell, *States As Innovators: It's Time for A New Look to Our "Laboratories of Democracy" in the Effort to Improve Our Approach to Environmental Regulation*, 58 ALB. L. REV. 347, 355 (1994); *See also* ENVIRONMENTAL LAW INST., REPORT TO THE OFFICE OF TECHNOLOGY ASSESSMENT, NEW STATE AND LOCAL APPROACHES TO ENVIRONMENTAL PROTECTION at iv (Aug. 1993) (“Many environmental laws and programs originate with state and local governments. These include innovative approaches to environmental regulation as well as other approaches used in lieu of, or as supplements to, regulatory mechanisms.”).

²⁷³ David Markell, *The Role of Deterrence-Based Enforcement in A "Reinvented" State/Federal Relationship: The Divide Between Theory and Reality*, 24 HARV. ENVTL. L. REV. 1, 62 (2000) quoting 63 Fed. Reg. at 24,785 (1998); *see also* Kass *supra* note 270.

interconnected reasons for why letting states take the lead is a positive move for federal environmental policy: (1) experimentation and innovation; (2) flexibility in responding to environmental problems; and (3) improved accountability.²⁷⁴ Moreover, allowing states to work together to create multi-state compliance programs not only provides the benefits of states, or “regions as laboratories” but also provides the benefits of economies of scale. In essence, a regulatory system under section 111(d) that contains flexibility for a regional approach could provide the best of all worlds—it takes advantage of some of the economies of scale of a federal approach, while allowing state experimentation.

i. Experimentation and Innovation. The first and most basic benefit of state-driven policymaking is diversity.²⁷⁵ Allowing states to design compliance policies for a section 111(d) regulatory program can provide opportunities for experimentation and innovation. States, as well as multi-state partnerships can develop unique compliance designs and test out those designs. This can allow states to adopt differing regulatory approaches, like direct regulation, statewide or multi-state cap-and-trade programs, or other new market-based regulatory approaches. These varied approaches could test and provide models for other jurisdictions and for federal policy.²⁷⁶ As Justice Stevens explained, “the existence of differing rules of law in different sections of our great country is not always an intolerable evil . . . [T]he fact that many rules of law differ from state to state is at times one of the virtues of our federal system.”²⁷⁷

In fact, in the context of regulating GHG emissions, regions might serve as better models for a federal system than individual states because larger programs might better reflect what could happen on a national, or even international scale. Furthermore, as state programs evolve and succeed, states can spur interest groups to initiate federal congressional discussion around different policies. In other words, by developing unique compliance mechanisms, states can play a greater role in setting an effective policy agenda at the federal level.²⁷⁸

Furthermore, allowing state experimentation is particularly appropriate in the case of a problem like GHG emission regulation or any other issue “where the problem to be addressed is new and where policymakers are uncertain about the best mechanisms for addressing it.”²⁷⁹ One scholar explained that “[i]n settings of volatility and diversity of conditions, especially

²⁷⁴ Benjamin K. Sovacool, *The Best of Both Worlds: Environmental Federalism and the Need for Federal Action on Renewable Energy and Climate Change*, 27 STAN. ENVTL. L.J. 397, 430-31 (2008).

²⁷⁵ *Id.*

²⁷⁶ Alice Kaswan, *A Cooperative Federalism Proposal for Climate Change Legislation: The Value of State Autonomy in A Federal System*, 85 DENV. U. L. REV. 791, 800 (2008).

²⁷⁷ John Paul Stevens, *Some Thoughts on Judicial Restraint*, 66 JUDICATURE 177, 183 (1982).

²⁷⁸ Sovacool *supra* note 274, at 430.

²⁷⁹ Kaswan *supra* note 276, citing William W. Buzbee, *Asymmetrical Regulation: Risk, Preemption, and the Floor/Ceiling Distinction*, 82 N.Y.U. L. REV. 1547, 1604-06 (2007).

where knowledge is incomplete and evolving rapidly, room for pragmatic adjustment and experimentation is critical.”²⁸⁰ States and regional groups can work together to invent new regulatory and market-based programs to find the most effective ways to regulate GHG emissions.

ii. Flexibility. While there are no GHG emissions “hot spots,” different regulatory systems might suit different states or geographic regions better than other systems. Federal, centralized regulatory systems are often unable to account for and incorporate all of the temporal and geographic information necessary to design optimal policies that work universally. On the other hand, state and regional level policymakers are much more likely to have the knowledge and familiarity to develop policies that are best suited to the geographic area.

Centralized environmental regulatory systems fail to take into account local environmental conditions, local preferences, and local economic conditions.²⁸¹ In turn, this can lead to a one-size-fits all prescription that can end up being a “one-size-fits-nobody.”²⁸² “Most of the failings of Soviet-style command-and-control systems: rigidity, inefficiency, diminishing marginal returns, and poor prioritization” result from unnecessary centralization of regulatory programs and can lead to diseconomies of scale as uniform standards impose greater economic and social costs in certain areas than in others.²⁸³ These issues can become especially problematic in the environmental policy context because of the geographic diversity of environmental problems.²⁸⁴ With regulating GHG emissions, the stationary sources that emit GHG emissions vary across geographic areas and states, thus making flexibility an essential part of a regulatory system.

iii. Accountability. Public policy theorists explain that decentralized decision making allows for a closer fit between policies and local preferences and needs, giving individuals the opportunity to sort themselves among jurisdictions based on those that offer the most appealing mix of policies.²⁸⁵ The famous academic, Charles Tiebout argued that decentralization improves accountability through self-selection.²⁸⁶ Tiebout explained that regulatory programs are more efficient in a decentralized model because individuals are fully

²⁸⁰ Buzbee, *supra* note 279, at 1619.

²⁸¹ Sovacool *supra* note 274 at 432.

²⁸² Jonathan H. Adler, *Jurisdictional Mismatch in Environmental Federalism*, 14 N.Y.U. ENVTL. L.J. 130, 131-32 (2005).

²⁸³ *Id.*

²⁸⁴ Sovacool *supra* note 274, at 432.

²⁸⁵ See *e.g. id.*; Henry N. Butler & Jonathan R. Macey, *Externalities and the Matching Principle: The Case for Reallocating Environmental Regulatory Authority*, 14 YALE J. ON REG. 23, 32 (1996).

²⁸⁶ Charles Tiebout, *Exports and Regional Economic Growth*, 64 J. POL. ECON. 160 (1956).

mobile to choose the jurisdiction in which they will live based on the regulatory programs, taxes, and services governments provide in different jurisdictions. Individuals will sort themselves into jurisdictions offering the balance of tax and services that suit their preferences.²⁸⁷ Local governments are thus more likely to develop regulatory programs that meet the needs of local individuals, making the government more accountable to the individuals it regulates.²⁸⁸

Thus, a regulatory system under section 111(d) that contains flexibility for a regional approach could provide the best of all worlds—it takes advantage of some of the economies of scale of a federal approach, while allowing state experimentation.

2. Transitioning to 110

Allowing states to use and develop multi-state compliance programs for a section 111(d) has an additional evolutionary policy advantage: if EPA decides, or is required to develop a NAAQS for GHG emissions under section 110, having a 111(d) regulatory program that is “similar to 110” will ease the transition for states as well as EPA from a 111(d) system to the required 110 system.

Despite EPA’s development of a regulatory program under section 111(d), EPA might later regulate GHG emissions under section 110 of the CAA.²⁸⁹ Two environmental organizations—the Center for Biological Diversity and 350.org—have brought a petition against EPA to regulate GHG emissions under section 110 by developing NAAQS for GHG emissions.²⁹⁰ The petitioners argue that because EPA issued an endangerment finding pursuant to section 202 of the CAA, the agency must also make an endangerment finding under section 108.²⁹¹ If

²⁸⁷ It is important to note that Tiebout’s model contained three conditional criteria: (1) the idea that citizens were fully mobile, (2) the absence of externalities or spillovers between communities, and (3) the absence of geographic constraints with respect to earnings and wages. *Id.*

²⁸⁸ *Id.* Tiebout has been criticized for possibly overestimating the ease with which citizens can “vote with their feet.” See, e.g., ALBERT O. HIRSCHMAN, EXIT, VOICE, AND LOYALTY: RESPONSES TO DECLINE IN FIRMS, ORGANIZATIONS, AND STATES (1970).

²⁸⁹ Section 110 imposes National Ambient Air Quality Standards (NAAQS), a stringent set of regulations aimed at designated criteria pollutants. As part of the 110 process, EPA oversees the development of SIPs that contain measures to attain or maintain NAAQS for the criteria pollutants. See *supra* text accompanying notes 31-35.

²⁹⁰ Center for Biological Diversity & 350.org, Petitioners, Petition to Establish National Pollution Limits for Greenhouse Gases Pursuant to the Clean Air Act (Dec. 2, 2009), available at http://www.biologicaldiversity.org/programs/climate_law_institute/global_warming_litigation/clean_air_act/pdfs/Petition_GHG_pollution_cap_12-2-2009.pdf.

²⁹¹ *Id.*

the agency makes an endangerment finding under section 108, it must, in turn regulate GHGs as criteria pollutants under section 110.²⁹²

EPA has issued a statement that the Agency does not intend to act on the environmental organizations' petition in the near future, and there is no deadline to respond.²⁹³ However, the environmental petitioners could bring a citizen suit against EPA pursuant to section 304 of the CAA to compel the performance of a mandatory duty.²⁹⁴

EPA could decide to recognize the petition, or the petitioners could bring a successful citizen suit to compel EPA to issue NAAQS. If one of these scenarios plays out, and EPA conducts a rulemaking that would classify GHGs as a criteria pollutant, EPA will be faced with the issue of whether and how to transition from regulating GHG emissions under section 111 to regulating GHGs as criteria pollutants under section 110. Presumably, EPA would be precluded from simultaneously requiring states to develop standards of performance for existing sources of GHG emissions because of language in section 111 does not allow EPA to establish standards of performance for existing sources of criteria pollutants.²⁹⁵ However, section 111 is silent on what the agency should do if the agency has already issued a standard of performance for existing sources under section 111(d) and subsequently issues NAAQS.²⁹⁶

²⁹² *Id.* "The mandatory nature of EPA's listing obligation was explained by the Second Circuit in *NRDC v. Train*, 545 F.2d 320 (2d Cir. 1976). The Court considered whether EPA had discretion not to proceed with listing lead as a criteria pollutant despite an endangerment finding because subsection (C) states that an air quality criteria is required for any pollutant 'for which air quality criteria had not been issued before December 31, 1970, but for which [the Administrator] plans to issue air quality criteria under this section.' The court in *Train* held conclusively that no discretion exists: '[o]nce the conditions of [sections] 108(a)(1)(A) and (B) have been met, the listing of lead and the issuance of air quality standards for lead become mandatory.' In the matter at hand, the air pollutants in question are greenhouse gases. If the conditions of the first two criteria are satisfied for greenhouse gases, then the Administrator has no discretion in whether to make an endangerment finding, issue air quality criteria, national pollutant caps, and follow the other mandatory provisions of Clean Air Act sections 108 through 110." *Id.* (citations omitted).

²⁹³ Robert B. McKinstry Jr., *The Clean Air Act: A Suitable Tool for Addressing the Challenges of Climate Change*, 41 ENVTL. L. REP. NEWS & ANALYSIS 10301, 10304-05.

²⁹⁴ *See id.* ("With the lack of a statutory deadline, EPA may be able to argue that a citizen suit is not ripe, as long as it is addressing emissions in a measured, reasonable manner. It can further argue that, in light of the fact that it will be taking action to regulate the most significant sources first, its delay is not unreasonable in light of the Supreme Court's language giving EPA discretion on the timing of its regulations. Taking action to address GHG emissions from some of the most significant categories of major stationary sources may also have the practical effect of deterring a citizen suit.") *See also* *Natural. Res. Def. Council, Inc. v. Train*, 411 F. Supp. 864, 6 ELR 20366 (S.D.N.Y. 1976), *aff'd*, 545 F.2d 320, 7 ELR 20044 (2d Cir. 1976) (permitting citizen suit to enforce mandatory duty).

²⁹⁵ CAA § 111(d)(1)(A)(i), 42 U.S.C. § 7411(d)(1)(A)(i) (2013). Technically, the state would submit a plan to EPA that establishes standards of performance for any existing source, although EPA retains the authority to prescribe a plan where the state plan is unsatisfactory. *Id.* §(d)(1), (d)(2)(A)

²⁹⁶ *Id.* § (d).

Some scholars argue that the CAA anticipated this transition.²⁹⁷ Interpreting the legislative history and statutory language of section 111(d), Robert McKinstry explains that 111(d) can be viewed as a “gap filler.”²⁹⁸ In other words, a 111(d) regulatory system can “be used to establish an interim program allowing an incremental approach” to regulation of GHG emissions.²⁹⁹ “When NAAQS are promulgated for GHGs, nothing changes with regard to existing sources except that authority for existing source regulation shifts from section 111(d) to section [110].”³⁰⁰ This transitional approach would create long-term economic stability because the change from 111(d) to 110 would not be a major regulatory shift.³⁰¹

Developing a 111(d) regulatory scheme that allows states flexibility to use multi-state and market-based compliance mechanisms similar to those states already use in their section 110 SIPs will ease this likely transition from a section 111(d) regulatory scheme to a section 110 regulatory scheme. The more similar the 111(d) regulatory system is to a 110 system, the easier it will be for EPA, states, and sources to make the transition. The key language that will allow for this transition comes from 111(d)(1): “The Administrator shall prescribe regulations which shall *establish a procedure similar to that provided by section 110* under which each State shall submit to the Administrator a plan”³⁰² As explained above, section 110 authorizes states to use flexible approaches to compliance.³⁰³ This includes “economic incentives such as fees, marketable permits, and auctions of emissions rights.”³⁰⁴ If EPA established a program similar to programs under section 110, then if and when EPA promulgates NAAQS for GHG emissions, the actual procedure for section 110 could replace 111(d) procedures for existing sources.³⁰⁵ Any multi-state market based programs states were using for compliance with the 111(d) requirements could be incorporated into section 110 SIPs.³⁰⁶

²⁹⁷ See e.g. McKinstry, *supra* note 293, at 10,305.

²⁹⁸ *Id.* See also *MONAST ET AL.*, *supra* note 36, at 9 (“[A] market-based approach under section 111 could provide a foundation for a similar program under the NAAQS program—indeed, if designed thoughtfully, such a market-based program could be ‘ported’ into the NAAQS program if and when the courts determine that EPA is required to follow that route instead.”).

²⁹⁹ McKinstry, *supra* note 293, at 10,305. McKinstry also points out that this perspective might imply that section 111(d) is only a gap filler and should not be used without the intention of eventually transitioning to a 110 program. *Id.* (“[T]his intent would appear to militate for regulation under §108 as the ultimate path to regulation . . .”).

³⁰⁰ Enion, *supra* note 19, at 15.

³⁰¹ McKinstry, *supra* note 293, at 10,306 (“This approach would create long-term economic signals to guide investment in those sectors, without affecting the sectors where U.S. competitiveness might be implicated.”).

³⁰² CAA § 111(d)(1), 42 U.S.C. § 7411(d)(1) (2013) (emphasis added); see also *id.* § (d)(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 . . .”).

³⁰³ See *supra* text accompanying notes 31-35, 289-292.

³⁰⁴ CAA § 110(a)(2)(A), 42 U.S.C. § 7410(a)(2)(A) (2013).

³⁰⁵ Enion, *supra* note 19, at 15.

³⁰⁶ *Id.*

This transitional theory depends on the similarities between section 110 and 111(d). The provisions are alike in that both “require a state plan that implements and enforces a standard for emissions.”³⁰⁷ Furthermore, both sections apply to existing, stationary sources.³⁰⁸

There is one difference in sections 110 and 111(d) that could impact this transition analysis: when establishing performance standards under section 111(d), EPA and states can consider costs, but when establishing NAAQS, EPA cannot consider costs.³⁰⁹ This could cause problems when transitioning from a 111(d) program to 110 if EPA and the states took cost into consideration when establishing performance standards. One possible impact is that the standards under 110 would be stricter than the standards of performance under 111.³¹⁰ However, this would not be a difficult transition for states using multi-state, cap-and-trade programs. “Under a cap-and-trade system . . . the main result would be a stricter cap that could be met with changes in technology, operations, or purchase of emission credits.”³¹¹ This provides further support for allowing states to use multi-state cap-and-trade programs to comply with 111(d) regulations.

³⁰⁷ *Id.* (Comparing CAA § 110(a)(1), 42 U.S.C. § 7410(a)(1) with *id.* § (d)); *See also* CAA § 110(a)(1), 42 U.S.C. § 7410(a)(1) (2013) (“Each State shall... adopt and submit... a plan which provides for implementation, maintenance, and enforcement of such primary standard.”), *id.* § 111(d), § 7411(d) (“[E]ach State shall submit... a plan which (A) establishes standards of performance... and (B) provides for the implementation and enforcement of such standards of performance.”).

³⁰⁸ Enion, *supra* note 19, at 15. Section 111(d) applies exclusively to existing sources. CAA § 111(d), 42 U.S.C. § 7411(d) (2013). “[S]ection 110(a)(2)(F) allows states to ‘require . . . (i) the installation, maintenance, and replacement of equipment . . . by owners of stationary sources.’” Enion, *supra* note 19, at 15-16 *citing* CAA § 110(a)(2)(F), 42 U.S.C. § 7410(a)(2)(F) (2013).

³⁰⁹ *Compare* § 109(b)(1), 42 U.S.C. § 7409(b)(1) (2013) (“(1) [NAAQS] . . . shall be ambient air quality standards . . . requisite to protect the public health”), *with id.* § 111(a)(1) (defining standard of performance as one that can “tak[e] into account the cost of achieving such reduction”); *see also* Regulating Greenhouse Gas Emissions Under the Clean Air Act, 73 Fed. Reg. 44,354, 44,417 (July 30, 2008) (to be codified at 40 C.F.R. ch. I) (“EPA may not consider the costs of meeting the NAAQS in setting the standards.”).

³¹⁰ Enion, *supra* note 19, at 16.

³¹¹ *Id.*

VI. Conclusion

When developing regulations for GHG emissions under section 111(d) of the CAA, EPA can learn from the existing regulatory programs under section 110. Programs including the NO_x SIP Call, the Regional Haze program, and the Transportation Conformity program provide valuable insight into how EPA can structure a regulatory system that allows states to use multi-state, market-based programs to comply.³¹² While many policy experts suggest that the language in 111(d) authorizes EPA and states to deviate from source-specific technological standards, the NO_x SIP Call and CAIR litigation demonstrate the D.C. Circuit's commitment to the exact language in the CAA.³¹³ The court was, and could be suspicious of any programs that deviate from the source specific language of 111(d), making it important for EPA to provide sound legal ground for varying from the source-specific nature of 111(d).³¹⁴

Furthermore, EPA should not create a regulatory program that forces states to impose regulations outside of the states' statutory responsibilities.³¹⁵ EPA should not restrain states choices, but instead, allow states the flexibility to develop standards of performance under section 111(d).³¹⁶ EPA should also develop backstops for flexible programs to ensure all states and all sources meet their emissions reductions, regardless of what happens in the courts.³¹⁷ This would allow EPA to give states the authority to implement flexible mechanisms while ensuring that all states will reduce GHG emissions, even if the court strikes down EPA's authorization of non-source specific programs, thereby avoiding the "unpromulgated limbo" problems that arose in the Regional Haze litigation.³¹⁸

Finally, Transportation Conformity stands as an example of a flexible compliance mechanism under 110 that could be used as a model for justifying the use of similarly flexible mechanisms in a 110-like program under section 111(d).³¹⁹ The regional budget setting process that states use under the Transportation Conformity Program provides a concrete example of states working together to achieve compliance under section 110.³²⁰

³¹² See *supra* "A. NO_x SIP Call", "B. Regional Haze Program", and "C. Transportation Conformity Program".

³¹³ See *supra* NO_x SIP Call "2. Lessons Learned" *supra* text accompanying notes 94-113.

³¹⁴ *Id.*

³¹⁵ See Regional Haze "2. Lessons Learned" *supra* text accompanying notes 182-187.

³¹⁶ *Id.*

³¹⁷ *Id.*

³¹⁸ *Id.*

³¹⁹ See Transportation Conformity "Lessons Learned" *supra* text accompanying notes 223-229.

³²⁰ *Id.*

By basing the 111(d) regulations on such multi-state and market-based programs from section 110, EPA will allow states to realize the benefits of market-based programs.³²¹ Market-based compliance mechanisms provide greater economic efficiency and spur technological innovation.³²² Multi-state programs give states the opportunity to achieve economies of scale and other gains from trading.³²³ Letting states to choose to work together and develop market-based mechanisms to comply with section 111(d) regulations also allows states, as well as multi-state regions, to act as “laboratories of democracy” that can develop efficient and effective compliance mechanisms that could, in turn, serve as models for a federal program.³²⁴ Finally, if EPA decides, or is required, to develop a NAAQS for GHG emissions under section 110, having a 111(d) regulatory program that is “similar to 110” will ease the transition for states from a 111(d) system to the required 110 system.³²⁵

This paper has reviewed three regulatory systems under section 110 of the CAA for which states use multi-state and market-based mechanisms for compliance. It is up to EPA to learn from these programs to develop a legally sound regulatory system for GHG emissions under section 111(d) that enables states to benefit from the use of multi-state and market-based mechanisms.

³²¹ See “A. Stand Alone Rationales for Encouraging Market-Based, Multi-State Policies” *supra* text accompanying notes 235-267; “B. Evolutionary Policy Rationales” *supra* text accompanying notes 268-311.

³²² See “1. Economic Efficiency” *supra* text accompanying notes 235-252; “2. Technological Innovations” *supra* text accompanying notes 253-259.

³²³ See “3. Economies of Scale” *supra* text accompanying notes 260-262; “4. Empirical Evidence of Efficiency Gains Through Regional Cooperation” *supra* text accompanying notes 263-267.

³²⁴ See “1. Laboratories of Democracy” *supra* text accompanying notes 268-288; “Transitioning to 110” *supra* text accompanying notes 289-311.

³²⁵ See “2. Transitioning to 110” *supra* text accompanying notes 289-311.