ORAL ARGUMENT NOT SCHEDULED

No. 15-1363
(and consolidated cases)

IN THE UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT

STATE OF WEST VIRGINIA, ET AL.,

Petitioners,

v.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, ET AL.,

Respondents.

On Petitions for Review of Final Action
by the United States Environmental Protection Agency

RESPONDENT EPA'S OPPOSITION TO MOTIONS TO STAY FINAL RULE

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GLOSSARY

CAA	Clean Air Act
CAMR	Clean Air Mercury Rule
CO_2	Carbon Dioxide
EPA	Environmental Protection Agency
FERC	Federal Energy Regulatory Commission
GHG	Greenhouse Gas
MATS	Mercury and Air Toxics Standards
PSD	Prevention of Significant Deterioration
RTC	Response to Comments

INTRODUCTION

The Environmental Protection Agency's Clean Power Plan rule ("the Rule") addresses the nation's most important and urgent environmental challenge. The Rule will, over its lifetime, secure critically important reductions in carbon dioxide ("CO_2") emissions from the largest emitters in the United States – fossil-fuel-fired power plants. Such emissions pose a monumental threat to Americans' health and welfare by causing long-lasting changes in our climate, resulting in an array of severe negative effects, including drought, disease, increasingly serious weather events, and rising sea levels. Section 111(d) of the Clean Air Act ("CAA" or "Act"), 42 U.S.C. § 7411(d), expressly directs EPA to address such dangers by promulgating emission guidelines, and the Rule reflects EPA's reasonable determination of the best system for limiting the amount of CO_2 that plants pump into the atmosphere.

The Rule identifies highly cost-effective and proven emission-reduction strategies that are already widely employed by power plants. It then relies on those strategies to set guidelines for states (or, if a state so chooses, EPA acting on its behalf) in establishing performance standards for those plants. Those performance standards will be gradually phased in over an eight-year period beginning in 2022. Until at least that time, power plants will not be subject to any CO_2 requirements. And states that intend to establish standards have nearly three years before they would be required to submit such standards to EPA for approval.

State and industry stay movants either oppose any federal regulation of power plants' voluminous CO_2 emissions, or seek to limit such regulation to negligible requirements. Even though all significant regulatory deadlines are set well after review in this Court would conclude, Movants seek the immediate and extraordinary relief of a stay. Their requests for a stay should be denied. Movants cannot establish any – let alone all – of the elements required.

First, Movants have no likelihood of merits success. EPA has well-established authority under Section 111(d) to limit air pollution emitted by power plants, and the CO_2 performance levels in the Rule reflect EPA's thorough, careful and reasonable application of express statutory factors to the particular facts and circumstances of power generation and CO_2. Specifically, they reflect the "application" of the "best system of emission reduction" "adequately demonstrated" for sources, and they reflect an "achievable" degree of limitation. 42 U.S.C. § 7411(a)(1). Many sources are already implementing the measures discussed in the Rule, at least to some degree, on their own. Contrary to Movants' position, Congress did not require that EPA, in determining the "best system of emission reduction" for the largest CO_2 sources, disregard the proven strategies these sources are *already* effectively employing, in favor of little or no CO_2 limitation.

Second, Movants do not face any irreparable harm during the relatively short period of judicial review in this Court. States have up to *three years* to submit plans for implementing the Rule's emission guidelines, and those plans are less complicated

than other types of plans that states prepare to meet CAA obligations – sometimes within a more compressed time period. Moreover, each state is free to elect to have EPA do all of the work required to adopt and implement standards within the state, in which case the Rule imposes no deadlines or burdens on the state at all. Industry movants also face no imminent harm. The Rule builds upon preexisting industry trends, and Movants have no obligations whatsoever until at least 2022. After 2022, the Rule phases in moderate reduction requirements gradually, does not make them fully effective until 2030, and allows a broad range of compliance methods.

Third, the public interest and balance of harms strongly weigh in favor of denying Movants' stay request. The Rule will secure critically important reductions in greenhouse gas emissions from the largest emitters in the United States. And because CO_2 in the atmosphere is long-lived, any delay in implementation of the Rule and securing these emission reductions is highly consequential.[1]

BACKGROUND

I. CARBON DIOXIDE EMISSIONS AND CLIMATE CHANGE

CO_2 and other "greenhouse gases" in the atmosphere have risen to unprecedented levels as a result of human activities, and these gases are the root cause

[1] State Movants (at 1 n.1) have also moved for expedited briefing. Because the period for filing petitions for review of the Rule does not close until December 23, 2015, EPA believes this request is premature. EPA suggests that the Court require the parties to confer and to submit proposed briefing schedules and formats (jointly, if possible) by an appropriate date following the filing deadline.

of ongoing global climate change. 74 Fed. Reg. 66,496, 66,517 (Dec. 15, 2009). Nineteen of the twenty warmest years on record have all occurred in the past twenty years, and 2015 is on its way to being the "hottest year ever recorded."[2] EPA has determined that greenhouse gases endanger the public health and welfare of current and future generations and thus require regulation under the CAA. 74 Fed. Reg. at 66,516-36; see also Massachusetts v. EPA, 549 U.S. 497, 527-35 (2007) (clarifying greenhouse gases are "air pollutants" under the Act).

Fossil-fuel-fired power plants are by far the highest emitting stationary sources of CO_2. These plants generate approximately 31% of all man-made CO_2 emissions in the United States, almost three times as much as the next ten stationary source categories combined.[3] No serious effort to address climate change can succeed without substantial emission reductions from these major sources.

II. THE CAA AND SECTION 111 STANDARDS OF PERFORMANCE

The purpose of the CAA is to promote public health and welfare by protecting air quality. 42 U.S.C. § 7401(b)(1). The Act establishes a comprehensive and detailed program for air pollution control through a system of shared federal and state responsibility. Section 111 of the CAA, 42 U.S.C. § 7411, "speaks directly to

[2] NOAA, Global Temperature Recap, available at https://www.climate.gov/news-features/videos/2014-global-temperature-recap; Justin Gillis, 2015 Likely to Be Hottest Year Ever Recorded, N.Y. TIMES, Oct. 22, 2015, at A12.

[3] "Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2013," EPA 430-R-15-004, at 3-14 (Apr. 15, 2015); 80 Fed. Reg. 64,662, 64,689 (Oct. 23, 2015).

emissions of carbon dioxide" from the Nation's existing power plants. Am. Elec. Power Co. v. Connecticut, 131 S. Ct. 2527, 2537 (2011) ("AEP").

Section 111 "directs the EPA Administrator to list 'categories of stationary sources' that 'in [her] judgment . . . caus[e], or contribut[e] significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare.'" AEP, 131 S. Ct. at 2537 (quoting 42 U.S.C. § 7411(b)(1)(A)). For each such category, EPA must directly prescribe federal "standards of performance" for emissions of pollutants from new or modified sources. 42 U.S.C. § 7411(b)(1)(B). In addition, EPA "shall prescribe regulations" under Section 111(d) with respect to existing sources for pollutants not covered under certain other programs. Id. § 7411(d). These regulations are not designed to regulate existing sources directly, but instead to guide "each State" in submitting to EPA a satisfactory plan that establishes "standards of performance" for any existing source of the relevant pollutant. Id.

A "standard of performance" for purposes of Section 111 is defined as:

> 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 [EPA] Administrator determines has been adequately demonstrated.

Id. § 7411(a)(1). Under that definition, the specific emission requirements imposed on particular sources must "reflect[]" a more overarching, preliminary determination

that is made by EPA. In particular, EPA first identifies those "system[s] of emission reduction" that are "adequately demonstrated" for a particular source category; determines the "best" of these systems, based on the relevant criteria; and then derives from that system an "achievable" emission performance level for the relevant sources. 80 Fed. Reg. at 64,720.

EPA promulgates its determination in a set of regulations known as "emission guidelines." 40 C.F.R. Part 60, Subpart B. The emission guidelines also provide procedures for receipt and approval by EPA of individualized state plans, which specify the precise emission limitations that will be applicable to particular sources within a state, along with other measures necessary for implementation of those emission limitations. 42 U.S.C. § 7411(d)(1). If a state elects not to submit a plan to EPA, or does not submit a "satisfactory" plan, EPA must promulgate a federal plan that directly limits emissions from the state's existing sources. Id. § 7411(d)(2).

III. THE CLEAN POWER PLAN

On October 23, 2015, after receiving almost seven million public comments that resulted in numerous changes to the original proposals, EPA published two final rules for CO_2 emissions from fossil-fuel-fired power plants. The first rule establishes CO_2 emission standards under Section 111(b) for new, modified, and reconstructed plants. 80 Fed. Reg. 64,510 (Oct. 23, 2015). The second, the Rule at issue here,

establishes Section 111(d) emission guidelines for states to follow in developing plans to limit CO_2 from existing plants. 80 Fed. Reg. 64,662.[4]

In the Rule, EPA determined that the "best system of emission reduction" "adequately demonstrated" for existing plants includes a combination of three measures, referred to as "building blocks":

> (1) improving heat rate at coal-fired steam plants;
>
> (2) substituting increased generation from lower-emitting existing natural gas combined cycle plants for generation from higher-emitting steam plants (which are primarily coal-fired); and
>
> (3) substituting increased generation from new zero-emitting renewable energy generating capacity for generation from fossil-fuel-fired plants (which are primarily coal- or gas-fired).

See 80 Fed. Reg. at 64,667. EPA determined these measures were "adequately demonstrated" because each of them is already a well-established technique for reducing CO_2 emissions from power plants. Id. at 64,709. EPA determined that these measures are collectively the "best system of emission reduction" because they can achieve substantial CO_2 reductions at reasonable cost, without adverse impacts on energy availability or otherwise. Id. at 64,744-51. EPA determined that individual sources can implement all of these measures, including the second and third "generation-shifting" measures, through a set of actions that range from making direct

[4] EPA additionally has proposed two approaches to a federal plan for states that do not submit an approvable plan (which can also serve as models for states that do develop their own plans). 80 Fed. Reg. 64,966 (Oct. 23, 2015).

investments in zero- or low-emitting plants to purchasing emission-rate credits from entities that have made such investments. Id. at 64,709.

EPA considered alternative systems and found them inferior. Id. at 64,727-28. Among these, EPA considered technologies to capture and inject CO_2 underground ("carbon sequestration"). Id. EPA also considered measures to substitute, in part or in whole, natural gas as the fuel source at coal-fired plants ("gas co-firing"). Id. While these measures are feasible for some existing plants and could achieve substantial reductions, EPA concluded they were less cost-effective for existing plants than the set of measures collectively identified as the "best system." Id.

Having identified the "best" CO_2 reduction system, EPA quantified the degree of emission reduction achievable under that system for two subcategories of sources: steam units (which are primarily coal-fired) and combustion turbines (which are primarily gas-fired). Id. at 64,663. To best reflect the Nation's interconnected electrical system, EPA quantified the reductions achievable for each subcategory in 2030 in each of three regions. Id. at 64,738. EPA then established uniform performance levels for each subcategory based on the least stringent of the three calculated regional rates. Id. at 64,742; 64,961 (Table 1).

To enhance state planning flexibility, the Rule translates the uniform performance rates into equivalent statewide emission goals for 2030, expressed in terms of both the rate of emissions per unit of energy production ("rate-based goals") and the total mass of emissions ("mass-based goals"). Id. at 64,820. The Rule then

gives each state the option of either submitting a plan that simply applies the uniform performance rates to all sources within the state, or one that otherwise meets either the equivalent rate-based or mass-based statewide goals. Id. at 64,832-37. Under the latter option, states could assign emission standards for particular plants that depart from the uniform performance rates, so long as the equivalent state goals were met. The Rule thus does not require any particular amount of reductions by any particular source at any particular time.

The Rule does *not* limit states and sources to applying the specific "building block" measures identified by EPA as the "best system" for purposes of EPA's establishment of emission guidelines. Id. at 64,710. Instead, states and sources have the flexibility to choose from a wide range of measures to achieve the emission limitations, including the ability to rely on technological controls such as sequestration or gas co-firing.[5] The Rule also accommodates (but does not require) trading-based

[5] To enhance state flexibility, the Rule additionally authorizes states to pursue a "state measures" approach, under which they may avoid imposing any direct Section 111(d) emission standards (i.e., "standards of performance") on power plants, and may instead pursue other state-law-only measures to reduce power plant emissions (e.g., programs that encourage more efficient energy usage and thereby reduce demand) by the requisite amount. States that rely on such a "state measures" approach must include within their state plans a set of approvable Section 111(d) "standards of performance" to be applied directly to sources in case the state measures are unsuccessful. Id. at 64,836-37.

emission programs and other compliance strategies that significantly enhance flexibility and cost-effectiveness for sources. Id. at 64,834-35.[6]

The Rule will be gradually phased in over an extended period. No reductions are required from sources until 2022 at the earliest. In fact, most states may delay requiring emission reductions from sources until 2024 and still meet the Rule's requirements. Id. at 64,786.

States have up to three years to submit their plans. Id. at 64,669. The Rule directs states to provide either a plan or an initial submission in September 2016. Id. That initial submission – through which states may request and obtain an extension until September 2018 to complete their plans – need only include minimal information concerning the status of the state's planning efforts, specifically: (a) an identification of the various plan approaches under consideration, including any progress to date, (b) a description of opportunities for public input on the plan, and (c) an appropriate explanation for why the state requires more time. Id. at 64,947.

States may also entirely decline to prepare and submit their own plans, in which case the only consequence is that EPA will promulgate a federal plan for the affected power plants in that state. Id. at 64,942. EPA does not have authority to impose

[6] Trading-based emission programs can take different forms, but generally provide companies with an incentive to develop cost-effective emission reduction strategies by enabling companies to earn credits or allowances for projects that reduce emissions, which can then be sold to other facilities to meet emission requirements.

sanctions on a state for failure to submit a state plan. Id. States that do decline to prepare and submit plans by the established deadlines could still choose, at any later point, to adopt an approvable state plan that would supplant any federal plan. Id.

The Rule will not result in any substantial increase in electricity costs to the public. Id. at 64,679-81, 64,748-51; Regulatory Impact Analysis ("RIA"), Docket No. EPA-HQ-OAR-2013-0602-36877, 3-35 to 3-40. The Rule will also not reduce the reliability of the electricity system, 80 Fed. Reg. at 64,671, and is consistent with long-term trends in the generation of energy. Id. at 64,694-96, 64,709.

STANDARD OF REVIEW

"On a motion for stay, it is the movant's obligation to justify the court's exercise of such an extraordinary remedy." Cuomo v. NRC, 772 F.2d 972, 978 (D.C. Cir. 1985). A movant must demonstrate: (1) a likelihood of success on the merits; (2) irreparable injury if relief is withheld; (3) lack of harm to other parties from a stay; and (4) that a stay would serve the public interest. Nken v. Holder, 129 S. Ct. 1749, 1761 (2009); see also D.C. Cir. R. 18(a)(1).

ARGUMENT

I. MOVANTS HAVE NOT DEMONSTRATED A LIKELIHOOD OF SUCCESS ON THE MERITS.

To establish likelihood of success on the merits, Movants must show that EPA's action is likely to be found "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." 42 U.S.C. § 7607(d)(9)(A). Questions of

statutory interpretation are governed by the two-step test set forth in Chevron, U.S.A., Inc. v. NRDC, 467 U.S. 837, 842 (1984). If the Congressional intent is clear from the statutory language, that intent must be given effect. Id. at 842-43. If the statute is ambiguous, a permissible construction by an agency administering the statute must be upheld. Id. at 843. Movants cannot make the necessary showing.

Section 111, 42 U.S.C. § 7411, instructs EPA to establish emission guidelines for existing sources of pollutants that cause, or contribute significantly to, air pollution that may reasonably be anticipated to endanger public health or welfare. The Supreme Court, examining Section 111(d), found it "plain that the Act 'speaks directly' to emissions of carbon dioxide from [fossil-fuel-fired] plants." AEP, 131 S. Ct. at 2537. Section 111(d) directs EPA to determine "the degree of emission limitation achievable through the application of the best system of emission reduction," which state plans will then "reflect[]" in particularized requirements for specific sources. 42 U.S.C. § 7411(a)(1), (d). The Rule here fully comports with Congress' direction, reasonably taking into account the particular facts and circumstances for reducing CO_2 emissions from sources that are part of an interconnected electric generating system, and reflecting measures that many sources are already undertaking on their own.

Movants' core argument is that EPA erred in including generation-shifting measures within the selected best system of emission reduction, rather than confining emission guidelines to certain limited actions that power plants can take within the

physical boundaries of their particular facilities – actions that no one disputes will fail to curb CO_2 emissions in any meaningful way. Contrary to Movants' contention, however, Congress did not disempower EPA, in setting achievable emission guidelines for CO_2, from identifying and building upon proven emission control strategies that sources are already effectively employing. The Rule is consistent with the text and purpose of the Act, see § I.A. & B.1.; properly takes account of the availability of generation-shifting measures, see §§ I.B.2. & I.B.3.; respects the traditional regulatory spheres of states and other federal agencies, § I.B.4; and sets the guidelines at appropriate levels, see § I.B.5.

A. The Rule Represents a Lawful and Reasonable Determination of CO_2 Emission Guidelines.

The Administrator's determination of the guidelines applicable to state regulation of CO_2 emissions from existing power plants represents a direct and straightforward application of the criteria set forth in the statute. Specifically, the emission guidelines in the Rule (1) are based on a "system of emission reduction" (2) that is "adequately demonstrated," and (3) that is the "best" system considering "costs," "energy requirements" and the amount of reductions obtainable. They also (4) reflect an "achievable" degree of limitation. 42 U.S.C. § 7411(a)(1).

1. The three measures that form the basis of the emission performance levels – improving heat rates at coal-fired plants, ensuring enhanced utilization of existing low-carbon power generation, and ensuring enhanced use of zero-carbon power

generation – constitute a "system of emission reduction." 80 Fed. Reg. at 64,762-63. The word "system" is expansive, encompassing "a set of things or parts forming a complex whole" or "a set of principles or procedures according to which something is done."[7] Thus, a "system of emission reduction," by its own terms, encompasses any set of measures for reducing emissions. The set of measures identified by EPA will unquestionably do so.

2. The emission levels specified in the Rule are also premised on an "adequately demonstrated" emission reduction system. Each of the three measures applied by EPA, including the challenged generation-shifting measures, are already widely employed by power plants for multiple purposes, including reducing CO_2 emissions. 80 Fed. Reg. at 64,724-26.

Pollution control measures that utilize generation-shifting have been widely successful in the power industry because of that industry's uniquely integrated nature. Id. at 64,667, 64,763 n.468, 64,768-73, 64,795-811. Power generators produce a product – electricity – that is fungible in nature. Id. at 64,776. Power generators operate within an interconnected electricity grid. In this grid, electricity generally cannot be stored in large volumes, so generation and use must be simultaneously balanced in real time. Id. at 64,725. This means that, unlike other industries where

[7] See Oxford Dictionary of English (3d ed.) (2010), available at http://www.oxforddictionaries.com/us/definition/american_english/system.

sources make decisions independently, electric generators must closely coordinate operations at all times. Id. Assuming consumer demand is held constant, adding electricity to the grid from one generating unit will result in the instantaneous reduction in generation from other units, and vice versa. Id. at 64,769.

Because of these circumstances unique to the power industry, power generators have long feasibly implemented generation-shifting as an operating practice to achieve a wide variety of objectives, including as a strategy for achieving pollutant reductions. Id. at 64,782 n.604, 64,795-811. Congress has also based CAA provisions, and EPA has based previous CAA rules, on the ability of power plants to shift generation to cleaner sources. Id. at 64,770-73. Power plants have likewise relied on generation-shifting to achieve CO_2 reductions, either to meet the existing requirements of some states or to meet the corporate goals of some companies. Id. at 64,725, 64,769-72. Indeed, when Utility Movants represent that they have already "significantly reduced CO_2 emissions from 2005 levels," and that they intend to reduce their emissions even absent the Rule, Utility Air Regulatory Group et al. ("Utility") Mot. at 19, they are referring in large part to the measures they have already taken or plan to take to shift generation in ways that favor cleaner sources. 80 Fed. Reg. at 64,725, 64,769-72.

3. The Rule's performance levels are premised on the "best" system of emission reduction applying the relevant considerations, including the degree of reductions achieved, costs, and energy requirements. Id. at 64,748-51. The selected system is the most effective way to reduce significant amounts of CO_2 from these

sources. Id. at 64,748; see Sierra Club v. Costle, 657 F.2d 298, 326 (D.C. Cir. 1981) (holding that amount of air pollution reduced is an important factor to be considered in selecting the "best" system).

Generation-shifting measures in particular can achieve substantial CO_2 reductions especially cost-effectively, and without jeopardizing electric system reliability. Although other technology-based measures such as gas co-firing and carbon sequestration are feasible for a segment of the industry, those technologies are at this point considerably more expensive to implement than the demonstrated generation-shifting strategies the electricity sector has been employing for decades. 80 Fed. Reg. at 64,727. Thus, even if EPA had based the performance levels on the application of those technologies, sources would likely still have met their resulting obligations using more cost-effective generation-shifting strategies. Id. at 64,728.

Limiting the "best system" just to efficiency measures at coal-plants (the first building block), as Movants prefer, is a far inferior approach because it would not achieve significant reductions. Indeed, implementing those measures in isolation could lead to *increased* emissions, because they would lower high-emitting plants' operating costs, which could lead the energy sector to rely more heavily upon them for generation. Id. at 64,745, 64,748.

4. The Rule's performance levels are furthermore based upon an "achievable" degree of emission limitation. As the Agency explained, generation-shifting measures are readily available to individual sources in the power industry because of the

integrated nature of power generation and the industry's existing planning and reliability mechanisms. Id. at 64,731. The record also supports EPA's finding that the particular degree of reductions required is achievable by sources.

The record describes in great detail the specific steps that an individual source may take to apply generation-shifting measures for purposes of complying with a particular emission standard that a state might adopt for that source. Id. at 64,731-35, 64,796, 64,804-06. For example, if a state imposes a rate-based limitation (i.e., a limit expressed in the form of a rate of emissions per unit of energy production), a source could, among other things, make direct investments in cleaner power generation itself, for which it could receive "emission rate credits," or purchase credits from other sources that have invested in eligible measures. Id. at 64,731-33.[8] If a state imposes a mass-based limit (i.e., a limit on the total mass of emissions), a source might be allocated a certain number of emission allowances, and be able to purchase or sell those allowances through a market. Id. This approach would provide economic incentives that favor lower-emitting generation, while allowing a particular source to comply with its state-imposed legal obligations by purchasing sufficient allowances to offset any emissions in excess of its limits.

[8] Many of the same companies that own steam units own combustion turbines or renewable facilities. Id. at 64,796; 64,804-05.

A robust record further reflects that there are sufficient amounts of unused existing natural gas-fired generation capacity and potential for new renewable energy capacity to enable all sources in both source subcategories to readily employ these kinds of strategies, and to do so at reasonable cost and without causing adverse impacts on energy supply. Id. at 64,797-802, 64,806-11.

The Rule will be implemented gradually and is consistent with prevailing trends in the energy sector towards more renewable and gas-fired generation. Id. at 64,785. These trends are due largely to falling prices for renewables and gas, as well as the aging of existing coal plants. Id. at 64,678, 64,795, 64,803-04. Thus, the Rule does not call for any "fundamental redirection of the energy sector," id. at 64,785, but instead builds upon the existing direction of the power industry. While EPA projects that the Rule will reduce coal-fired generation by the time the Rule is fully implemented in 2030, the amount of that reduction is projected to be less than, and to occur more gradually than, the reduction that has already occurred from 2002 to 2012. RIA 2-5. EPA further projects that significant reductions in coal-fired generation would occur even in the Rule's absence, and that following full implementation of the Rule in 2030, the amount of coal-fired generation will be 27.4% of total generation, which is only 5.4% less than projected without the Rule. Id. at 3-27 (Table 3-11) Declaration of Kevin Culligan ¶ 22 (Ex. 3).

B. EPA Properly Interpreted its Authority in Premising Guidelines for the Regulation of Sources on "the Best System of Emission Reduction."

Movants principally argue that EPA exceeded its authority by including generation-shifting measures within the selected "best system of emission reduction." They contend that emission guidelines must be premised exclusively on actions that individual power plants can take within the boundaries of their particular facilities, and cannot include measures that involve third parties. See, e.g., State of West Virginia, et al. ("W.Va.") Mot. at 6-11; Utility Mot. 8-13. That contention lacks merit.

EPA has permissibly interpreted and applied the statutory text, and, in particular, the definition of "standard of performance." Movants cannot carry their heavy burden under Chevron, 467 U.S. at 842-43, to show that the Agency's interpretation is either completely foreclosed by the text or is an unreasonable reading of ambiguous statutory language. They instead posit limitations on EPA's discretion that are not grounded in actual statutory text and that would, in fact, frustrate Congress' fundamental objective to protect air quality in enacting the CAA.

1. The phrase "best system of emission reduction" encompasses a wide range of measures.

Congress deliberately used the expansive phrase "best system of emission reduction" in defining the term "standard of performance" because it understood "that without regulatory flexibility, changing circumstances and scientific developments would soon render the [CAA] obsolete." Massachusetts v. EPA, 549

U.S. at 532. As elsewhere in the Act, Congress' use of "[b]road language" in Section 111 "reflects an intentional effort to confer the flexibility necessary to forestall such obsolescence." Id. The Act thus exemplifies how Congress "usually does not legislate by specifying examples, but by identifying broad and general principles that must be applied to particular factual instances." Pub. Citizen v. U.S. Dep't of Justice, 491 U.S. 440, 475 (1989).

Contextual considerations confirm that Congress intended the broad phrase "system of emission reduction" to be given its plain meaning and construed flexibly. See King v. Burwell, 135 S. Ct. 2480, 2483-84 (2015) (reiterating the "fundamental canon of statutory construction that the words of a statute must be read in their context and with a view to their place in the overall statutory scheme" (internal quotation marks and citation omitted)). The phrase contrasts sharply with the narrower phrase "*technological* system of continuous emission reduction," which appears later in the same statutory subsection. 42 U.S.C. § 7411(a)(7) (emphasis added). This contrast illustrates that Congress did not intend to limit a "system of emission reduction" to solely "technology-based" measures. See Utility Mot. 9; see, e.g., Nat'l Fed'n of Indep. Businesses v. Sebelius, 132 S. Ct. 2566, 2583 (2012) ("NFIB") ("Where Congress uses certain language in one part of a statute and different language in another, it is generally presumed that Congress acts

intentionally").[9] Congress' decision to use broad language for purposes of Section 111(d) is logical, given the catch-all nature of this program, which addresses threats posed by a potentially wide range of pollutants not addressed elsewhere in the Act. 80 Fed. Reg. at 64,761 n.464.

Another significant contextual consideration is that Section 111(d) expressly instructs EPA to "establish a procedure similar to that provided by Section 7410," 42 U.S.C. § 7411(d)(1). That section describes the National Ambient Air Quality Standards program, in which a cooperative-federalism approach affords states wide discretion in choosing methods of air pollution control. In particular, section 7410 authorizes state plans to include a range of non-technological off-site measures for sources, including "marketable permits." 42 U.S.C. § 7410(a)(2)(A). This explicit connection between the two programs suggests that Congress intended that states, in implementing Section 111 state plans, be able to use similarly flexible emission-reduction mechanisms, including trading programs that promote relatively greater use of low-emitting facilities. See 80 Fed. Reg. at 64,733-75.

Indeed, many Movants in comments to EPA took the position that states and sources should be able to rely on generation-shifting measures in crafting and

[9] Likewise, the language at 42 U.S.C. § 7651f(b)(2), see Chamber of Commerce of the U.S., et al. ("Chamber") Mot. at 12, providing for limitation based on the "retrofit application of the best system of continuous emission reduction, taking into account available technology," reflects that Congress knew how to further cabin EPA's discretion when it wished to.

complying with the Section 111(d) emission standards set by states directly applicable to plants. See id. at 64,733 n.380; Declaration of Janet McCabe ¶ 37 (Ex. 1). Movants cannot have it both ways: the same cost-effective emission reduction measures that may be used in setting and complying with states' Section 111(d) "standards of performance" that are directly applicable to sources are necessarily also measures that may be incorporated into a "system of emission reduction" for purposes of EPA's Section 111(d) emission guidelines.

Movants also err, e.g., Utility Mot. 10, in placing weight on unenacted legislative proposals that would have amended the Act to further address climate change by imposing a different regulatory structure to replace the existing approach. The fact that subsequent Congresses have considered and rejected different approaches to combat climate change says nothing about what Congress meant when it drafted Section 111's operative language. See Massachusetts v. EPA, 549 U.S. at 529-30 (rejecting consideration of post-enactment legislative history in assessing whether CAA section 202, 42 U.S.C. § 7521, addresses climate change). See also Cent. Bank of Denver, N.A. v. First Interstate Bank of Denver, N.A., 511 U.S. 164, 187 (1994) ("Congressional inaction lacks persuasive significance because several equally tenable inferences may be drawn from such inaction, including the inference that the existing legislation already incorporated the offered change.") (internal quotation marks and citation omitted).

2. The generation-shifting measures contemplated by the Rule can be effectuated through standards of performance for existing sources.

Movants assert that the Rule is defective because the application of generation-shifting measures by EPA in setting guidelines allegedly is inconsistent with the requirement in Section 111(d) that emission standards be implemented through "standards of *performance*" "for any existing *source*," see 42 U.S.C. § 7411(d) (emphasis added), with Movants focusing on the two emphasized words. E.g., W.Va. Mot. 8, 12. But neither of these words supports Movants' argument.

First, the promulgated guidelines are consistent with the statutory design under which EPA rulemaking informs the creation of standards of performance "for any existing source." Movants emphasize that the term "source" is defined in Section 111(a)(3) as "any building, structure, facility, or installation which emits or may emit any air pollutant." E.g., Utility Mot. 11; Chamber Mot. 7-8. This definition, however, simply specifies *what* entities are subject to Section 111 standards. Specifically, the definition makes clear that the entities to which Section 111 standards must apply are stationary sources, and not, for example, mobile sources that are regulated elsewhere in the Act.[10] But the definition of "source," and the description of "standards of

[10] As the Act itself recognizes, "[b]uildings" and "structures" cannot themselves, of course, act to comply with emission standards; it is their owners and operators that take compliance actions (e.g., their owners or operators purchase and install pollution control equipment, change fuels, reduce generation levels, purchase emission allowances or credits). See 42 U.S.C. § 7411(e) (requiring owners and operators of

(Footnote continued . . .)

performance" as applying to sources, does nothing to limit the scope of measures that can be considered as part of the "best system of emission reduction," which informs the *stringency* of standards for stationary sources, to only those measures that could be implemented even if the source were hermetically sealed off from the rest of the world.[11] Certainly, it does not do so unambiguously, as would be required for Movants to prevail under Chevron.

Movants' assertions that EPA has "redefined" the source, Basin Electric Power Cooperative ("Basin") Mot. at 13, or is treating the electric grid as a single "source," National Mining Ass'n, et al. ("Coal") Mot. at 13, are wrong. EPA has not redefined the source as the grid; rather, it has properly calculated the degree of emission limitation achievable for an individual source applying the "best system of emission

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sources to comply with emission standards for sources). To make clear that the emission performance levels are achievable by a source through generation-shifting, EPA made the unremarkable observation that it is the owner or operator of a source that will implement generation-shifting measures. 80 Fed. Reg. at 64,762. Movants now argue that EPA erroneously redefined the "source" to include the owner. E.g., Chamber Mot. 9. But Movants have misconstrued EPA's explanation, which is that the *source*, being controlled as it is by its owner or operator, can achieve an emission standard by implementing generation-shifting measures.

[11] There are a number of statutory constraints that *otherwise* cabin the scope of a permissible "system of emission reduction," including the need to consider "costs" and "energy requirements." EPA also reasonably interprets the phrase "system of emission reduction" to call for considering only those systems that do not require any reduction in aggregate production levels within an industry, which precludes consideration of, e.g., demand-side efficiency measures. 80 Fed. Reg. at 64,778-79.

reduction" in the context of the grid.[12] Movants likewise err in suggesting, e.g., W.Va. Mot. 7, that individual sources cannot apply or implement the measures in the best system to achieve emission limits. As discussed above, supra at 17, EPA extensively described the measures that any individual source can take to shift generation to a cleaner source or sources and thereby achieve its emission standard.[13]

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[12] Movants' reliance on ASARCO, Inc. v. EPA, 578 F.2d 319 (D.C. Cir. 1978) is also misplaced. See, e.g., Utility Mot. 11. ASARCO has no relevance because that case did not address or interpret the scope of the controlling statutory term here: i.e., "best system of emission reduction." That case instead rejected an EPA regulation which redefined the statutory term "stationary source" to include "any * * * combination of * * * facilities." 578 F.2d at 326 (internal quotation marks and citation omitted). That regulation was intended to allow a plant operator who modifies a facility to increase emissions from some structures within the facility, to avoid complying with Section 111(b) new source standards, see 42 U.S.C. § 7411(a)(2), (4), if emission decreases from other units within the same facility canceled out the increases. In rejecting the regulation, the Court emphasized that it would thwart the Act's air quality objectives. 578 F.2d at 327-28. ASARCO was decided before the Supreme Court's decision in Chevron, which later upheld a similar EPA rule allowing states to treat all pollution-emitting devices within the same facility as though they were encased within a single "bubble." 467 U.S. at 857-66. In any event, nothing in ASARCO supports Movants' proposition that EPA must adhere to a balkanized approach in interpreting the phrase "best system of emission reduction," an approach that would frustrate the Act's air quality objectives.

[13] Movant Basin Electric erroneously asserts that EPA is claiming authority to regulate *anything* that a particular owner of a source controls, so that EPA could hypothetically "treat jet engines and washing machines" manufactured by the same company as "the same source." Basin Mot. 7. This misunderstands EPA's explanation. As EPA explained, "generation shifting" is available as an emission reduction system for power generators because of the uniquely integrated nature of the electric grid, where generators' operations are closely intertwined and dependent upon each other. 80 Fed. Reg. at 64,677; Legal Memorandum Accompanying Clean Power Plan for Certain Issues, Docket No. EPA-HQ-OAR-2013-0602-36872 ("Legal Mem.") at 117-27. In the power sector, if a source adds clean generation to the grid, that addition

(Footnote continued . . .)

Second, with respect to Congress' use of the word "performance" in Section 111, that word is part of the fuller statutorily-defined term "standard of performance," and, as discussed above (supra at 13-18), the consideration of generation-shifting measures meets every element of that fuller term. Congress' contemplation that a "standard of performance" could be informed by how a source interacts with the world around it is further evident in Congress' instruction that such standards should "reflect[]" the degree of emission limitation achievable through the application of an overarching "system" that EPA determines to meet the statutory criteria. Congress' focus on the "system" as the central determination, with the particular degree of emission limitation calculated in light of that "system," reinforces the broad scope of potential pollution-curbing measures that may serve as the basis of the emission guidelines that EPA issues.

EPA's interpretation of its authority under Section 111 (i.e., its authority to consider generation-shifting as within the best system for reducing power plant CO_2 emissions), should, at a minimum, be upheld under Chevron step two. 467 U.S. at 843. Although Movants make no attempt to apply Chevron, it is clearly applicable to the Agency's interpretations of the Act, see, e.g., EPA v. EME Homer City

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necessarily decreases other generation, and, because the decreased generation is generally fossil-fuel-fired, generally decreases emissions. In Basin's hypothetical, emissions from the production of jet engines and washing machines under common ownership are not intertwined; the increased production of washing machines does not result in decreased emissions from jet engine manufacture.

Generation, L.P., 134 S. Ct. 1584, 1603 (2014), and EPA is well-qualified to fill the gap left open by any ambiguity in the CAA. Here, the Agency has exercised that interpretive authority, to the extent necessary, in a reasonable manner. The purpose of the statute is, after all, to protect public health and welfare, and EPA's interpretation fulfills that purpose by enabling EPA to truly apply the "best" emission reduction system to sources. Movants' proposed interpretation, in contrast, would thwart Congress' objectives.

As a matter of common sense, where the very same product (electricity) is manufactured by sources in an interconnected grid using processes that have vastly disparate air pollution impacts, it is reasonable for Section 111(d) guidelines to reflect that sources may reduce or offset their emissions by entering into arrangements that incorporate cleaner forms of power generation. This is particularly so where the regulated sources already engage in that practice on their own, and where increased utilization of clean energy production will be far less costly for high-polluting sources than requiring them to engage in fuel substitution or to apply end-of-the-stack technologies at their plants. Under Movants' position, EPA would be compelled to apply an obviously inferior emission reduction system: either one far more expensive, or one that would not meaningfully address the threats presented.[14]

[14] Contrary to Movants' assertion, Chamber Mot. 13, Section 111(d) standards of performance for existing sources do *not* set a regulatory floor for standards in the Act's separate pre-construction permitting program for individual new or modified

(Footnote continued . . .)

3. Cross-boundary measures have been used as the basis for other Section 111 rules, including Section 111(d).

Movants are mistaken in suggesting that EPA has never previously relied on measures extending beyond the boundaries of a plant in applying Section 111. Coal Mot. 5; Chamber Mot. 8. In one particularly relevant example, many of these same Movants *supported* EPA's reliance in the Clean Air Mercury Rule ("CAMR") on cross-boundary measures as a basis for Section 111(d) emission limitations for coal-fired plants. 70 Fed. Reg. 28,606 (May 18, 2005). In that rule, EPA set Section 111(d) guidelines that established a national cap-and-trade program for mercury emissions from coal-fired plants.[15] Under that program, states could allocate emission allowances to individual plants as they deemed appropriate as long as the total allocation did not exceed a state's emission budget. 80 Fed. Reg. at 64,697. EPA based the cap, in part, on the sources' ability to engage in the same kind of measures contemplated here. i.e., by shifting generation to relatively well-controlled units or

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stationary sources (the Prevention of Significant Deterioration Program ("PSD") program). The Section 111(b) standards for new or modified sources will set the floor for PSD standards. See Response to Comments ("RTC"), Ch. 1, §§ 1.0-1.5, 170-72, EPA-HQ-OAR-2013-0602-36876. Thus, the 111(d) standards are unrelated to PSD standards. Similarly, Movant Basin Electric's citation to an EPA PSD guidance document also is misplaced, see Basin Mot. at 14, as the reasons for applying certain policies to the administration of the PSD program are inapplicable to this Section 111(d) Rule. RTC Ch. 1, § 1.2.

[15] The Court vacated CAMR, but on grounds immaterial to the statutory interpretation issue presented here. New Jersey v. EPA, 517 F.3d 574, 583-84 (D.C. Cir. 2008).

with cleaner forms of energy production, and through buying and selling allowance.[16] On judicial review of CAMR, many of the same Movants here (including lead Movants West Virginia, North Dakota, Utility Air Regulatory Group, and National Mining Association) intervened in *support* of EPA's authority to establish a cap-and-trade program under Section 111(d), advising the Court in their merits brief that:

> the regulation of air emissions using a cap-and-trade program has proven far more efficient than regulating each facility under a command-and-control approach.[17]

Indeed, owners and operators of power plants routinely depend on their ability to enter into arrangements with entities that may or may not themselves be directly regulated by the CAA, in relation to activities that are taking place far beyond the boundaries of their plants, in complying with emission standards. For example, they routinely rely on third parties to pretreat coal or oil (i.e., fuel-cleaning) off-site for purposes of meeting Section 111(b) sulfur emission standards, and for this reason, EPA has based the "best system" for those standards on third-party fuel cleaning.

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[16] Utility Movants are wrong, Mot. 9, in asserting that the emission cap in CAMR was based solely on the application of control technology. In CAMR, EPA identified the "best system" as "the *combination* of the cap-and-trade mechanism and the technology needed to achieve the chosen cap level." 70 Fed. Reg. at 28,620 (emphasis added). Specifically, EPA set the cap at the level that would be cost-effective, based on the ability of regulated sources to reduce their emissions in part through "*dispatch changes*" (i.e., generation shifting). Id. at 28,619 (emphasis added).

[17] See New Jersey v. EPA, Case No. 05-1097, Joint Brief of State Respondent-Intervenors, Industry Respondent-Intervenors, and State Amicus, 2007 WL 2155487 (D.C. Cir.) (July 23, 2007).

See 80 Fed. Reg. at 64,765-66. Likewise, they routinely rely on emissions averaging and trading programs for purposes of meeting a wide range of CAA compliance obligations. 60 Fed. Reg. 65,402, 65,415 (Dec. 19, 1995); 80 Fed. Reg. at 64,770-73. By definition, such averaging and trading programs allow a particular source to rely in part on emission reductions that *other* facilities have actually achieved (as opposed to relying entirely on reductions that the source itself achieved within the boundaries of its plant). Consequently, the balkanized construct that Movants assert as a textually-mandated limiting principle cannot be squared with real-world practice.

Movants are also mistaken in their argument that premising the "best system" on cost-effective arrangements involving cleaner forms of production is inappropriate because pollution regulation should not result in any "winners and losers" among generation sources. W.Va. Mot. 9. It is neither irrational nor unprecedented for the Agency to exercise its authority to incentivize production using the cleanest methods possible. Many other air pollution standards previously promulgated by EPA for power plants have likewise had adverse competitive implications for dirtier plants that needed to do more to comply. McCabe Decl. ¶ 44.[18]

[18] Movant States raise, as a fictional strawman, the prospect that EPA would someday try to mandate under Section 111 that states direct all fossil-fuel power plants to close. W.Va. Mot. 8. EPA has not asserted any such authority under Section 111. Directing plants to shut down would be an action entirely different in nature from setting emission performance guidelines premised on an appropriate amount of generation-shifting that is cost-reasonable for the regulated industry.

Movants' reliance on certain language in Util. Air Regulatory Grp. v. EPA, 134 S. Ct. 2427 (2014) ("UARG") as purportedly undermining the reasonableness of EPA's approach is also misplaced. In UARG, EPA sought to expand two CAA permitting programs but to adjust, through regulations, the express statutory numerical thresholds for those programs to avoid sweeping in millions of small emission sources for the first time. Id. at 2448. Here, EPA is neither straining the interpretation of a clear statutory provision (e.g., rewriting a numerical threshold), nor expanding its regulatory authority so as to require such a strained interpretation to avoid an anomalous result (e.g., regulating a large number of new small sources). It is instead applying a sensible and straightforward interpretation of the "best system of emission reduction" to determine the stringency of emission standards, and it is doing so for polluters that have long been regulated under Section 111 and, in fact, are the *very biggest* polluters in the nation – large fossil-fuel-fired power plants. The Rule also builds upon existing industry trends and requires gradual and measured CO_2 reductions, thus, "moderately increasing the demands" it makes of these sources. Id. Movants mischaracterize the Rule in suggesting that it calls for some "massive industrial transformation." Coal Mot. 19.

4. The Rule does not intrude on areas of regulation reserved to the States or other federal agencies.

Movants also err in contending that EPA's interpretation impinges upon states' sovereign rights or is contrary to authority provided to the Federal Energy Regulatory

Commission ("FERC"). Congress provided authority specifically to EPA to regulate dangerous air pollution, including CO_2 from power plants, because this pollution poses urgent hazards that require a meaningful federal response. The Act specifically entrusts EPA, as the "expert administrative agency," to determine the "appropriate amount of [CO_2] regulation" from power plants by engaging in "complex balancing" which weighs "the environmental benefit potentially achievable" against "our Nation's energy needs and the possibility of economic disruption." AEP, 131 S. Ct. at 2539. Although Movants suggest that EPA lacks the necessary "expertise," e.g., Chamber Mot. 14, for this Congressionally assigned task, the Supreme Court has recognized EPA as an "altogether fitting" "expert administrative agency" equipped to make suitable regulatory judgments about CO_2 pollution from power plants, AEP, 131 S. Ct. at 2539. Neither FERC nor any other federal agency is entrusted with that particular mandate and responsibility.

EPA engaged in extensive consultation with FERC, grid operators, utilities and others prior to making any judgments relating to the Rule's impact; carefully considered their recommendations, and made reasonable judgments regarding "energy requirements." 80 Fed. Reg. at 64,671, 64,693-94, 64,706-07, 64,800, 64,874-81.[19]

[19] Movants err in contending that the Court remanded the rule at issue in Del. Dep't of Natural Res. v. EPA, 785 F.3d 1 (D.C. Cir. 2015) because EPA lacked authority to consider grid reliability issues. See, e.g., Coal Mot. 11 n.41. The reason for the remand was the Court's view that EPA had failed to consider public comments raising grid reliability concerns or to consult with FERC, unlike in this case.

Contrary to Movants' argument, the Rule's emission guidelines do not diminish or alter the authorities and functions of state public utility commissions or other instruments of state energy policy. Movants' argument ignores the distinction between (1) specific pollution limitations authorized by the Act that have an indirect effect on energy markets, and (2) more general direct regulation of energy markets. The pollution limitations here are the former. As is the case with *any* pollution limitations for power plants (which are commonplace under the Act), the Rule will entail compliance costs for regulated power sources, and those costs will necessarily indirectly affect energy markets. That does not mean EPA lacks authority to establish pollution limitations or that establishing such limitations impermissibly interferes with states' traditional responsibilities in the field of electricity regulation.

Under the Rule, states retain the same authorities they have always had – for example, to regulate retail electricity sales in intrastate markets and to license new power generation facilities. While some power generators might need to spend more to comply with CO_2 standards applicable to their plants, costs for compliance with emission standards are regularly incorporated into power prices without usurping a state's authority over its energy market. As is the case with all air pollution standards, state regulators will continue to decide the rates that state ratepayers should bear, and could elect to reflect the costs of CO_2 controls in those rates, without suffering any usurpation of their authority. Similarly, states will continue to have the same authority over licensing decisions for new proposed power facilities. That emission

requirements might indirectly affect the types of projects that power generators propose does not usurp state authority to determine whether to license those projects. See 80 Fed. Reg. at 64,782-85.

It further bears emphasis that the Rule does *not* require states or sources to employ the particular emission-limitation measures that EPA looked to in determining the achievable degree of emission limitation. EPA has provided states with extremely broad flexibility to choose from a range of alternative approaches in crafting plans to obtain the reductions in the guidelines. A state can impose different obligations on its sources, as long as the overall level of emission limitation is at least as stringent as the guidelines. Id. at 64,736. For example, states may elect to require technological controls at plants (e.g., gas co-firing or carbon sequestration) to meet the goals in whole or in part. If a state simply imposes emission limits on sources, the sources may then also meet those limits in any way they wish, including using technological controls. States also have the flexibility to achieve the states' goals in whole or in part through state-law-only programs that result in CO_2 emission reductions at sources. For example, states may elect to use state law authority to rely largely upon existing or planned programs for increasing energy-usage efficiency and reducing energy demand to achieve CO_2 reductions from sources indirectly.

EPA is also not precluded from considering generation-shifting as a "system of emission reduction" for purposes of guidelines on the ground that some high-emitting facilities may reduce their overall output levels to meet state-established pollution

limitations. See Basin Mot. 10-11. Under the Act, particular fossil-fuel-fired power plants frequently choose to, or are required to, reduce their overall levels of generation to comply with pollution standards. 80 Fed. Reg. at 64,780-81.[20] That said, it bears emphasis that the specific requirements and limitations placed on a source are for the states to decide, and if an individual facility were to be required by a state to simply comply with the uniform performance rate identified by EPA, it could potentially do so in a number of ways that would not require reducing the facility's energy output (e.g., by purchasing emission credits). It should further be emphasized that EPA reasonably interprets the phrase "best system of emission reduction" in Section 111 as calling for consideration of only those systems that do not require any reduction in aggregate production levels within an industry, and the system identified by EPA does not require any such reduction. Id. at 64,778-79.

5. EPA's emission guidelines for existing sources are not inconsistent with its regulation of new sources.

Movants challenge the reasonableness of the particular emission guidelines in the Rule by asserting that it is "nonsensical," Coal Mot. 14, that the Rule's performance-rate guidelines for existing sources are numerically lower than the standards promulgated by EPA under Section 111(b) for new sources. But Movants'

[20] Examples include requirements that power plants implement to reduce emissions of air pollutants that cause or contribute to visibility impairment and enforceable limits on hours of operation that sources accept to avoid triggering CAA obligations that would otherwise apply to the source. Id. at 64,781.

premise – that the existing source guidelines are more stringent than the new source standards – is not necessarily true, and in any event the comparative stringency of the two is ultimately irrelevant to the legal issues raised here.

Movants are making an apples-to-oranges comparison. 80 Fed. Reg. at 64,785. As EPA explained, the two rules become applicable at very different points in time and also have significantly different compliance periods, which, as this Court has recognized, factor importantly into the overall "stringency" of the respective standards. Id. at 64,785; Portland Cement Ass'n v. Ruckelshaus, 486 F.2d 375, 391-92 (D.C. Cir. 1973). The standards for new sources are immediately effective. 80 Fed. Reg. at 64,785; 42 U.S.C. § 7411(a)(2) & (b)(1)(B). In contrast, existing sources are not subject to CO_2 performance standards until 2022 at the earliest (and in fact, states may delay imposing requirements until 2024 in most cases) and the standards are then gradually phased in through 2030. 80 Fed. Reg. at 64,785-86.

Furthermore, EPA is required to review and, if appropriate, revise the stringency of new source standards no less frequently than every eight years – i.e., by 2023. 42 U.S.C. § 7411(b)(1)(B). Thus, the stringency of the limits that will apply to new sources when the existing source guidelines start to go into effect (2022 or later) and become fully effective (2030) is not yet known. 80 Fed. Reg. at 64,785. Finally, new-source standards are inherently more stringent than existing source guidelines because they apply directly and individually to each new source. 42 U.S.C. § 7411(a)(2) & (b)(1)(B). In contrast, states have great flexibility in fashioning requirements for

existing sources – for example, they may allow averaging among sources or emissions trading, rather than requiring sources to apply controls. 80 Fed. Reg. at 64,785-86.

In any event, even if the requirements for existing and new sources could be directly compared and the former were deemed more stringent, this would not, by itself, call into question the reasonableness of either standard. As EPA noted, "[n]o provision in Section 111, nor any statement in the legislative history, nor any of its case law, indicates that the standards for new sources must be more stringent than the standards for existing sources." Id. at 64,787. Rather, the relevant question is whether EPA reasonably identified the "best" emission reduction system for new sources and for existing sources.[21] As discussed above, EPA has done so here.

C. Prior Regulation of Different Pollutants Emitted by Power Plants, Under a Different Provision, Does Not Bar CO_2 Regulation.

In 1990, Congress amended the Act in order to expand EPA's regulatory authority, compelling the Agency to regulate more pollutants more quickly.[22] As part of those amendments, Congress enacted two different amendments to Section 111(d),

[21] Movants object to EPA's application of generation-shifting measures in determining the best system of emission reduction for existing, but not new, sources. Chamber Mot. 11-12. But EPA explained why it reasonably chose not to require such measures for new sources; e.g., it noted that the robust trading market available to existing sources would not be available to new sources. 80 Fed. Reg. at 64,626-28.

[22] See S. Rep. No. 101-228 at 133, reprinted in 5 A Legislative History of the Clean Air Act Amendments of 1990 ("Legis. Hist.") 8338, 8473 (Comm. Print 1993).

one drafted by the House and one by the Senate.[23] Relying solely on the House-amendment, some Movants argue that Section 111(d) does not allow *any* regulation of existing power plants' CO_2 emissions. E.g., W.Va. Mot. 11-15. They claim that, once a source category's emissions of some *hazardous* pollutant have been regulated under section 112 of the Act, 42 U.S.C. § 7412, those sources' emissions of *any* pollutant – whether regulated as hazardous under section 7412 or not – cannot be addressed under Section 111(d). E.g., W.Va. Mot 11-15. They accordingly contend that, because power plants' emissions of certain hazardous pollutants were regulated by EPA in the 2012 Mercury and Air Toxics Standards ("MATS") Rule,[24] EPA can no longer address any emissions – hazardous or not – from power plants under Section 111(d). E.g., W.Va. Mot 11-15. That contention – which would strip Section 111(d) of nearly all practical effect – is misguided.

As EPA has explained, the House-amended text on which movants rely does not support that reading. See 80 Fed. Reg. at 64,713. That text states that EPA shall regulate any air pollutant "**[1]** for which air quality criteria have not been issued **or [2]** which is not included on a list published under section 7408(a) of this title or emitted from a source category which is regulated under section 7412." 42 U.S.C. § 7411(d)

[23] Pub. L. No. 101-549, §§ 108(g) & 302(a), 104 Stat. 2467 & 2574 (1990).

[24] 77 Fed. Reg. 9304 (Feb. 16, 2012). As Movants note, W.Va. Mot. 12 n.6, challenges to the MATS rule have been remanded by the Supreme Court. Michigan v. EPA, 135 S. Ct. 2699 (2015). Motions addressing whether that rule should be vacated are now pending before this Court in White Stallion Energy Ctr. v. EPA, No. 12-1100.

(emphasis and numbering added). Because (at least) the first of the alternative conditions is satisfied – that is, because "air quality criteria have not been issued" for CO_2 – the literal reading supports EPA's authority to issue the Rule. Movants' contrary interpretation – which would read the text to say "and which," rather than "or which" – is by no means plain, let alone the only permissible reading.

EPA's own interpretation is a reasonable reconciliation of the provision's ambiguity, in contrast to movants, whose interpretation would "give[] little or no meaning to the limitation covering [hazardous pollutants] that are regulated under [section 7412]." 80 Fed. Reg. at 64,713. Rather, EPA reasonably interpreted 42 U.S.C. § 7411(d) as barring regulation thereunder only in regard to specific "hazardous" pollutants actually regulated under section 7412. Id. at 64,714. As EPA explained, when construing the phrase "regulated under section [7412]," one must consider *what* is being regulated. Id. at 64,713-14. Only hazardous pollutants are addressed by section 7412, and EPA regulates sources under that provision only in regard to hazardous emissions. Id. Thus, where EPA has regulated a source category's emissions of particular hazardous pollutants under section 7412, section 7411(d) is reasonably read as permitting regulation thereunder of other pollutants, such as CO_2. Id. at 64,714-15.[25]

[25] Movants claim that EPA "abandoned its longstanding interpretation of the statutory text." W.Va. Mot. 13; see Peabody Energy Corp. ("Peabody") Mot. at 11 (accusing EPA of "flip-flopping"). It did not. Rather, while EPA's analysis of the

(Footnote continued . . .)

The reasonableness of EPA's reading of Section 111(d) is reinforced by the fact that the U.S. Code provision on which Movants base their atextual interpretation does not tell the whole story. Both the House and Senate amendments were enacted into law when Congress amended the Act in 1990 to strengthen it by expanding, *inter alia*, the criteria and hazardous pollutant programs. See H.R. Rep. No. 101-952, at 335 (1990) (summarizing 1990 amendments). Because the two amendments cannot be simultaneously implemented, as they change the same text (a cross-reference to section 7412(b)(1)(A), repealed in 1990) in different ways, only the House amendment was included in the U.S. Code. But both amendments were enacted and included in the Statutes at Large, which is controlling. 1 U.S.C. §§ 112 & 204(a); Five Flags Pipe Line Co. v. Dep't of Transp., 854 F.2d 1438, 1440 (D.C. Cir. 1988).

It is undisputed that the Senate's amendment to Section 111(d) would allow EPA to regulate power plants' CO_2 emissions, regardless of whether other pollutants are already regulated under section 7412.[26] Movants try to avoid that result by arguing

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provision has evolved in response to comments, EPA has consistently concluded that the section 7412 exclusion is best interpreted as hazardous-pollutant specific. See 70 Fed. Reg. 15,994, 16,032 (Mar. 29, 2005) ("EPA has historically regulated non-[hazardous pollutants] under Section 111(d), even where those [pollutants] were emitted from a source category actually regulated under section [7412]."). In any event, EPA's interpretation is entitled to deference even if it differs from a prior interpretation. See Nat'l Cable & Telecomms. Ass'n v. Brand X Internet Servs., 545 U.S. 967, 981-82 (2005).

[26] The Senate amendment is straightforward. Implemented alone, it authorizes regulation: "for any existing source for any air pollutant for which air quality criteria

(Footnote continued . . .)

that the Senate amendment should be ignored as a "clerical error," W.Va. Mot. 14-15, or "scrivener's provision," Peabody Mot. 9. But the House amendment is no more substantive than the Senate amendment, given that both simply update an obsolete cross-reference and thus are "conforming." See 80 Fed. Reg. at 64,712 (citing Senate Legislative Drafting Manual). And regardless of the label applied, courts give full effect to such amendments. See Wash. Hosp. Ctr. v. Bowen, 795 F.2d 139, 149 (D.C. Cir. 1986). Any reasonable interpretation of Section 111(d) therefore must account for the Senate amendment's clear intent to preserve EPA's ability to regulate dangerous, but non-hazardous, pollutants under that provision.[27] Unlike Movants' proposal, which altogether disregards the enacted statutory text of the Senate amendment, EPA has complied with the canon that "provisions in a statute should be read to be consistent, rather than conflicting, if possible." 80 Fed. Reg. at 64,713 (citing Scialabba v. Cuellar De Osorio, 134 S. Ct. 2191, 2214, 2219-20 (2014)).

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have not been issued or which is not included on a list published under . . . section 7412(b)." Pub. L. No. 101-549, § 302(a), 104 Stat. 2399, 2574 (1990).

[27] Peabody attempts to avoid this obligation by arguing that the Senate "receded" to the House. Peabody Mot. 10 (citing 1 Legis. Hist. 885). To begin with, the language Peabody cites is not from a conference report as claimed, but only a "Statement of Senate Managers" that was "not reviewed or approved by all of the conferees." 1 Legis. Hist. 880. Moreover, the term "recedes" means simply that one chamber is withdrawing its prior objection to a bill section, and it was used here only in regard to Section 108 (containing the House amendment), and thus does not resolve Congress' intent regarding Section 302 (containing the Senate amendment). In any event, this statement "cannot undermine the statute's language," Envtl. Def. Fund, Inc. v. EPA, 82 F.3d 451, 460 n.11 (D.C. Cir. 1996), which, as enacted, includes both amendments.

Finally, Movants' interpretation of Section 111(d) (under which sources regulated under section 7412 are thereafter immune from regulation, even in regard to different, non-hazardous pollutants) is also unreasonable because it would render that provision practically moot, since over 140 source categories are regulated under section 7412. 80 Fed. Reg. at 64,714. Not only are statutory interpretations having such an effect disfavored, there is no suggestion in the legislative history that either house of Congress intended to so dramatically reduce the scope of Section 111(d), one of three core programs intended to cover the full range of dangerous air emissions.[28] See King, 135 S. Ct. at 2492 ("A provision that may seem ambiguous in isolation is often clarified by the remainder of the statutory scheme . . . because only one of the permissible meanings produces a substantive effect that is compatible with the rest of the law." (citations omitted)). In fact, the legislative history of the two amendments affirmatively suggests otherwise. See 80 Fed. Reg. at 64,711 n.289, 64,712-15. Movants' interpretation of Section 111(d) is thus at odds with the statutory scheme and legislative history.[29]

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[28] See id. at 64,711 (citing S. Rep. No. 91-1196, at 20 (1970)). Section 111's Congressionally-designed role is to ensure that there are "no gaps" between the other two core programs, the criteria and hazardous pollutant programs. See id.

[29] Movants' interpretation has not been endorsed by the Supreme Court, as they claim. E.g., W.Va. Mot. 12. Rather, the holding in AEP, 131 S. Ct. at 2537 – that Section 111(d) "speaks directly to emissions of [CO_2] from defendants' [power] plants" – points in precisely the opposite direction.

D. Movants' Constitutional Arguments Lack Merit.

Certain Movants argue that the Rule violates the Tenth Amendment, the Fifth Amendment, and general principles of federalism. See State of Oklahoma ("Ok.") Mot. at Mot. 9-17; Peabody Mot. 5-18. Not only do these arguments lack support in the relevant jurisprudence, but accepting Movants' conclusion – that giving states a choice between federal regulation of emissions or controlling emissions themselves is unconstitutional – would have serious implications for other well-established regulatory programs.

1. Movants' Tenth Amendment and federalism arguments lack merit.

The Rule is a constitutionally permissible exercise of well-settled federal authority. It has long been recognized that "the power conferred by the Commerce Clause [is] broad enough to permit congressional regulation of activities causing air or water pollution . . . that may have effects in more than one State." Hodel v. Va. Surface Mining & Reclamation Ass'n, 452 U.S. 264, 282 (1981). And the Supreme Court has "repeatedly affirm[ed] the constitutionality of federal statutes that allow States to administer federal programs but provide for direct federal administration if a State chooses not to administer it." Miss. Comm'n on Envtl. Quality v. EPA, 790 F.3d 138, 175 (D.C. Cir. 2015) (quotation omitted).

For example, the Court upheld the Surface Mining Control and Reclamation Act, under which states were given a choice between federal regulation or implementing their own programs, reasoning that because "the States are not

compelled to . . . participate in the federal regulatory program . . . [t]he most that can be said is that the [ ] Act establishes a program of cooperative federalism that allows the States . . . to enact and administer their own regulatory programs. . . ." Hodel, 452 U.S. at 288-89. A decade later, the Court reiterated that "we have recognized Congress' power to offer States the choice of regulating [ ] activity according to federal standards or having state law pre-empted" and noted that such "cooperative federalism" programs are "replicated in numerous federal statutory schemes." New York v. United States, 505 U.S. 144, 167-68 (1992).

The Rule is a textbook example of cooperative federalism. States are given a choice: they can take advantage of the Rule's flexibility to develop their own plans to reduce power plants' CO_2 emissions, or they can decline to do so and EPA will directly regulate those sources' CO_2 emissions instead. See 80 Fed. Reg. at 64,986. There is no constitutionally-significant distinction in this regard between the Rule and the regulatory framework at issue in Hodel, or the framework of other well-established CAA programs.[30] Indeed, this Court recently rejected a very similar Tenth

[30] Oklahoma suggests that there is a "preemptive mismatch" here because EPA may not regulate "the transmission, distribution, or consumption of energy." Ok. Mot. 15. But, as discussed earlier (see *supra* at 31-35), the Rule regulates emissions, not the energy industry as such. The fact that sources of emissions are subject to regulation by other federal, state, and local authorities in regard to other aspects of their activities is irrelevant. See Hodel, 452 U.S. at 286 (noting that private persons and businesses are "necessarily subject to [ ] dual sovereignty" (quotation omitted)).

Amendment challenge to the National Ambient Air Quality Standards program. See Miss. Comm'n, 790 F.3d at 174-80.

Movants' reliance on NFIB, 132 S. Ct. at 2604, to argue that the Rule impermissibly coerces states is misplaced. See Ok. Mot. 12-13; Peabody Mot. 14-15. Unlike the Medicaid expansion at issue in NFIB – under which states stood to lose preexisting funding representing significant portions of their budgets if they declined to implement the program, 132 S. Ct. at 2604-05 – the Rule expressly *prohibits* EPA from withholding "any existing federal funds" from states. 40 C.F.R. § 60.5736. Indeed, a state that does not submit a Section 111(d) plan faces *no* sanctions or penalties. See 80 Fed. Reg. at 64,882, 64,968. Thus, the Rule is no "gun to the head," Ok. Mot. 13; indeed, it cannot fairly be called a stick. Rather, by allowing states to design their own plans, it offers them a carrot that they are free to refuse.

Movants' suggestions that they have no choice but to submit a state plan are unsubstantiated. Oklahoma argues that it must do so because the implementation of a federal plan would result in "disruption and dislocation." Ok. Mot. 13. But Oklahoma's governor has issued an executive order stating that she "will not submit a Section 111(d) [plan]" and forbidding state officials from working on such a plan, see Executive Order 2015-22,[31] which belies the State's insistence that it has no real choice in the matter. Moreover, Oklahoma offers no support for its claims of

[31] Available at https://www.sos.ok.gov/documents/Executive/978.pdf.

impending chaos. EPA, in contrast, comprehensively addressed stakeholders' "disruption" concerns in the Rule,[32] and the proposed federal plan is highly flexible and also addresses those issues. See, e.g., 80 Fed. Reg. at 64,981-82. And of course, any final federal plan will be subject to judicial review for reasonableness and lawfulness. See 42 U.S.C. § 7607(d)(9). But perhaps most critically, a state's desire to avoid the effects (however perceived) of federal regulation does not render it unconstitutional for an agency to offer a state the option of regulating for itself.

Movants next claim that the Rule unlawfully "commandeers" state regulators. Ok. Mot. 9-12; Peabody Mot. 13. But "there can be no suggestion that the Act commandeers . . . the States by directly compelling them to enact and enforce a federal regulatory program" where states are given the option of doing nothing, and instead allowing the federal government to step in and regulate sources' CO_2 emissions. Hodel, 452 U.S. at 288. And if a state opts to do nothing, EPA will "not directly impose specific requirements on state and U.S. territory governments," but only "on affected [sources] located in states." 80 Fed. Reg. at 65,054. A federal plan that "regulate[s] individuals, not States" poses no Tenth Amendment issue. Printz v. United States, 521 U.S. 898, 920 (1997) (citation omitted).

[32] To give just one example of EPA's solicitude for these issues, the Rule made available a "reliability safety valve" for state plans, in the unlikely event that substantial reliability issues occur due to unanticipated emergency. 80 Fed. Reg. at 64,671.

Oklahoma argues that state regulators will nevertheless be forced to address changes made by power plants pursuant to any federal plan. Ok. Mot. 11-12. The possibility that states may react to federal regulation does not make that regulation, or an offer of state self-regulation, unlawful. In any event, as noted above, states that choose the federal-plan option will have no new regulatory obligations. If a state wishes to refuse, for example, to grant a permit required under state law for an action that a power plant wants to take to comply with a federal plan, it may do so. In that event, the full compliance burden rests with the power plant, which will have to pursue an alternative compliance method that is either agreeable to state regulators or does not require approval. The Rule is no different in this regard from other federal rules governing power plants.[33] There is no Tenth Amendment issue where states may "defend their prerogatives by adopting 'the simple expedient of not yielding' . . . when they do not want to embrace the federal policies as their own." NFIB, 132 S. Ct. at 2603 (quoting Massachusetts v. Mellon, 262 U.S. 447, 482 (1923)).

2. Peabody's Fifth Amendment argument is meritless.

Peabody summarily argues that the Rule presents "serious questions under the Fifth Amendment." Peabody Mot. 15. Peabody does not explain precisely how the

[33] For example, under the Federal Power Act, FERC has authority to require "[a]ll users, owners and operators of the bulk-power system" to comply with federal electric reliability standards. 16 U.S.C. § 824o. Those standards are not unconstitutional merely because an entity may seek to comply through actions that require state public utility commission approval.

Rule effects a taking of coal companies' property interests so as to "trigger just compensation obligations." Id. at 15-18. In any event, the Rule does not do so.[34]

EPA undertook a thorough Fifth Amendment analysis, correctly concluding that the Rule is not an unlawful taking. See Legal Mem. at 57-62. The Rule plainly does not effect a physical or "per se" taking. See Tahoe-Sierra Pres. Council v. Tahoe Reg'l Planning Agency, 535 U.S. 302, 321-24 (2002). To the extent Peabody is suggesting that the Rule is a regulatory taking, that analysis requires balancing factors including "[t]he economic impact of the regulation," "the extent to which the regulation has interfered with distinct investment-backed expectations," and the "character of the governmental action." Penn Cent. Transp. Co. v. City of New York, 438 U.S. 104, 124 (1978). The fact that power plants have long been subject to environmental regulation severely undercuts any suggestion that the Rule unfairly interferes with "investment-backed expectations," and the "character" of the Rule – a "program adjusting the benefits and burdens of economic life to promote the common good"– also makes it unlikely that a court will ever conclude that a taking has occurred. Id. Moreover, the regulatory takings issue is at best unripe, because the

[34] Peabody's suggestion that the Court should decline to apply Chevron to avoid takings issues is a misapplication of the constitutional avoidance doctrine. Courts are to construe Congressionally-mandated programs as *not* raising constitutional issues where possible, see NFIB, 132 S. Ct. at 2600, not decline to consider the reasonableness of an agency's interpretation of a statute based on claims of unconstitutionality.

economic impact of the Rule on coal producers cannot be known until states actually formulate their plans. See Legal Mem. at 60-62.[35] Finally, even if the Rule did effect a taking, the appropriate remedy is not to invalidate it, but to provide whatever "just compensation" is deemed requisite after the fact, through a suit under the Tucker Act. See Ruckelshaus v. Monsanto Co., 467 U.S. 986, 1016 (1984).

Neither of the two cases cited by Peabody supports its takings argument. In Eastern Enterprises v. Apfel, 524 U.S. 498, 503-47, 550-56 (1998), a plurality of four justices concluded that there was an unconstitutional taking, but the other five did not agree. Moreover, the plurality's takings conclusion was predicated on the retroactive nature of the provision at issue, which required companies to pay new benefits to miners who had retired decades earlier, interfering with "reasonable investment backed expectations." Id. at 530, 534-36. There is no similar retroactivity concern here, and the industry has no reasonable expectation of non-regulation. And in Pennsylvania Coal Co. v. Mahon, 260 U.S. 393, 415 (1922), a Lochner-era "right to contract" case, the Court concluded that a legislature could not prohibit a coal company from mining under a home because the deed expressly allowed such mining. Peabody's customers have no similar entitlement to pollute free from regulation.

[35] See Hodel, 452 U.S. at 294-95 (it is "particularly important" that courts not decide takings claims "except in an actual factual setting that makes such a decision necessary"; the analysis "must be conducted with respect to specific property, and the particular estimates of economic impact . . . relevant in the unique circumstances").

E. EPA Has Authority to Set Substantive Emission Guidelines.

Movant North Dakota's contention that EPA cannot set any substantive emission guidelines at all for states is misplaced, and also constitutes an untimely challenge to regulations implementing Section 111(d) that were promulgated in 1975. See State of North Dakota ("N.D.") Mot. at 16; 40 Fed. Reg. 53,340 (Nov. 17, 1975); 40 C.F.R. §§ 60.21(e), 60.22(a); see also 42 U.S.C. § 7607(b) (requiring a petition for review of CAA regulations to be filed within 60 days of promulgation). As EPA explained when it promulgated the Section 111(d) implementing regulations, emission guidelines appropriately provide states with the substantive criteria that EPA will apply in its statutorily-required review of whether state plans are "satisfactory." 40 Fed. Reg. at 53,342; 42 U.S.C. § 7411(d)(2). In the absence of guidelines, "[s]tates could set extremely lenient standards – even standards permitting greatly increased emissions – so long as EPA's procedural requirements were met." 40 Fed. Reg. at 53,343.

Contrary to North Dakota and Basin Electric's argument, N.D. Mot. 16; Basin Mot. 12, the Rule also reasonably permits states to consider the remaining useful life of a source in a number of ways. 80 Fed. Reg. at 64,870-71. For example, by using the flexibilities provided, such as regional trading, states and sources can account for the remaining useful life of sources and avoid "stranded assets," that is, premature retirement of capital investments. Id.

F. Movants' Procedural Arguments Lack Merit and Are Not Properly Before the Court.

Finally, Movant North Dakota's cursory argument that the Rule violates the CAA because portions of the Rule were purportedly promulgated without adequate notice and opportunity to comment also lacks merit. N.D. Mot. 18-19. This Court has explained that "an agency satisfies the notice requirement, and need not conduct a further round of public comment, as long as its final rule is a 'logical outgrowth' of the rule it originally proposed," a condition that is met when "interested parties should have anticipated that [a] change was possible." Ne. Md. Waste Disposal Auth. v. EPA, 358 F.3d 936, 951-52 (D.C. Cir. 2004) (per curiam) (internal quotation marks and citation omitted). The proposed rule and EPA's subsequent "notice of data availability" solicited broad and extensive public comment, including on alternative methods for determining the "best system" that would result in the more stringent state goals ultimately adopted for some states. 80 Fed. Reg. at 64,707; 64,736-38; see also McCabe Decl. ¶¶ 38-41. North Dakota thus had ample notice of what was "on the table." See Anne Arundel Cnty. v. EPA, 963 F.2d 412, 418 (D.C. Cir. 1992) (quotation omitted). North Dakota's brief fails to identify any features of the Rule that it believes would fail the "logical outgrowth" test.

Moreover, North Dakota's procedural argument that it was not afforded sufficient opportunity for comment cannot be raised before the Court at this time. N.D. Mot. 18-19. Section 307(d) of the Act provides that new procedural objections

to a rule must be raised in a petition to the EPA for administrative reconsideration before they may be raised in judicial review. 42 U.S.C. § 7607(d)(7)(B), (d)(8)-(9); see Util. Air Regulatory Grp. v. EPA, 744 F.3d 741, 746-47 (D.C. Cir. 2014) (holding that section 307(d)(7)(B) "forecloses" judicial review of substantive *and* procedural challenges to a rule not raised during public comment until after EPA completes or denies reconsideration). North Dakota's petition for administrative reconsideration is still under review at the Agency. Cf. Mexichem Specialty Resins, Inc. v. EPA, 787 F.3d 544, 557 (D.C. Cir. 2015) (rejecting a stay even though EPA had already granted reconsideration because petitioners did not establish that "the Rule is likely to change after reconsideration").

II. MOVANTS WILL NOT SUFFER IRREPARABLE INJURY DURING THE PENDENCY OF THE LITIGATION.

To establish irreparable harm, Movants must demonstrate an injury that is "both certain and great; it must be actual and not theoretical." Wis. Gas Co. v. FERC, 758 F.2d 669, 674 (D.C. Cir. 1985). Alleged economic losses do not constitute irreparable injury except in the most extreme circumstances, i.e., where the "very existence" of a company is threatened. Id. Furthermore, to justify a stay pending review, such harm must be imminent and substantial, and not reparable through the normal course of judicial review. Id. Movants have not met these requirements.

A. State Movants Have No Likelihood of Irreparable Injury.

State Movants have not shown they will suffer any irreparable injury during the period of this Court's review. States have considerable flexibility in both the amount and timing of any effort required by the Rule, including the option of doing nothing. Moreover, with a readily obtained extension, state plans are not due until 2018, and compliance obligations under the Rule do not begin until 2022 at the earliest.

1. The Rule Does Not Intrude on States' Sovereign Interests.

State Movants cannot establish irreparable harm, either during the period of judicial review or thereafter, by invoking a purported sovereign interest in regulating the generation of electricity. As a threshold matter, this argument is based on the false premise that the Rule dictates the required mix of generation facilities in each state. It does not. Consistent with the cooperative federalism principles of the Act, the Rule establishes emission performance levels or state goals for emissions of CO_2 and then leaves to states the responsibility, and flexibility, to determine how to meet them. It thus has the same basic structure as numerous other CAA rules, such as new or revised National Ambient Air Quality Standards. See McCabe Decl. ¶ 23.

State Movants do not identify a single case holding that it is irreparable harm for a state to exercise its regulatory authority subject to nationwide constraints in implementing a scheme of cooperative federalism. To the contrary, the cited cases all involve situations where the stayed action prevented a state from exercising its regulatory authority at all. For example, in the one cited case involving the action of a

federal agency, Kansas v. United States, 249 F.3d 1213 (10th Cir. 2001), the stayed action prevented the State from regulating casino construction on disputed property. The Rule here does not prevent states from regulating the generation of electricity, but simply establishes guidelines for state pollution-control measures under the Act. That is not an unconstitutional intrusion on state sovereignty, Hodel, 452 U.S. at 287-90, and accordingly cannot be considered irreparable harm.

2. Regulatory Activity by State Agencies Does Not Constitute Irreparable Harm.

State Movants also assert that they will be harmed because their environmental and public utility agencies will have to expend resources to comply with the Rule.[36] However, they cite no case in which a state's compliance with its statutory responsibilities was held to constitute irreparable harm, and such a holding would open the door to treating virtually any agency action requiring state implementation as causing irreparable harm. In any event, because the Rule gives the states considerable flexibility in determining the level and the timing of any effort required to implement the Rule, including the option of doing nothing, the resources states might have to

[36] States cannot claim injury from costs borne by power plants in the State; States have no standing to raise such *parens patriae* claims against the United States. Ctr. for Biological Diversity v. DOI, 563 F.3d 466, 476-77 (D.C. Cir. 2009). There is also no basis to North Dakota's claim of irreparable harm from lost tax revenue, ND Mot. 13-14, because there is no evidence that such loss would occur before judicial review is complete, and North Dakota has control over the types and rates of the taxes it levies.

devote to implementation during the period of judicial review cannot rise to the level of irreparable harm.

The fact that states may devote staff time towards development of a plan to implement CAA requirements pursuant to an EPA rule before judicial review is complete is neither exceptional nor extraordinary, but rather is an inherent and foreseeable consequence of cooperative federalism that Congress designed into the Act. As such, it cannot be deemed irreparable harm. Because judicial review will take place during the period required for plan preparation, 42 U.S.C. § 7607(b)(1), the Act clearly contemplates that states will work on plan development before judicial review is complete. If that fact alone constituted irreparable harm, it would not only subvert the principle that a stay of administrative agency action is an extraordinary remedy, but would also severely disrupt the entire statutory scheme for the promulgation, implementation, and achievement of air quality standards as well as other pollution-control programs that rely on state plans. Under the Act, states have been required to prepare within a few years many state plans of different types following action by EPA. McCabe Decl. ¶¶ 25-31; Declaration of Theresa Marks (Ex. 4) ¶¶ 3, 7. Some of these state plans were of comparable complexity to the state plans required by the Rule and had a shorter submission schedule. McCabe Decl. ¶¶ 25-31. Others, including state plans to achieve attainment of a National Ambient Air Quality Standard for an area with numerous stationary and mobile sources, had a similar, or even shorter, submission schedule but were more complex because they entailed

preparing source inventories for multiple source categories and complex air-quality modeling. Id. ¶¶ 27-31.

Moreover, under the particular Rule at issue here, states have considerable flexibility in both the timing and extent of their planning efforts, and do not need to submit a plan until 2018. The September 2016 initial submission is not burdensome and requires only that a state (i) generally identify the plan approaches under consideration, (ii) describe opportunities for public input during plan development, and (iii) explain why the state requires additional time. See 80 Fed. Reg. at 64,855-59; McCabe Decl. ¶ 13. State Movants make no substantial argument that this submission will require significant resources, let alone while judicial review is pending, and some overstate what is required. Marks Decl. ¶¶ 6-10. In fact, some states can likely meet at least one of the first two criteria based on their actions to date. McCabe Decl. ¶¶ 12-17.

Movants are wrong to claim that they necessarily must devote substantial efforts during the period of judicial review to develop plans they need not submit until 2018. States have considerable overall flexibility in designing their 2018 state plans, and those choices directly determine the level of resources the state must devote to them during the judicial review period. At the extreme, a state can elect not to prepare a plan at all, but instead have EPA develop and implement a federal plan for the sources in that state. Oklahoma (supra at 45) and at least two other state Movants have indicated that they will not or might not submit a plan. McCabe Decl.

¶ 34. States can also join existing state trading programs, such as the Regional Greenhouse Gas Initiative, or simply adopt the Rule's emission performance standards without elaboration, leaving to the facilities the decisions about how to meet those limits. Id. ¶¶ 19-22. Similarly, states may also adopt one of the Model Plans that EPA intends to promulgate soon.[37]

Even if a state chooses to develop a more complex plan, State Movants' assertion that their environmental and public utility agencies must immediately undertake massive efforts to develop it in order for sources to have time to comply is without merit. The Rule provides ample time for compliance, and Movants' claims to the contrary are based on unrealistic scenarios in which states would, for example, enter into memoranda of understanding with neighboring states to implement a trading program, rather than use the available option that allows trading without such agreements. Id. ¶¶ 32-36.[38]

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[37] EPA expects to finalize two Model Plans by the summer of 2016, allowing ample time for a state to adopt one before the 2018 deadline. McCabe Decl. ¶ 21. It is quite possible that a number of states will adopt the Model Plan (or a variant), because states have expressed interest in it, it closely tracks successful interstate trading programs for other power plant air pollutants, and virtually all states are considering an interstate trading program. Id.

[38] For the same reason, there is no basis to claim that the Rule requires immediate legislative changes because state environmental agencies lack authority to regulate the generation of electricity. E.g., Mississippi Dep't of Environmental Quality ("Miss.") Mot. at 12-13. As with other rules, state environmental agencies can set emission limits for power plants, and, to the extent necessary, power plants will interact with other regulatory authorities as they normally do. Furthermore, the assertion that the

(Footnote continued . . .)

Finally, even if state environmental or utility regulatory agencies must devote some resources to Rule implementation now, that does not constitute a great or extraordinary harm, but is rather just the "cost of doing business" for a state regulatory agency. See Freedom Holdings, Inc. v. Spitzer, 408 F.3d 112, 115 (2d Cir. 2005); A.O. Smith Corp. v. FTC, 530 F.2d 515, 527-28 (3d Cir. 1976); see also McCabe Decl. ¶¶ 24-32 (effort similar to other requirements of the Act). No state has presented evidence that the effort required during the next year would preclude it from carrying out its other responsibilities.

B. Industry Movants Also Fail to Show Irreparable Injury Or That A Stay Would Address Such Injury.

Industry Movants likewise fail to show irreparable injury. The already high "barrier to proving irreparable injury is higher still" for the types of economic harms asserted by Industry Movants, "for it is well-settled that economic loss does not, in and of itself, constitute irreparable harm." Mexichem, 787 F.3d at 555 (internal quotations omitted). Industry Movants have not cleared this high bar.

They have not shown, and for many reasons cannot reasonably claim, that their asserted economic "losses" – e.g., plant closures, immediate expenditures, or threatened bankruptcies – are "certain" to occur as a result of the Rule during the period of judicial review. Wis. Gas, 758 F.2d at 674. The Rule does not require that

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sources must be in full compliance by 2022 is wrong. The Rule phases in gradually, see supra, with full compliance not until *2030*, and the states determine the phase-in period; they can begin obligations later than 2022 if they wish. 80 Fed. Reg. at 64,786.

any legal requirements be imposed on any sources until 2022 at the earliest, long after judicial review will be complete, and Industry Movants likely will not know for several years precisely what those requirements will be. Even if certain events affecting private parties do occur in the near term, they are neither "required" by nor a direct result of the Rule; rather, they stem from economic trends that long pre-date the Rule and therefore will not foreseeably change even if the Court enters a stay.[39]

1. The Rule does not "require" any immediate action by power plants or non-regulated businesses.

Movants' central argument is that the Rule will force the power industry to "immediately" retire high-emitting plants and focus on lower-emitting resources, which allegedly will lead to various secondary economic effects, such as the "immediate" closure of coal mines. E.g., Utility Mot. 14-16; Coal Mot. 14-17.

[39] While some Movants note that certain companies announced bankruptcies around the time the Rule was finalized, no declarants have attested that they will in fact declare bankruptcy as a result of this Rule; they simply corroborate well-documented economic trends for the industry as a whole. See generally Culligan Decl. Under certain circumstances, economic losses that are "unrecoverable" *may* constitute irreparable harm even if they fall short of threatening the existence of a stay movant's business. But "the mere fact that economic losses may be unrecoverable does not, in and of itself, compel a finding of irreparable harm." Nat'l Mining Ass'n v. Jackson, 768 F. Supp. 2d 34, 53 (D.D.C. 2011). And to the extent plant closures or infrastructure additions are "required" by the Rule, state laws provide mechanisms through which companies may recover emission management costs; thus, such "losses" are not necessarily unrecoverable. See Legal Mem. at 147-48; see also Regulatory Assistance Project, Electricity Regulation in the US: A Guide 93 (2011), available at http://www.raponline.org/document/download/id/645.

Those claims are purely speculative, for several reasons: (1) plant owners cannot know what requirements will be imposed on specific plants, or what steps they will take in response to such requirements, until they see the content of state plans, which need not be submitted until 2018, well after judicial review is complete; (2) EPA's record for the Rule demonstrates that significant additions to infrastructure should not be necessary to meet Rule requirements; and (3) to the extent some plant owners nonetheless may choose to shut down plants in the near term for economic reasons, such choices are not "required" by the Rule and there is no evidence that such plant owners will make a different choice if the Court decides to enter a stay.

First, no state plans have been submitted thus far, and most are not expected until 2018, long after this litigation concludes. See McCabe Decl. ¶¶ 11, 17, 21. Compliance obligations under the Rule do not begin until 2022, at the earliest, and are phased in over eight years. Id. ¶ 34; Harvey Decl. ¶ 10. Moreover, as discussed supra, the states will enjoy broad flexibility in developing source-specific requirements (including deciding which sources to control, by how much, and when) and may allow their sources an equal degree of flexibility in meeting those requirements (such as by purchasing allowances or credits). Movants thus cannot reliably identify what their requirements will be, and they likely will not know them until 2018. Indeed, while some Declarants purport to identify such requirements, many acknowledge that they will not know what the Rule actually "requires" – and, hence, cannot determine what steps to take in response – until their states adopt finalized plans. E.g., Greene Decl.

¶¶ 12-13 (Utility Mot. Ex. E); Frenzel Decl. ¶¶ 41-42 (Utility Mot. Ex. Q); Brummett Decl.¶¶ 14, 18 (Utility Mot. Ex. G) (noting that plant has no plans to shut down and it is "far from clear" what the State will do).[40] Accordingly, Movants cannot show with *certainty* that their compliance obligations will force them to take any particular action during the period of litigation. See, e.g., Chaplaincy of Full Gospel Churches v. England, 454 F.3d 290, 298 (D.C. Cir. 2006) (where injury is merely "possible," equitable relief is not "urgently necessary").

Second, not only is it premature to predict what requirements will be imposed on any *specific* source, but EPA's record also refutes as a general matter Movants' supposition that the Rule will require immediate action to build a significant amount of infrastructure. For example, the potential measure for shifting from coal-fired to gas-fired electric generation (which states need not adopt) "applies only to increases in generation at *existing* [natural gas combined cycle] facilities," "does not contemplate any connection of new capacity to the bulk power grid," and is premised on a gradual implementation schedule that accounts for "additional time to complete potential infrastructure improvements (e.g., natural gas pipeline expansion or transmission improvements) that might be needed to support more use of" such existing facilities.

[40] See also Mark Chediak, Bloomberg, Why Coal Burners Don't Totally Hate Obama's Climate Plan (Nov. 13, 2015) (quoting Southern Co. CEO as saying, "'It is arguable that electricity will start to grow again as a response to the [Rule].' . . . Both Southern and AEP own regulated utilities that can recoup spending and make a profit on new investments [as part of Rule compliance] if it's approved by state regulators.")

80 Fed. Reg. at 64,798, 64,800-01. Similarly, EPA determined that application of the potential measure for shifting from fossil-fuel fired generation to cleaner energy sources (which states likewise need not adopt) would not add significant transmission requirements in order to maintain grid reliability, as it too is phased in incrementally and capped at reasonable levels. See GHG Mitigation Measures TSD, 4-23; see also 80 Fed. Reg. at 64,806-10.

Third, to the extent Movants elect to retire any coal-fired power plants during the period of litigation, Movants have not demonstrated that such retirements are required by the Rule or that a stay would prevent such retirements. To obtain a stay, Movants "must show that the[ir] alleged harm will *directly result* from the [Rule]," and that entering a stay of the Rule will "prevent" the alleged harm. Wis. Gas, 758 F.2d at 674 (emphasis added). Their submissions to this Court fail to establish either proposition. Contrary to the impression left by Movants, the Nation already is experiencing a significant and ongoing shift away from coal-fired power generation and towards greater generation from cleaner sources. Supra at 18 (citing 80 Fed. Reg. at 64,678, 64,795, 64,803-04). Movants cannot show that any particular plant retirements that may occur during judicial review will necessarily be a "direct result" of the Rule and not other causes.[41] See Crete Carrier Corp. v. EPA, 363 F.3d 490, 493 (D.C. Cir. 2004) (because alleged economic injuries were equally likely to result from

[41] See, e.g., Culligan Decl. ¶¶ 7-19; Harvey Decl. ¶¶ 33-41 (Ex. 2).

causes other than the challenged rule, petitioners lacked standing); Delta Constr. Co. v. EPA, 783 F.3d 1291, 1296-97 (D.C. Cir. 2015) (same).

Nor have Movants shown that ordering a stay would prevent any plants from being retired. A stay would not change the underlying economic conditions that have spurred the nationwide shift, for more than fifteen years, away from coal-fired generation, which continues to create uncertainty for owners of those plants. 80 Fed. Reg. at 64,695. Tellingly, not a single declarant appears to identify a specific power plant or coal mine that plans to close in the near future but will reverse such plans if the Court enters a stay. Indeed, an analysis by Movants' own industry states that "it is very unlikely that there are significant numbers of coal retirements scheduled for 2016 that have not yet been announced," which suggests that a stay would have little if any impact on the number of retirements that occur during judicial review. PA Consulting Group, American Coalition for Clean Coal Electricity, A Survey of Near-Term Damages Associated with the EPA's Clean Power Plan, 13 (Utility Mot. Ex. C).

Although the Rule therefore does not "require" near-term plant closures, it is certainly possible, as Movant Chamber of Commerce posits, that some plant owners may "*choose* to shut down their plants during the period of judicial review" rather than invest further in older coal-fired plants that are "very expensive" to maintain. Chamber Mot. 18 n.7 (emphasis added). But the possibility that some plant owners may make voluntary decisions to close costly plants does not demonstrate "irreparable harm" that is traceable to "requirements" of the Rule. See Safari Club Int'l v. Salazar,

852 F. Supp. 2d 102, 123 (D.D.C. 2012) ("It is well settled that a . . . movant does not satisfy the irreparable harm criterion when the alleged harm is self-inflicted.") (internal quotation omitted); cf. Grocery Mfrs. Ass'n v. EPA, 693 F.3d 169, 177 (D.C. Cir. 2012), cert. denied, 133 S. Ct. 2880 (2013) (where rule permitted but did not "force" or "require" use of new fuel type, petroleum refiners and importers failed to demonstrate Article III Standing – much less irreparable harm – based on alleged costs and liabilities associated with that fuel).

2. Movants err in relying on EPA's model to prove irreparable harm.

Having failed to provide direct evidence that specific plants "will" close in the near future due to the Rule, Movants and their Declarants instead rely on the forecast of "assumed" 2016 coal generation capacity reductions generated by EPA's Integrated Planning Model ("Model") as proof of actual plant closures. See, e.g., Pemberton Decl. ¶ 2 (Utility Mot. Ex. B). This reliance is misplaced for several reasons.

First, and most obviously, the Model's forecasts are not regulatory requirements of any kind. Second, the Model is not designed to predict the impacts of control requirements on individual sources, but instead to gauge the overall, power-sector-wide impacts of control requirements in terms of costs, emission reductions, and economic impacts, in this case primarily for the 2020-2030 period. Harvey Decl. ¶ 18. As a result, simplifying assumptions in the Model render its references to 2016 particularly susceptible to over-interpretation. Id. ¶¶ 17-18, 22-23. Among other assumptions designed to simplify the multitude of real-world variables that bear upon

the Rule's potential effect, the Model makes assumptions about the content of state plans, although in the real world such plans may differ and in any event will likely not be known until 2018 or later. Id. ¶¶ 16-17, 25, 32.

Although such assumptions do not undermine the Model's usefulness for its intended purposes in this rulemaking, id. ¶ 30, the simplifications and constraints built into the Model mean that it is not designed to reliably forecast the Rule's impacts on specific power plants, particularly in the near-term period when judicial review of the Rule will occur. Id. ¶ 18. This is in part because the Model only forecasts impacts on "model plants," which are aggregates of actual electrical generating units and do not bear a direct relationship to them. Id. ¶ 19. Additionally, the Model cannot account for the informational constraints that actual power plant owners face, such as their inability to predict what their actual state plan requirements will be; nor can it simulate the business judgments that individual real-world plant owners will make in the near term, given such informational constraints. Id. ¶¶ 31-32.

Indeed, several of Movants' Declarants demonstrate the fallacy of Movants' Model-based theory of "irreparable harm," as these Declarants do not assert that they have any plans to retire their plants (even though the Model purportedly projects that their plants will retire), and they state that any such decision will depend on the content of state plans and other variables. See Harvey Decl. ¶¶ 34, 39; see also, e.g., Frenzel Decl. ¶¶ 41-42 (Utility Mot. Ex. Q); Greene Decl. ¶¶ 12-13 (Utility Mot. Ex. E); Brummett Decl. ¶ 14 (Utility Mot. Ex. G); Patton Decl. ¶ 18 (Utility Mot. Ex. D);

Jura Decl. ¶¶ 19-21 (Utility Mot. Ex. S). Indeed, depending on the content of their States' plans (which are not yet known), these Declarants may *not* need to close their plants in order to comply with the Rule. E.g., Frenzel Decl. ¶¶ 41-42 (Utility Mot. Ex. Q); see also Harvey Decl. ¶¶ 33-41. Movants' own declarations therefore show that it is pure speculation to assume based on modelling results that any particular power plant "must retire" because of the Rule, and thus refute the notion that the Model supports a finding of irreparable harm.[42]

3. Recent experience with the MATS Rule does not support a stay.

Movants also contend that the recent judicial review of the MATS Rule demonstrates the need for a stay of the current Rule pending review. E.g., Utility Mot. 3; see supra at 38 (discussing MATS Rule). This comparison is flawed. The MATS Rule imposed specific requirements *directly on* covered sources. 77 Fed. Reg. at 9367-69. The current Rule, in contrast, will be implemented through the state planning process, with significant flexibility in how any particular plant may be required to comply. Thus, any prediction of how each state's plan might affect a particular source is speculative at this juncture. The MATS Rule also was implemented over 3.5 to 4.5 years, whereas compliance with the current Rule is deferred for seven years and then phased in from 2022-2030, greatly lengthening the

[42] Movants' attacks on EPA's modeling methodology, e.g., Heidell & Repsher Decl. ¶ 10 (Utility Mot. Ex. C), are illogical. Harvey Decl. ¶¶ 42-58.

time sources have to respond to any requirements that may eventually be imposed. Id. at 9407-11; 80 Fed. Reg. at 64,923.[43]

III. A STAY OF THE RULE IS NOT IN THE PUBLIC INTEREST.

The public interest and balance of harms also weigh strongly in favor of denying Movants' stay request. Climate change is the most significant environmental challenge of our day, and is already affecting national public health, welfare, and the environment. See, e.g., 80 Fed. Reg. at 64,677, 64,686-88; see generally Declaration of Christopher Field (Ex. 5). Greenhouse gas emissions must be significantly reduced to lessen colossal ongoing threats to public health and welfare, including the threat of more severe storms and droughts, rising sea levels, and decreased air and water quality both here and across the globe. 80 Fed. Reg. at 64,682-83; see Field ¶ 5, 9-29.

The emission reductions achieved by the Rule are extremely important, even if they represent only a part of a broader effort to address the accumulation of greenhouse gases. The Rule achieves substantial reductions from what are by far the largest emitting stationary CO_2 generators (fossil fuel-fired power plants) in the United States. Id. at 64,688-89. The fact that these reductions will not by themselves reverse global warming does not undermine the Rule's role as an essential step towards mitigating climate change threats. See Field ¶ 7-8, 16, 21, 29. Agencies "do

[43] Movants' arguments that the MATS modeling under-estimated coal-fired power plant retirements, e.g., Schwartz Decl. ¶ 44 (Coal Mot. Ex. 1), likewise miss the mark. See Harvey Decl. ¶¶ 59-61.

not generally resolve massive problems [such as climate change] in one fell swoop." Massachusetts v. EPA, 549 U.S. at 499-500, 526 (noting that reduction in domestic greenhouse gas emissions can importantly slow the pace of global emissions increases and mitigate the risk of "catastrophic harm," "no matter what happens elsewhere"). Moreover, the Rule's monetized climate benefits *alone* are projected to reach $10 billion in 2025 and to reach $20 billion by 2030. 80 Fed. Reg. at 64,681, 64,928-31.

A stay would adversely affect public health and welfare because it could necessitate postponing the Rule's implementation deadlines, see, e.g., Basin Mot. 1, and thereby result in a delay in securing important CO_2 reductions. Atmospheric CO_2 is cumulative and long-lived, so the additional amount of CO_2 emitted because of any delay implementing the Rule would irretrievably accumulate in the atmosphere and further contribute to, or even accelerate, the resulting public and environmental harms. Field ¶ 5; 80 Fed. Reg. at 64,682. By demonstrating the United States' commitment to reducing greenhouse gas emissions, the Rule has helped to establish this country's leadership on the international stage. See Declaration of Todd Stern ¶ 31 (Ex. 6). This leadership has facilitated new emission reduction commitments, called Intentional Nationally Determined Contributions (INDCs), by countries representing 98% of global emissions. Id. ¶ 26. The successful implementation of the Clean Power Plan will enable our nation to continue leading by example.[44] Id. ¶ 31.

[44] Movants contend the Court should disregard the serious effects of climate change

(Footnote continued . . .)

Movants claim that because market trends and state programs are already leading to reduced CO_2 emissions even in the absence of the Rule, a stay would not harm the public interest. See, e.g., Chamber Mot. 20. While near-term CO_2 reductions are important and do reflect market trends and existing state programs – a fact that undercuts Movants' assertions of irreparable harm – the Rule will ultimately secure substantial additional reductions, particularly in the later compliance years. Accordingly, although the Rule imposes very little near-term burden, a stay could easily delay more substantial, later-required reductions, and result in significant and irretrievable additional CO_2 emissions.

Movants also contend that the Rule should be stayed because coal unit retirements and new infrastructure investments will allegedly adversely affect the reliability of the electric grid and will increase electricity rates. See, e.g., W.Va. Mot. 20. As described in Section III, supra, Movants face no imminent compliance obligations and need not make any decisions to close existing generation sources or to

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because EPA did not promulgate the Rule sooner. See, e.g., Chamber Mot. 20. The date on which this Rule was promulgated does not bear on the harms it seeks to address, the importance and severity of which are widely recognized. Moreover, EPA's actions in recent years have demonstrated the urgency of the problem. Since finding in 2009 that greenhouse gases may reasonably be anticipated to endanger public health or welfare, EPA has promulgated a number of significant regulations addressing greenhouse gas emissions, including regulations to address light-duty and heavy-duty vehicle emissions and to address greenhouse gases under EPA's New Source Review permitting program. 75 Fed. Reg. 25,324 (May 7, 2010); 75 Fed. Reg. 77,698 (Dec. 13, 2010) and 76 Fed. Reg. 57,106 (Sept. 15, 2011).

build new generation or transmission during the period of judicial review. Thus, there is no reason to conclude that a stay during that period is needed to protect grid reliability or ratepayers.

Furthermore, similar prior warnings by the industry that environmental regulation will cause blackouts and skyrocketing electric bills have not been borne out. McCabe Decl. ¶¶ 46-51. As with previous significant air-pollution regulations for the power industry, the Rule can be implemented cost-effectively, with limited impacts on rates, without disrupting the electrical grid, and with significant benefits to public health and the environment. 80 Fed. Reg. at 64,671, 64,679-81, 64,748-51.

The industry's past and current efforts to reduce CO_2 emissions, see Chamber Mot. 20; Utility Mot. 19; Basin Mot. 20, have not resulted in significant impacts to electricity prices.[45] Nor have retirements of old coal plants and the expansion of renewable generation, which are already the focus of electricity sector planning efforts nationwide, threatened the reliability of the electric grid. 80 Fed. Reg. at 64,694-96. Thus, the public interest does not favor a stay of the Rule pending judicial review.

CONCLUSION

For the foregoing reasons, Movants' requests for a stay should be denied.

[45] Compare "Emissions from Energy Consumption at Conventional Power Plants and CHP Plants," Table 9-1, 2007-2012, available at http://www.eia.gov/electricity/annual/html/epa_09_01.html (CO_2 emissions) with "Real Price Viewer" Residential Electricity Price series, EIA Short-term Energy Outlook, 2007-2012 available at http://www.eia.gov/forecasts/steo/realprices/ (electricity rates).

Respectfully submitted,

Dated: December 3, 2015

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Certificate of Service

I certify that RESPONDENT EPA'S OPPOSITION TO MOTIONS TO STAY FINAL RULE was electronically filed today with the Clerk of the Court for the United States Court of Appeals for the District of Columbia Circuit through the Court's CM/ECF system, and that, under Circuit Rule 21(d), five paper copies of the brief were delivered to the Court by hand.

I further certify that a copy of the foregoing document was today served electronically through the court's CM/ECF system on all registered counsel for Petitioners and Intervenors.

I further certify that a copy of the foregoing document was served by electronic mail or by U.S. Mail on the following non-CM/ECF counsel for Petitioners and Intervenors:

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/s/ Eric G. Hostetler

ERIC G. HOSTETLER
Counsel for Respondent EPA

Dated: December 3, 2015

Certificate as to Parties, Rulings, and Related Cases

Pursuant to Circuit Rules 28(a)(1) and 21(d), Respondents the United States Environmental Protection Agency, et al., states as follows:

Parties:

The parties in these consolidated cases are:

Petitioners: No. 15-1363: the States of West Virginia, Texas, Alabama, Arkansas, Colorado, Florida, Georgia, Indiana, Kansas, Louisiana, Michigan, Missouri, Montana, Nebraska, New Jersey, Ohio, South Carolina, South Dakota, Utah, Wisconsin, Wyoming, and the Commonwealth of Kentucky, the Arizona Corporation Commission, the State of Louisiana Department of Environmental Quality, the State of North Carolina Department of Environmental Quality; No. 15-1364: the State of Oklahoma, ex rel. E. Scott Pruitt, in his official capacity as Attorney General of Oklahoma, and the Oklahoma Department of Environmental Quality; No. 15-1365: the International Brotherhood of Boilermakers, Iron Ship Builders, Blacksmiths, Forgers and Helpers, AFLCIO; No. 15-1366: Murray Energy Corporation; No. 15-1367: the National Mining Association; No. 15-1368: the American Coalition for Clean Coal Electricity; No. 15-1370: the Utility Air Regulatory Group and the American Public Power Association; No. 15-1371: Alabama Power Company, Georgia Power Company, Gulf Power Company, and the Mississippi Power Company; No. 15-1372: the CO2 Task Force of the Florida Electric Power Coordinating Group, Inc.; No. 15-1373: Montana-Dakota Utilities Co., a Division of MDU Resources Group, Inc.; No. 15-1374: the Tri-State Generation and Transmission Association, Inc.; No. 15-1375: the United Mine Workers of America; No. 15-1376: the National Rural Electric Cooperative Association, Arizona Electric Power Cooperative, Inc., Associated Electric Cooperative, Inc., Big Rivers Electric Corporation, Brazos Electric Power Cooperative, Inc., Buckeye Power, Inc., Central Montana Electric Power Cooperative, Central Power Electric Cooperative, Inc., Corn Belt Power Cooperative, Dairyland Power Cooperative, Deseret Generation & Transmission Co-operative, Inc., East Kentucky Power Cooperative, Inc., East River Electric Power Cooperative, Inc., East Texas Electric Cooperative, Inc., Georgia Transmission Corporation, Golden Spread Electric Cooperative, Inc., Hoosier Energy Rural Electric Cooperative, Inc., Kansas Electric Power Cooperative, Inc., Minnkota Power Cooperative, Inc., North Carolina Electric Membership Corporation, Northeast Texas Electric Cooperative, Inc., Northwest Iowa Power Cooperative,

Oglethorpe Power Corporation, Powersouth Energy Cooperative, Prairie Power, Inc., Rushmore Electric Power Cooperative, Inc., Sam Rayburn G&T Electric Cooperative, Inc., San Miguel Electric Cooperative, Inc., Seminole Electric Cooperative, Inc., South Mississippi Electric Power Association, South Texas Electric Cooperative, Inc., Southern Illinois Power Cooperative, Sunflower Electric Power Corporation, Tex-La Electric Cooperative of Texas, Inc., Upper Missouri G. & T. Electric Cooperative, Inc., Wabash Valley Power Association, Inc., Western Farmers Electric Cooperative, and Wolverine Power Supply Cooperative, Inc.; No. 15-1377: Westar Energy, Inc.; No. 15-1378: NorthWestern Corporation, doing business as NorthWestern Energy; No. 15-1379: the National Association of Home Builders; No. 15-1380: the State of North Dakota; No. 15-1382: the Chamber of Commerce of the United States of America, National Association of Manufacturers, American Fuel & Petrochemical Manufacturers, National Federation of Independent Business, American Chemistry Council, American Coke and Coal Chemicals Institute, American Foundry Society, American Forest & Paper Association, American Iron and Steel Institute, American Wood Council, Brick Industry Association, Electricity Consumers Resource Council, Lignite Energy Council, National Lime Association, National Oilseed Processors Association, and the Portland Cement Association; No. 15-1383: the Association of American Railroads; No. 15-1386: Luminant Generation Company, LLC, Oak Grove Management Company, LLC, Big Brown Power Company, LLC, Sandow Power Company, LLC, Big Brown Lignite Company, LLC, Luminant Mining Company, LLC, and Luminant Big Brown Mining Company, LLC; No. 15-1393: Basin Electric Power Cooperative, Inc.; No. 15-1398: Energy & Environment Legal Institute; No. 15-1409: Mississippi Department of Environmental Quality; No. 15-1410: International Brotherhood of Electrical Workers, AFL-CIO; No. 15-1413: Entergy Corporation; No. 15-1418: LG&E and KU Energy LLC; No. 15-1422: West Virginia Coal Association; and No. 15-1432: Newmont Nevada Energy Investment, LLC, and Newmont USA Limited;

Movant-Intervenor for Petitioners: Peabody Energy Corporation, Dixon Bros., Inc., Nelson Bros., Inc., Wesco International, Inc., Norfolk Southern Corporation, Joy Global Inc., Gulf Coast Lignite Coalition;

Respondents: The United States Environmental Protection Agency and Regina A. McCarthy, Administrator, United States Environmental Protection Agency;

Movant-Intervenors for Respondent: American Wind Energy Association, Advanced Energy Economy, American Lung Association, Center for Biological Diversity, Clean Air Council, Clean Wisconsin, Conservation Law Foundation, Environmental Defense Fund, Natural Resources Defense Council, Ohio Environmental Council, and Sierra Club, Solar Energy Industries Association; the

States of New York, California, Connecticut, Delaware, Hawaii, Illinois, Iowa, Maine, Maryland, Minnesota, New Hampshire, New Mexico, Oregon, Rhode Island, Vermont, and Washington; the Commonwealths of Massachusetts and Virginia; the District of Columbia; the Cities of Boulder, Chicago, New York, Philadelphia, South Miami, and Broward County, Florida; Nextera Energy, Inc., Calpine Corporation, City of Austin, doing business as Austin Energy, City of Seattle, by and through its City Light Department, National Grid Generation, LLC, Pacific Gas and Electric Company, West Virginia Highlands Conservancy, Ohio Valley Environmental Coalition, Coal River Mountain Watch, Kanawha Forest Coalition, Mon Valley Clean Air Coalition, Keepers of the Mountains Foundation; and

Movant-Amicus Curiae for Petitioner (in No. 15-1366): Philip Zoebisch.

Rulings under Review:

This final agency action under review is: Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units; Final Rule, 80 Fed. Reg. 64,662 (October 23, 2015).

Related Cases:

This following consolidated cases pending before the Court challenge a related agency action: State of North Dakota v. EPA, No. 15-1381; Murray Energy Corporation v. EPA, et al., No. 15-1396; Energy & Environment Legal Institute v. EPA, No. 15-1397; and State of West Virginia, et al., v. EPA, et al., No. 15-1399.

ORAL ARGUMENT NOT SCHEDULED

No. 15-1363
(and consolidated cases)

IN THE UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT

STATE OF WEST VIRGINIA, ET AL.,

Petitioners,

v.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, ET AL.,

Respondents.

On Petitions for Review of Final Action
by the United States Environmental Protection Agency

EXHIBITS IN SUPPORT OF RESPONDENT EPA'S OPPOSITION TO MOTIONS TO STAY FINAL RULE

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EXHIBIT LIST

Exhibit 1	Declaration of Janet G. McCabe
Exhibit 2	Declaration of Reid P. Harvey
Exhibit 3	Declaration of Kevin Culligan
Exhibit 4	Declaration of Teresa Marks
Exhibit 5	Declaration of Christopher B. Field
Exhibit 6	Declaration of Todd Stern

Exhibit 1

IN THE UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT

STATE OF WEST VIRGINIA, ET AL., Petitioners, v. UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, ET AL., Respondents.	No. 15-1363 (and consolidated cases)

DECLARATION OF JANET G. MCCABE

Janet McCabe information

1. I, Janet G. McCabe, declare under penalty of perjury under the laws of the United States of America that the following statements are true and correct to the best of my knowledge and belief and that they are based upon my personal knowledge, or on information contained in the records of the United States Environmental Protection Agency (EPA), or on information supplied to me by EPA employees.

2. I am the Acting Assistant Administrator for the Office of Air and Radiation (OAR) at the EPA, a position I have held since July 19, 2013. I previously served as the Principal Deputy to the Assistant Administrator for this office from November 2009 to July 18, 2013. OAR is the headquarters-

based EPA office that administers the Clean Air Act (CAA) and develops national programs, technical policies and regulations for controlling air pollution and protecting public health and welfare. OAR is concerned with preventing and responding to air quality issues including industrial air pollution, pollution from vehicles and engines, toxic air pollutants, acid rain, stratospheric ozone depletion and climate change.

3. Prior to joining the EPA, I served as the Executive Director of Improving Kids' Environment, Inc., and as an adjunct faculty member at the Indiana University School of Medicine, Department of Public Health. From 1993 to 2005, I held several leadership positions in the Indiana Department of Environmental Management's Office of Air Quality and was the office's Assistant Commissioner from 1998 to 2005. Before coming to Indiana in 1993, I served as Assistant Attorney General for environmental protection for the Commonwealth of Massachusetts and Assistant Secretary for Environmental Impact Review. I received an undergraduate degree from Harvard College in 1980 and J.D. from Harvard Law School in 1983.

4. As part of my duties as Acting Assistant Administrator of OAR, I oversee the development and implementation of regulations, policy and guidance under section 111(d) of the Clean Air Act ("CAA" or "Act"), 42 U.S.C. § 7411(d), the existing source performance standard program, including the development of performance standards for carbon dioxide (CO_2) emissions

from fossil fuel-fired electric utility steam generating units and stationary combustion turbines (including combined cycle combustion turbines) (collectively, "power plants") that are the subject of this litigation.

Overview

5. EPA promulgated the Clean Power Plan (the "Rule") pursuant to section 111(d) of the CAA to require, for the first time, reductions in CO_2 emissions from fossil fuel-fired power plants to help protect human health and the environment from the substantial threats – which are affecting communities now and are increasing -- posed by climate change. 80 Fed. Reg. 64,662 (Oct. 23, 2015). The Rule, which resulted from an unprecedented level of outreach and engagement with the public and stakeholders, relies in large part on already-emerging growth in clean energy. The record EPA compiled for this rulemaking, including numerous technical analyses, studies and comments from a wide range of knowledgable stakeholders, supports the conclusion that the Rule will not compromise the reliability of our electric system or the affordability of electricity for consumers. In promulgating the Rule, EPA described its main elements in an Executive Summary. Id. at 64,663-82. In this declaration, I describe certain key aspects of the Rule relevant to issues addressed by certain of the pending motions to stay the Rule:

- Gradual Compliance Pathway with Ample Lead Time (¶¶ 6-9);

- State Plan Process (¶¶ 10-36);
- Requests by States to Allow Generation-Shifting Measures for Compliance (¶¶ 37);
- Notice and Comment Issues (¶¶ 38-41);
- Cost and Rate Projections in the Regulatory Impact Analysis (¶¶ 42-45); and
- Claims of Harm in Other Rulemaking (¶¶ 46-51).

Gradual Compliance Pathway with Ample Lead Time

6. The Rule requires reductions of CO_2 from power plants that can be achieved through the "best system of emission reduction." Our determination of the best system considered extensive comments on the amount of CO_2 emission reductions that power plants can achieve and the time period over which CO_2 reductions could be achieved. Considering those comments, we established a reasonable level of required emission reductions by 2030 and established a gradual phase-in for the emission reduction requirement over the preceding eight-year period, beginning in 2022. In this section, I describe these emission reductions and when they are required.

7. To determine the emission performance level that states must meet, EPA first identified the inventory of fossil fuel-fired power plants (primarily coal- and natural gas-fired) in 2012, which was the most current representative

year for which EPA had a fully adequate data set. EPA then applied the measures in the "best system of emission reduction" to the power plants to determine the emission performance level. Specifically, EPA phased in the application of the measures in the best system incrementally over three time-steps spanning the period between 2022 and 2029, applying the measures fully in 2030, and calculated the resulting emissions performance level in that year. 80 Fed. Reg. at 64,811-19.

8. The Rule is projected to achieve by 2030 a reduction in power plant CO_2 emissions of 21% from 2012 emissions levels. Regulatory Impact Analysis (RIA), Doc. No. EPA-HQ-OAR-2013-0602-36877, at 3-19, Table 3-5; eGRID 2012 Data File; CO2 Emission Performance Rate and Goal Computation Technical Support Document for CPP Final Rule, Appendix 1, EPA-HQ-OAR-2013-0602-36757 (Goal Computation TSD). EPA also projects that the emission performance levels will achieve a reduction of 16% from the levels of emissions that EPA projects would result in 2020 without the Rule (we refer to this as "business as usual" emissions). Because power plant CO_2 emissions have already been declining for many reasons, and are expected to continue to do so, even without this Rule,[1] our analysis shows a greater reduction in percentage

[1] In the Rule, EPA projected that the Rule will achieve a reduction of 32% of CO_2 emissions from 2005 levels power plants nationwide by 2030. 80 Fed. Reg. at 64,665. See RIA ES-8, Table ES-4.

terms – 21% -- compared to 2012 levels than the 16% reduction shown relative to emissions levels projected for 2020 without the Rule.

9. As described above, EPA based the emission performance levels in the Rule on a gradual phase-in of the emission reductions over the 2022-2030 period.[2] Assuming that states require their sources to reduce their emissions during that period in that same gradual way, the amount of emission reduction that the states would require in 2022 from power plants subject to the Rule would be, on average, 1% from projected business as usual mass levels in 2020 (or 6% from 2012 levels), and another 1-3% from those 2020 levels for each year thereafter, until 2030. Goal Computation TSD, Appendix 1 & 5; IPM Run Files: Illustrative Compliance Scenarios (EPA-HQ-OAR-2013-0602-36476, and EPA-HQ-OAR-2013-0602-36460).[3]

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[2] States are not required to follow this precise phase-in schedule; rather, states are afforded significant flexibility in determining their sources' compliance dates.

[3] The following are the year-by-year emission performance rates (lb/MWh) that EPA projected to gradually phase in the Rule's emission reduction requirements:

Nationwide Glide-path for Reduction Requirements for the Emission Performance Standards

Annual Category-specific Rates											
	2022	2023	2024	2025	2026	2027	2028	2029	2030	Interim	Final
Fossil Steam	1,741	1,681	1,592	1,546	1,500	1,453	1,404	1,355	1,304	1,534	1,305
NGCC	898	877	855	836	817	798	789	779	770	832	771

Goal Computation TSD, at 19.

The State Plan Process

10. In this next part, I discuss in more detail the state plan process, particularly the tasks states must perform, and EPA assistance for those tasks.

11. By September 6, 2016, states must submit either a final state plan or an initial submittal seeking an extension. If a state does not submit either, the CAA authorizes EPA to develop a federal plan for affected sources in that state. For reasons described in the following paragraphs, I expect that any state that submits an extension request or a state plan will be able to meet the requirements without undue burden – no more than, and in some cases less than, the state would have for other CAA state plans. I also believe both the requirements for the initial submittal and state plan are achievable for development by states within the Rule's timelines.

12. An initial submittal does not require substantial tasks such as a demonstration that the plan will achieve the mass or rate goals; the promulgation of rules for monitoring, recordkeeping, and reporting; or the negotiation of agreements with other states to adopt optional multistate plans. Unlike a final state plan, an initial submittal need not contain any enforceable, adopted measures or supporting technical and legal analyses. Instead, it is effectively a report on the status of a state's plan development and the vehicle by which the state may request, and EPA may grant, an extension request for submission of a state plan.

13. The Rule requires that the initial submittal contains just three components: (1) an identification of, and progress report on, plan approaches under consideration; (2) an appropriate explanation for why the state requires an extension; and (3) a showing of engagement with the public and stakeholders for the initial submittal and a plan for similar engagement for the final submittal. These components reflect normal, common processes states follow when developing plans to meet other CAA requirements. EPA has also issued a guidance document to assist states with the preparation of the initial submittals. Memorandum from Stephen D. Page, Director, Office of Air Quality and Planning Standards, Initial Clean Power Plan Submittals under Section 111(d) of the Clean Air Act, at 2 (Oct. 22, 2015) ("Page Memo").

14. For the first component of an initial submittal, a state can simply describe which plan options it is considering and what related steps it has taken. States need not adopt any rules, and their identification of options under consideration does not bind them in any way. My staff and I have heard from many states about the steps they have already taken,[4] such as exploring tradeoffs among various state plan approaches, coordinating among state environmental agencies and energy regulators, and hosting public meetings. For the initial submittal, states can simply identify these steps that they are already

[4] This is true even for those states, noted below, that ultimately may elect not to submit state plans.

undertaking. I therefore expect that many states will be able to meet the first component with little difficulty, and, in fact, some may have already done so. Activities such as those currently underway in West Virginia, which is undertaking a feasibility study to determine what compliance options may be available, to be submitted to the state legislature on April 20, 2016,[5] are among the kinds of activities the Rule requires that would be consistent with the first component of the intitial submittal.

15. For the second component, a state may simply identify its next steps to develop a plan and a schedule for them. For example, a state may explain that it needs to go through a rulemaking process, or legislative process, or is consulting with other states; each of these activities could reasonably be expected to require additional time beyond September 2016. This component, too, presents little difficulty. Many states may submit a schedule that is a natural extension of the work they have already undertaken toward plan development.

16. States may meet the third component by summarizing steps they have taken to engage the public, including vulnerable communities, and their plan to continue this engagement for the final submittal. I expect that states, based on their longstanding experience with public outreach and the availability of

[5] http://www.governor.wv.gov/media/pressreleases/2015/Pages/Governor-Tomblin-Issues-Statement-Following-Announcement-of-President-Obama%27s-Visit-to-West-Virginia.aspx.

standardized tools for identifying vulnerable communities, should have little difficulty satisfying the third component, and some may have already done so. For example, the Missouri Department of Natural Resources held a stakeholder meeting on the Rule on September 23, 2015, to review state plan options with environmental groups, non-governmental organizations, academics, energy companies, and utilities. In materials for this meeting, Missouri indicated plans for public engagement, including with the state energy office and public service commission, affected sources, electricity grid operators, energy efficiency and renewable energy developers, and vulnerable communities. Missouri Department of Natural Resources, "Clean Power Plan Final Goals and Compliance Options (September 23, 2015). http://dnr.mo.gov/env/apcp/cpp/docs/9-23-15-clean.power.plan-final.goals.compliance.options.pdf. These are the kinds of activities we expect states would include in their initial submittal, and are well within the requirements of the Rule.

17. EPA's process for acting on the initial submittal is fast and efficient. If a state submits an extension request, it is considered granted unless EPA notifies the state within 90 days of receiving it that it does not meet the requirements of the initial submittal. 40 CFR 60.5765(b). Thus, states that provide an adequate initial submittal will quickly know that they have up to the full three years to develop the final plan.

18. To develop a state plan, states can choose among several different plan types, all of which I believe can be developed within 3 years. As discussed below, many of these plan types would not be resource-intensive to adopt. The available types range from those based on specific emission rates or limiting mass emissions to those that do not impose emission limits on sources, and instead rely on existing or planned state programs that reduce CO_2 emissions from power plants, such as renewable portfolio or energy efficiency standards. 80 Fed. Reg. at 64,835-36. Moreover, states (and power plants) may choose from a wider range of measures for reducing emissions than the specific measures identified by EPA as the "best system of emission reduction." Thus, states could require (or power plants could choose) measures such as replacing coal with natural gas or installing carbon sequestration equipment. EPA's record shows that for at least a segment of power plants, those controls are feasible.

19. The Rule provides streamlined options that states can use to minimize the resource burden and time required to produce a state plan. States can also minimize the effort required to produce a plan by simply by adopting certain emission standards and allowing the regulated utilities to determine the most effective way to meet them. 80 Fed. Reg. at 64,833. Additionally, there are two presumptively approvable options for states that adopt a mass-based emissions budget trading program at or below the state's mass-based goal—adoption of

EPA's new source complement budget for new and existing sources, or adoption of the final mass-based model rule's allocation strategy—that avoid the need for a technical demonstration regarding shifting of generation to new fossil-fuel fired power plants. Id. at 64,888.

20. The Rule also allows states to establish or join existing trading-based emission programs and compliance strategies, which significantly enhances flexibility and cost-effectiveness for regulated sources. For example, nine northeastern and mid-Atlantic states are already participating in an interstate cap-and-trade program, the Regional Greenhouse Gas Initiative, and others may join that program if they wish. California has developed a cap-and-trade program as well. Because of these programs, and more generally because pollutant trading programs are so well-established for this industry, I fully expect that more states will develop interstate emission trading programs to comply with this Rule. Another efficient option is a "ready-for-interstate-trading" plan, which allows states to enable interstate trading for their sources without the need to specify linkages with particular other states or to enter into a multi-state plan, which could require discussion and negotiation with those states. 80 Fed. Reg. at 64,832-33, 64,892, 64,910-11.

21. EPA has proposed both rate-based and mass-based model rules that serve as fully realized and presumptively approvable plans for states to adopt and submit. I expect that many states will adopt either one of the model rules

or a variant, because states have expressed interest in them, they closely track successful interstate trading programs for other power plant air pollutants, and a good number of states are considering an interstate trading program. EPA expects to finalize the model rules by the summer of 2016, allowing ample time for a state to adopt either before the 2018 deadline.[6]

22. Some states have expressed a concern that because the Rule offers so many options for state plans, it is burdensome to evaluate each and every one. I expect that many states will be able to select a plan approach relatively quickly and efficiently because many of the options are structured in ways that are categorically distinct from one another. The threshold decisions and choices a state makes inform which state plan options are relevant for consideration and which are not. For example, for states that opt to impose emission standards on affected electric generating units ("EGUs") sufficient to achieve the requisite emission performance level, this choice directs the states to the emission standards plan type rather than the state measures plan type.

23. Once states select an approach tailored to their particular circumstances, they can develop the state plan through processes the states and the EPA are very familiar with under other CAA programs. The effort to adopt and submit

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[6] In fact, if a state wishes to adopt into the state plan the proposed model rule before EPA finalizes it, EPA made clear that it could likely approve such a plan, in light of the fact that the proposed model rule is based closely on well-established CAA trading programs. 80 Fed. Reg. 64,966.

plans under these other programs is similar to that required for state plans under the Rule. For example, like the state plans required by the Rule, state implementation plans ("SIPs") must be adopted by the state through a public participation process before submission to the EPA. Emission limitations, control measures, and other measures that SIPs include must be designed to result in a certain emissions outcome. For SIPs and other plans required under the CAA, states engage in a stakeholder process with entities affected by measures that may be included in the plan. States also undertake technical, economic, and other analyses to determine which measures are appropriate for inclusion in a plan to achieve the required statutory or regulatory outcome. A number of states may be required to get legislative approval or approach their legislature for necessary enabling legislation in order to adopt a plan as required. These are all aspects of plan development that are true for states across all types of plans required by the CAA, not just the state plans required under the final Rule.

24. Given all of the state plan options and flexibilities, the final plan submittal should be a similar level of effort, and may be less so in some ways, than submittals states have routinely made to implement other CAA programs, such as SIPs addressing attainment of the national ambient air quality standards (NAAQS) or the interstate transport of air pollutants, and state plans

implementing the title V operating permit program. The first two of these examples are discussed next.

25. One example of submissions that states have routinely made to implement other CAA programs within similar or shorter deadlines than those afforded under the Rule is attainment plans required under Part D of Title I of the CAA. After EPA designates areas as nonattainment for a NAAQS, states must submit plans within three years (and within a shorter period if the Administrator so prescribes). Those plans must include a number of complex elements, such as: reasonably available control measures; a demonstration (often through modeling) that the plan will provide for attainment; provisions to ensure reasonable further progress; a comprehensive, accurate, and current inventory of actual emissions from all sources of the relevant pollutants; a permit program for new or modified stationary sources in the nonattainment area; any other measures (which may include enforceable emission limitations and other control measures, means, or techniques) necessary or appropriate to attain the standards by the attainment date; and contingency measures to be undertaken if the area fails to make reasonable further progress or attain the standards. See 42 U.S.C. § 7472(b), (c).

26. These attainment plans, with which states have a long history and much experience, are at least as complex and involved as state plans required under the Clean Power Plan, and in some cases more so. Nonetheless, the CAA

provides at most three years for the submission of these attainment SIPs, which is the total amount of time the Clean Power Plan affords states to submit state plans.

27. For example, initial attainment plans for nonattainment areas for fine particulate matter ($PM_{2.5}$) NAAQS must be submitted no later than 18 months after designation by the EPA, which is a shorter period than the Rule provides for state plans. See 42 U.S.C. § 7513 (a)(2)(B). The complexity of $PM_{2.5}$ attainment plans is comparable to the state plans required under the Clean Power Plan, and in some respects even greater. $PM_{2.5}$ results from direct emissions of $PM_{2.5}$ as well as emissions of precursors such as nitrogen oxide (NO_x), sulfur dioxide (SO_2), volatile organic compounds (VOC), and ammonia. As a result, $PM_{2.5}$ attainment plans typically must use photochemical grid modeling that is based on accurate current and future emission inventories, accurate representation of the location of sources of those emissions and of the topography in the area, and accurate meteorological data. This is a very resource-intensive task that the statute requires to be completed within 18 months. In contrast, the initial submittal due by September 6, 2016, under the Rule does not require any sort of modeling or technical analysis in order for states to procure an extension to submit a state plan. See Page Memo; 80 Fed. Reg. at 64,856. And as mentioned above, for a state plan, there are a number of options for which states would not be required to provide a technical

demonstration that the power plants will achieve the requisite emission performance level. 80 Fed. Reg. at 64,845.

28. Attainment plans addressing a NAAQS often must address a large number and wide range of sources, and often multiple pollutants in order to meet the air quality goal. They must contain an accurate, current, and comprehensive emissions inventory from all sources of the relevant pollutant, including its precursors. For PM2.5 attainment plans, for example, an emissions inventory would have to address emissions of primary, filterable, and condensable emissions of PM2.5, and the four precursor pollutants (NO_x, SO_2, ammonia, and VOC), from all stationary point and nonpoint, nonroad mobile, onroad mobile, biogenic, and geogenic emission sources present within each county within the nonattainment area. By contrast, state plans required under the Rule require an emissions inventory for emissions of one pollutant (CO_2) from just one source category (power plants) with an already existing and accurate set of emissions data based on in-stack emissions monitoring.

29. As a second example, after EPA promulgates a new or revised NAAQS, states have three years (or shorter period if the Administrator prescribes) to submit a SIP that determines the necessary emission reductions necessary to achieve attainment of the NAAQS, and which among other things, adequately addresses interstate transport of pollutants. To do so, states may have to participate in regional trading programs. In recent years, under a major program

that addressed interstate transport of pollutants from existing fossil fuel-fired power plants, known as the NOx SIP Call, states were required to submit SIPs on timelines similar to, or shorter than, provided in the Rule for the same industry, fossil fuel-fired power plants. Under this program, states submitted SIPs that included a regional allowance trading program -- one similar to the kind of trading programs states may adopt for the Clean Power Plan. States adopting an emissions trading program in response to the NO_x SIP call had to include in their SIPs such elements as: a budget demonstration; enforceable control measures; legal authority to implement and enforce the control measures; adopted control measure compliance dates and schedules; as well as monitoring, recordkeeping, and emissions reporting. These elements are similar to those that states would include in their plan if they choose to participate in an emissions trading program to meet the requirements of the Rule. See 40 CFR 60.5790(b).

30. In the NO_x SIP Call, the SIP submittal deadline was approximately 12 months after signature of the rule, or September 30, 1999. See 63 Fed. Reg. 57,374, 57,481 (Oct. 27, 1998) (rule was signed on September 24, 1998). This is a shorter period than the approximately 13 months from the date of signature (August 3, 2015, until September 6, 2016) that states are being given to submit a plan or an initial submittal under this Rule, and states in the NO_x SIP Call were not given the option of a readily-obtainable 2-year extension. The D.C.

Circuit Court of Appeals stayed the NO_x SIP Call (before ultimately upholding the Rule), so that the submittal deadline was delayed until October 30, 2000. This was still only about two years from the date of signature of that rule. The compliance deadline (which was also delayed by the period when the rule was stayed) was May 31, 2004. See 67 Fed. Reg. 33,788. Almost all (19 of the 20 jurisdictions subject to the NO_x SIP Call) submitted SIPs within 3 years of the original NO_x SIP Call, including SIPs that involved an emissions budget trading program similar to that which states can submit to meet the requirements of this Rule. See, e.g., 66 Fed. Reg. 28,063 (May 22, 2001) (EPA's approval of New Jersey's SIP submissions dated December 10, 1999, and July 31, 2000, including an emissions budget trading program that involves EGUs).

31. This history of the deadlines and state submittals under the NO_x SIP Call demonstrates that states have been able to submit plans addressing significant emissions reductions in the power sector in less than three years from the date of signature of a rule requiring such reductions, even where multi-state coordination was required for the implementation of emission-reduction programs applicable to the power sector. Given this prior history of deadlines and submissions for SIPs involving emissions reductions from the same industry as that covered under the Rule, I believe states similarly will be able to submit plans, which could involve multi-state coordination, within the three years afforded by the Rule.

32. Notably with respect to state plans, a number of available procedural mechanisms can help to reduce the workload for states during the three-year plan development process. One key mechanism is that states can submit revisions to their plans at a later date if circumstances warrant it. Specifically, state plans do not have to include provisions that meet requirements that would arise under certain future contingencies. Thus, for example, while the Rule requires that an emissions shortfall that arises during the course of plan implementation must be made up if plan performance unexpectedly falls short of achieving a required outcome, state plans by no means have to identify the measures that the state would put in place if such a circumstance arose. Rather, because of the Rule's provisions addressing plan revisions, it could be through future revisions that such a situation would be addressed. EPA has made it clear that with the long timeframe involved in this Rule, there may well be changes in circumstances that warrant plan revisions, and states need not try to plan for every potential contingency.

33. States' ability under the Rule to revise a state plan also ameliorates any potential burden on states resulting from, for example, the need to determine, before they submitted their plans, whether to join a multi-state plan or operate under an individual state plan. A state participating in a multi-state plan can submit a revision to withdraw from an initial multi-state plan if it wishes, subsequent to the approval of its plan. 80 Fed. Reg. at 64,861. Conversely, a

state originally operating under an individual state plan may join a multi-state plan later through the plan revision process. Therefore, states are not locked into the decisions they make regarding multi-state plans during the three-year planning period, but rather can revisit those decisions throughout the course of implementation as circumstances change. This ability to make changes along the way also applies to other decisions a state might make, such as how to allocate emission reductions among the power plants in the state.

34. In addition, a state can elect to expend no effort at all and simply opt to submit neither an initial submittal nor a state plan by September 6, 2016. For example, Indiana Governor Mike Pence and Mississippi Governor Phil Bryant have stated that they have not yet decided whether to submit a state plan. Harball, E. "Most states suing EPA's climate rule are also mulling how to comply," ClimateWire (Nov. 9, 2015) http://www.eenews.net/stories/1060027684 (subscription required) (Indiana); Henry, D. "Gov: Mississippi might not comply with climate rule," The Hill (July 24, 2015), http://thehill.com/policy/energy-environment/249144-gov-mississippi-might-not-comply-with-climate-rule (Mississippi). If a state makes this election, the EPA would then promulgate a federal plan which would establish standards of performance for the affected sources in that state. As noted in the final Rule, sources in those states will have more than five years to prepare for the first compliance period, which does not begin until 2022, a

lengthy period that will afford them the opportunity to plan before incurring significant expenditures. 80 Fed. Reg. at 64,744. If a federal plan is promulgated on a state's behalf, the state is free to replace it by submitting an approvable state plan to the EPA. Id. at 64,828 n.769. EPA's preference is always to approve a state plan, if possible, in lieu of implementing a federal plan. Another option is for a state to take delegation of implementation and enforcement of the federal plan, as states and air quality control districts have done for the prevention of significant deterioration (PSD) permit program. Finally, EPA has proposed to allow states to control certain aspects of implementation through a partial state plan (similar to abbreviated SIPs under the Cross State Air Pollution Rule ("CSAPR"), while EPA handles the remainder of the administrative obligations associated with a federal plan. Id. at 65,027.

35. Importantly, to assist states in the plan development process, the EPA began an extensive effort of communication and collaboration with the states regarding state plan development immediately upon finalization of the Rule. This effort, which is ongoing, continues the cooperative relationship states and the EPA have experienced for decades under the CAA. States both with and without well-established CO_2 control programs have been communicating with myself and other EPA staff through regularly scheduled calls and meetings,

including conference discussions upon a state's request.[7] I believe these ongoing discussions enable the states to more easily develop initial submittals and state plans as questions are responded to as quickly as possible and clarifications are provided by my staff as needed. Feedback my staff and I have received indicate that these calls and meetings have been very helpful to the states as they consider the threshold questions regarding the various state plan options available under the final rule by discussing practical considerations, hypothetical scenarios, and the benefits and advantages of certain options as well as potential difficulties and complications of other options, depending on a state's circumstances.

36. Finally, immediate decision-making by the states is not needed to ensure timely compliance by affected sources. Affected sources have ample time to comply with the requirements, and states have flexibility in determing when emission reductions must occur. A state may delay the start of reduction requirements for steam generators until 2023 or, for most states, 2024, and for combustion turbines in all states, until 2024. This added flexibility provides states and affected power plants with adequate time to consider any steps they need to take in order to meet the final rule requirements. Furthermore, multiple

[7] To date, my staff has engaged with the following states with one-on-one calls per their request: California, Colarado, Delaware, Idaho, Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, New York, Vermont, and RGGI's member states participating jointly.

aspects of the final Rule allow for states and affected power plants to meet the requirements of the Rule in an orderly, cost-effective, and reliable manner. These aspects include the timing and flexibility noted above, the requirement that states consider reliability in developing their state plans, the ability to revise a state plan if needed to address a reliability concern, and the availability of a reliability safety valve in the event of an unanticipated, emergency event. The Rule also allows affected power plants to use trading options in order to comply with the Rule requirements, adding another layer of flexibility to the timing and method of complying with requirements.

Requests by States to Allow Generation-Shifting Measures for Compliance

37. In pre-proposal comments to the Agency, some states identified generation shifting measures such as greater use of existing natural gas combined cycle plants and increasing use of renewable energy resources as methods states and utilities should be able to use to meet section 111(d) obligations. See Letter from Eric C. Massey, Director, Air Quality Div., Ariz. Dep't Envt'l Quality, to Janet McCabe, Acting Assistant Administrator, Office of Air and Radiation, U.S. EPA, at 2, 5 (Dec. 17, 2013) (Arizona recommends EPA allow "renewable energy resources. . . as compliance credits" and allow states to choose "system-based" standard "that allows … the fastest and most economical means of compliance") (Attachment A); Letter from Richard Hyde,

Interim Exec. Director, Texas Comm'n on Envt'l Quality, and Brian Lloyd, Exec. Director., Pub. Util. Comm'n of Texas, to Gina McCarthy, Administrator, U.S. EPA, enclosure, at 2, 4 (Jan. 14, 2014) (Texas notes that increased natural gas generation "and overall lower outputs from coal units . . . of course result[] in lower GHG emissions;" requests 6 year implementation period on the assumption that generation shifting measures would be allowed for compliance) (Attachment B); Letter from Dan Wyant, Director, Mich. Dep't of Envt'l Quality, to Gina McCarthy, Administrator, U.S. EPA, at 3 (April 11, 2014) ("the future of GHG reductions lies in eliminating energy waste, renewable energy sources, and alternative fuel choices") (Attachment C). In the Rule, EPA provided the states the compliance flexibility that they requested.

Notice and Comment Issues

38. In this section, I respond to concerns expressed by Stay Movant North Dakota and its declarants that the EPA did not provide adequate opportunity for notice and comment. See, e.g., N. Dak. Mot. at 18-19; Glatt Decl. ¶ 20.

39. This Rule was the subject of an unprecedented public participation process. EPA engaged in extensive outreach with stakeholders and the general public at every stage of development of the Rule. EPA staff participated in over 600 meetings before proposing the Rule, including hundreds with state energy and environment officials and the utility power sector. In 2013, before

proposing the Rule, EPA held 11 public listening sessions nationwide, and the ideas we gathered informed the proposal. EPA Docket No. EPA–HQ–OAR–2014–0020, available at www.regulations.gov. EPA initially provided a 120-day public comment period on the proposal, from June 18, 2014, the day of publication in the Federal Register. 79 Fed. Reg. 34,830. In response to requests from stakeholders, EPA extended the comment period by 45 days, to December 1, 2014, giving the public a total of 165 days to comment. After proposal, EPA held a series of public hearings at which over 1300 people testified. Based on early feedback on the proposal, EPA published a "Notice of Data Availability" on October 30, 2014, 79 Fed. Reg. 64,543, to allow further comment on several aspects of the proposal. On November 13, 2014, EPA published a Technical Support Document providing options for translating CO_2 emission rates to mass-based goals. 79 Fed. Reg. 67,406. In all, EPA received over 4.3 million comments, the most it has ever received on any rule.

40. EPA recognizes that the final emission performance levels for most states differ from the emission performance levels in the proposed rule. The state goals provided in the proposed rule were based on one proposed methodology, but the proposed rule and the subsequent Notice of Data Availability identified a number of other methodologies. Accordingly, states were able to anticipate that their goals might change, including being significantly tightened, if the alternative methodologies were selected.

For example, the proposal provided notice that EPA was considering alternative values for available amounts of renewable energy. 79 Fed. Reg. at 34,869-70. The Notice of Data Availability indicated that EPA was considering different methods for calculating the amount of generation shift from high-emitting generation to lower- or zero-emitting generation. Id. at 64,552-53. The Notice of Data Availability also indicated that EPA was considering different approaches for "regionalizing" the measures for shifting generation from steam generators (mostly coal-fired) to natural gas combined cycle units and from fossil fuel-fired power plants to renewable generators, to reflect the interconnection of the grid. Id. at 64,549-52. These statements in the proposal and the Notice of Data Availability put states on notice that the assumptions regarding the application of the generation-shifting measures might change, and that states in regions with significant renewable energy potential or states without natural gas units might see an increase in stringency of their final goals. The EPA provided interactive workbooks to allow commenters to recalculate state goals using alternative assumptions. See Goal Computation Technical Support Document, at 21 (June 2014) (proposed Goal Computation TSD). In

fact, some of the alternatives, if finalized, would have resulted in goals more stringent than the final state goals.[8]

41. In addition, North Dakota's declarants, see Glatt Decl. ¶20, object that:

(1) The time to comment on the Notice of Data Availability and Technical Support Document was too short. However, these documents were available for review and comment weeks before the end of the comment period and numerous stakeholders provided extensive comment on the subject matter they contained. See Response to Comments, Ch. 3-4.

(2) North Dakota had insufficient notice regarding treatment of allowances and emission rate credits, and EPA's alleged "disallow[ance]" of crediting of certain renewable energy resources. However, the final Rule allows states to use a wide array of renewable energy technologies to generate credits based on principles outlined in the proposal, and the exclusion of existing renewables in the formula for determining the emission performance level was noticed in the proposal, see 79 Fed. Reg. 34,867; see also Response to Comments, Ch. 3C.

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[8] For example, if EPA had finalized its proposed alternative renewable values, its proposal to treat building block 3 and 4 replacement in the same manner as building block 2 replacement (i.e. considering renewable energy incremental generation as replacing historical fossil steam levels on a one-for-one MWh basis), and also adopted a regional approach to building block 2, North Dakota's final goal, calculated using the interactive workbooks, would have been 1183 pounds of CO_2 per net MWh, significantly more stringent than the state's actual final goal of 1305 pounds.

(3) EPA did not identify that renewable energy projects constructed before 2013 would not be eligible for compliance crediting. However, EPA proposed that measures constructed before the date of the proposal (in June 2014) would be ineligible for compliance crediting under a rate-based state plan, and requested comment on January 1, 2013, as an alternative. 79 Fed. Reg. at 34,918-19, 34,952.

(4) EPA did not give adequate notice of "new assumptions" regarding its building block methodology. However, as noted above, the changes to the building blocks were identified as alternatives in the proposal and Notice of Data Availability. For example, the Notice of Data Availability proposed alternatives for setting a natural gas utilization "floor" in states without significant natural gas combined cycle dispatch, id. at 64,550, and proposed regionalized levels for renewable energy to take the interstate nature of the grid into account. See id. at 64,545-47. See also Response to Comments, Ch. 3.

(5) EPA failed to adequately notice its criteria for adjusting hydroelectric generation in 2012. However, these criteria are a logical outgrowth of EPA's rationale for selecting 2012 as the baseline data year, see proposed Goal Computation TSD, at 4 , as well as EPA's specific identification of unique

issues associated with hydroelectric generation baseline in the proposal, see 79 Fed. Reg. at 34,869-70. See also 80 Fed. Reg. at 64,814-15.[9]

(6) EPA did not give notice of its intent to apply the building blocks to the three regional interconnection system regions. However, the proposed rule and Notice of Data Availability requested broad comment on a variety of regional approaches for applying the measures in the best system, 79 Fed. Reg. at 64,551-52, discussed the interconnected and integrated nature of the electric grid, id. at 34,880-81, and included structural analysis of the sector informed by regional transmission organizations and North American Electric Reliability Corporation ("NERC") regions. 79 Fed. Reg. at 64,551-52.

Cost and Rate Projections in the Regulatory Impact Analysis

42. EPA conducted a Regulatory Impact Analysis designed to assess the overall impacts of the Rule on the energy sector and the economy. EPA employed a highly transparent process and used methods and models approved by the Office of Management and Budget. EPA assumed that states would adopt one of two types of state plans, and relied on a computerized model, the

[9] Unlike other states that submitted extensive critical comments on the use of 2012 as the baseline year, North Dakota did not identify this as an issue when discussing the baseline in the State's comments to EPA. Glatt is incorrect that a hydroelectric adjustment was made for Minnesota.

Integrated Planning Model. EPA estimated the overall costs for compliance with the Clean Power Plan, including the amount of additional infrastructure (such as new gas pipelines) that would be needed for compliance; as well as the impacts on electricity rates. Based on these analyses, the RIA projects that the Rule will achieve its goal of reducing CO_2 emissions from power plants without causing any disruptions to the electricity sector and at costs that are in line with costs of other CAA requirements that power plants have successfully implemented in recent years.

43. As reflected in the RIA, EPA projects that the overall costs of the Clean Power Plan range from $1-3 billion in 2025 and $5.1-8.4 billion in 2030, depending on the type of state plans that are adopted. RIA at ES-9, Table ES-5. As the following table shows, these costs are in line with, and in some cases less than, the costs of other CAA rules for power plants:

Cost Comparison: Clean Power Plan and Other Power Plant Rules

All costs are annualized and are in 2011$ billion.[10]

Rule	Costs at 5 years or less	Costs at 10 years or less, and more than 5 years	Costs at 15 years
1979 NSPS[11]			>9.1 (16 years)
Acid Rain Program[12]	0.9 - 1.4 (3 years)	1.7 - 3.2 (8 years)	
NOx SIP Call[13]		2.7 (9 years)	
CAIR[14]	3.1 (5 years)	4.6 (10 years)	5.7 (15 years)
MATS[15]	10 (4 years)		
CPP[16]		1.0 – 3.0 (10 years, i.e., 2025)	5.1 – 8.4 (15 years, i.e., 2030)

[10] For a description of these power plant rules, except for the 1979 NSPS, see 80 Fed. Reg. at 64,662, 64,696-97. All costs not already in 2011$ were converted to 2011$ using the U.S. Bureau of Economic Analysis. Table 1.1.9. Implicit Price Deflators for Gross Domestic Product. Available at: http://www.bea.gov/iTable/iTable.cfm?reqid=9&step=3&isuri=1&903=13#reqid=9&step=3&isuri=1&904=1990&903=13&906=a&905=2012&910=x&911=0.

[11] 44 Fed. Reg. 33,580 (June 11, 1979) (standards of performance for SO_2, PM and NOx from new, modified and reconstructed electric utility steam generating units).

[12] Regulatory Impact Analysis of the Final Acid Rain Implementation Regulations, U.S. EPA, at 4-6, Ex. 4-2 (1992).

[13] Regulatory Impact Analysis for the NOx SIP Call, FIP, and Section 126 Petitions – Volume 1: Costs and Economic Impacts. EPA-452/R-98-003, Table ES-2, Addendum Tables 2, 4, and 6 (1998). http://yosemite.epa.gov/EE/EPA/ria.nsf/EIO/9051349471EC8109852566B000569EF5.

[14] Regulatory Impact Analysis for the Final Clean Air Interstate Rule, EPA-452/R-05-002 at 7-9, Table 7-3 (2005), http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2004-0008-0558.

[15] Regulatory Impact Analysis for the Final Mercury and Air Toxics Standards, EPA-452/R-11-011, at 3-14, Table 3-5 (2011), http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2009-0234-20131.

[16] Clean Power Plan RIA, at ES-9, Table ES-5.

44. Each of the rules in the chart above has resulted in higher-emitting power plants incurring greater costs to comply with air pollution control requirements compared to lower-emitting plants, which has placed the higher-emitting plants at a competitive disadvantage.

45. With respect to electricity rates, EPA's analysis estimates that the Clean Power Plan would result in an increase in the national average (contiguous United States) retail electricity price of between 0.9 - 2.0 percent in 2025 and less than one percent in 2030. RIA at 3-38, 3-39.

Claims of Harm in Other Rulemakings

46. In this section, I note that just as for the Clean Power Plan, in another, recent CAA rule concerning power plants, industry claimed that the rule would have extremely negative impacts on the reliability of the electricity system, but those claims did not come to pass.

47. The Cross-State Air Pollution Rule (CSAPR), which was promulgatedin 2011, addresses interstate transport of ozone and fine particulate matter pollution that affects air quality in downwind states. The rule includes several cap-and-trade programs that apply to SO_2 and NO_X emissions from power plants in covered upwind states. EPA designed CSAPR as a two-phase program. For Phase 1, originally scheduled to begin in January 2012, EPA established emission limits based on cost-effective emission-reducing actions

that power plants could undertake with limited lead time. For Phase 2, originally scheduled to begin in January 2014, EPA established more stringent emission limits. See generally 76 Fed. Reg. 48,208 (August 8, 2011).

48. Industry and state litigants challenging CSAPR sought a stay of the rule. Some of these litigants claimed that, absent a stay, they would suffer irreparable harm arising from forced power plant shutdowns and consequent electricity blackouts. See, e.g., Kansas Utilities' Motion for Stay of Final Rule as Applied to Kansas 8-14, Doc. 1337158, No. 11-1302 (D.C. Cir. Oct. 21, 2011); [Kansas'] Motion for Stay of Final Rule 19-20, Doc. 1333691, No. 11-1302 (D.C. Cir. Oct. 5, 2011).

49. The D.C. Circuit granted the motions for a stay of CSAPR, but subsequently vacated the rule. See EME Homer City Generation, L.P. v. EPA, 696 F.3d 7 (D.C. Cir. 2012). The Supreme Court reversed the D.C. Circuit, EPA v. EME Homer City Generation, L.P., 134 S. Ct. 1584 (2014), and implementation of CSAPR began in January 2015. See Order, EME Homer City Generation, L.P. v. EPA, No. 11-1302 (D.C. Cir. Oct. 23, 2014).

50. However, even before implementation began in 2015 – and while there was no regulatory requirement to do so –the industry succeeded in meeting the Phase 1 budgets for each of the four CSAPR trading programs in the course of normal industry operations, and without forced shutdowns or blackouts. See Declaration of Reid Harvey ¶ 38 & Tables 1-4, Attachment A to (EPA)

Respondent's Motion to Lift the Stay Entered on December 30, 2011, Doc. 1499505, No. 11-1302 (D.C. Cir. June 26, 2014). Thus, the CSAPR stay movants' claims that there would be significant potential negative impacts on consumers if the rule were implemented proved to be unfounded.

51. Based on the information and analysis in the record of the Clean Power Plan, and based on numerous statements I have read and heard from utilities and other organizations since the Rule was finalized about the achievability of the reduction targets on the timeline the Rule provides, I believe that the claims being made by industry for the Clean Power Plan are just as unfounded as similar statements in the case of CSAPR.

December 3, 2015

Janet G. McCabe

Attachments

Attachment A: Eric C. Massey (Arizona)_Letter (December. 17, 2013)

Attachment B: Richard Hyde (Texas) Letter (January 14, 2014)

Attachment C: Dan Wyant (Michigan) Letter (April 11, 2014)

ATTACHMENT A

ARIZONA DEPARTMENT
OF
ENVIRONMENTAL QUALITY

1110 West Washington Street • Phoenix, Arizona 85007
(602) 771-2300 • www.azdeq.gov

Janice K. Brewer
Governor

Henry R. Darwin
Director

December 17, 2013

Acting Administrator Janet McCabe
Office of Air and Radiation
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Re: State framing questions regarding considerations in the design of a program to reduce carbon pollution from existing power plants under CAA section 111(d)

Dear Ms. McCabe,

As you know President Obama unveiled his Climate Action Plan on June 25, 2013 with a directive for the US Environmental Protection Agency (EPA) to issue carbon pollution guidelines for both new and existing fossil fuel fired Electric Generating Units (EGU). EPA issued a proposed "Carbon Pollution Standard for New Power Plants" on September 20, 2013. In accordance with the President's plan, EPA has announced that it will issue proposed guidelines for existing sources by June 1, 2014; issue final guidelines by June 1, 2015; and states will be expected to submit state implementation plans to reduce carbon pollution for covered sources by June 1, 2016.

EPA is to be commended for the unprecedented outreach it has undertaken to gather input in the design of a program under Clean Air Act (CAA) section 111(d). This tact is a constructive approach to fostering cooperation on complex issues and serves as a model for future outreach efforts. The aforementioned considered, Arizona remains unconvinced EPA has demonstrated the need or authority to adopt carbon pollution regulations under the CAA, and questions whether it is even prudent to proceed down this path.

EPA's proposed path creates inherent conflicts in both the law, and the Agency's mission. From a legal perspective, the Clean Air Act has set a number of non-discretionary duties required of EPA. The purpose of these non-discretionary duties is to ensure the protection of public health from the immediate and long-term public health threat of conventional air pollutants. EPA is already behind in complying with many of its non-discretionary duties, resulting in time consuming lawsuits to compel action as well as the awarding of penalties in the form of lawyer's fees for the prevailing plaintiffs. These lawsuits take diminishing resources away from EPA's mission to protect human health and the environment.

Addressing greenhouse gas emissions under 111(d) is not one of those non-discretionary duties. Yet, to meet the deadlines imposed by the President's plan, EPA will undoubtedly remove

resources from the non-discretionary programs and reassign them to the development of these duties. This will also force states to forego their responsibilities to their own non-discretionary duties and re-task their already thin resources to this completely discretionary program, or forfeit their ability to make their own decisions to EPA.

From a mission perspective, EPA is pitting its primary mission against itself by forgoing non-discretionary duties that protect public health for fully discretionary duties that only have the potential to improve the environment. Concentrations of greenhouse gases are the result of global emissions, and do not comprise an immediate health risk, as do criteria pollutants for which EPA has promulgated National Ambient Air Quality Standards (NAAQS). The resources necessary to develop and then implement a greenhouse gas program can only come from those programs that are better situated to protect public health in the near term.

Since EPA appears prepared to follow this course of action despite the damage to its non-optional programs, the following are Arizona's responses to the four framing questions issued in regards to "Considerations in the design of a program to reduce carbon pollution from existing power plants".

What are the State of Arizona and stakeholder experiences with programs that reduce CO_2 emissions in the electric power sector?

Utilities regulated by the Arizona Corporation Commission (ACC) are required to comply with Renewable Energy Standard and Tariff (REST) which includes a requirement to generate 15 percent of retail load using renewable energy by 2025 and thereafter[1]. In addition to the REST, the ACC has implemented an Energy Efficiency Resource Standard (EERS) mandating that regulated utilities with annual revenues greater than $5 million achieve annual energy savings goals of 22% by the year 2020[2].

Other utilities that are not regulated by the ACC, such as the Salt River Project, have board mandated targets for generating retail energy through the implementation of Sustainable Resources which includes renewable energy and programs that promote energy efficiency.

How should EPA Set Performance Standards for State Plans?

Section 111(d) of the act does not authorize EPA to set performance standards for state plans[3]. Rather, EPA should recognize the role and responsibility states possess in setting CO_2 standards for existing EGUs under CAA section 111(d) by establishing procedures that allow states the flexibility to choose a source-category specific or system based carbon pollution standard that allows individual states the fastest and most economical means of compliance. This would have

[1] Title 14, Article 18 of the Arizona Administrative Code (AAC) governing the Arizona Corporation Commission (AAC R14-2-1801 et. seq.) describes in full the state REST, including details on compliance schedule, enforceability and penalties for non-compliance. The program is enforceable, surplus, quantifiable and permanent under the AAC.
[2] AAC R14-2-2401 et. Seq. describes in full detail the Arizona EERS.
[3] Section 111(d), 42 U.S.C. §7411(d), of the Clean Air Act requires EPA to "prescribe regulations which shall establish a procedure...under which e ach State shall submit to the Administrator a plan which (A) establishes standards of performance for any existing source..."

multiple benefits for both EPA and states. EPA, in establishing procedures for the case-by-case determination of "Best System of Emission Reduction" (BSER), should allow states the pliancy to choose a source-specific or system-based standard. EPA should:

- Acknowledge the diversity in climate, portfolio mix, geology, geography and regulatory landscape unique to each state;
- Ensure maximum power sector reliability and energy affordability in each state;
- Prevent the infringement on states' rights to develop standards under CAA section 111(d); and
- Allow for utilities and independent power producers operating affected sources to meet these standards using a variety of compliance methods.

The BSER procedures should allow the determination to be based on demonstrated technologies suitable for the regional geology, geography and economy. The BSER analysis should examine, among other factors, fuel type; regional capacity planning; local geography; imminent non-CO_2 environmental regulation; commercial demonstration of technologies; and potential environmental health and safety risks associated with electricity reliability and affordability. In setting the procedures, EPA should consider changes to the electric system that will occur as part of compliance with other EPA regulations, including New Source Review and Prevention of Significant Deterioration permitting requirements, both current and future.

Residential buildings in Arizona consume significantly more electricity than the national average on cooling and appliances[3]. Commercial building energy use is the second largest end-use sector in Arizona, yet has seen the highest growth in consumption of retail electricity from 2000-2010. Additionally, Arizona's fast-growing urban population centers see significantly higher energy intensity as a ratio of kWh/ft^2 than the rest of the state, presenting a significant opportunity to reduce end-use energy intensity[4]. When establishing procedures, EPA should provide the flexibility for states to account for potential generation displacement, and thus emissions savings, by accommodating programs from outside of the electric power sector that directly influence end-use energy intensity.

Arizona's utilities already employ some programs to improve end-use efficiency by offering rebates and incentives for the installation and implementation of renewable and energy efficiency improvements in the residential, commercial and industrial sectors. Utilities already submit annual reports detailing many of these programs to demonstrate compliance with state energy mandates. When establishing procedures, EPA should offer states flexibility in determining the efficacy of these existing programs and documentation in reducing carbon emissions from the state electric power portfolio.

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[3] EIA produces summary reports for Arizona Residential Energy use based on data collected through residential energy studies. The summary report and supporting data is available here: http://www.eia.gov/consumption/residential/reports/2009/state_briefs/pdf/az.pdf

[4] EIA compiles state profiles and rankings of energy, environmental, and economic data. This data includes summaries, analysis and raw data and was used as a reference for other statistics on the Arizona economy and energy prices herein. The data is available here: http://www.eia.gov/state/data.cfm?sid=AZ

Issues that influence Arizona CO_2 Emissions

Arizona is currently the 16th most populous state with a compound population growth rate of 2.9% from 1980-2010. However, Arizona ranks 42nd in the nation for per capita personal income and pays retail electric rates near the national average. Price stability and reliability are of the utmost importance in Arizona as the heat in the western, central and southern portions of the state can be deadly without affordable electricity for cooling.

In Arizona, a misery day occurs when the average daily temperature exceeds 110° F, and the number of misery days in Arizona has reached record proportions in recent years. Phoenix had 32 misery days in 2007, previously a record setting year for average daily temperatures. The city recorded its fourth hottest day in recorded history in 2013, with the year breaking the previous record for average daily temperatures set in 2007[5]. The National Weather Service recorded 25 "misery" days at the Phoenix Sky Harbor weather station in the summer of 2013[6]. A lack of reliable firm power on these days could be catastrophic and result in the tragic loss of life, a much greater and immediate impact on public health than that posed by greenhouse gasses.

Arizona urges EPA to consider the human health consequences of exceptionally high temperature events, and to provide flexible peak-demand day solutions or exemptions, while developing guidance to create long-term market signals for technologies and programs that drive efficiency, smooth demand curves or firm renewable resources. The abject consequences resultant of the lack of affordable, sustainable and available electricity during extreme heating events constitutes immediate and substantial endangerment to public health and is unacceptable.

Regional Influences on the Arizona Electric Power Sector

The regional trade balance in electricity also affects Arizona emissions. Arizona's diversified portfolio allows for cheaper base load electricity for states dependent on a higher emitting fossil fuel portfolio, while offering firm power resources for neighboring states that consume more electricity than they produce. Regional marketing and trading, by default, externalize some of the emissions or benefit from reduced emissions incorporated in generation of marketed electricity. As an example, Arizona utilities buy and sell wholesale electricity to and from the California Independent System Operator (CAISO) in both the day-ahead and hour-ahead wholesale energy market; in effect, displacing emissions from California when they sell energy to the CAISO and reducing emissions in Arizona when purchasing energy from the CAISO.

Additionally, individual utilities often operate generation capacity in states other than those whose load they serve, and many generating facilities have multiple owners in multiple states. It is imperative that EPA consider the regional nature of the electric power sector, while allowing

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[5] Ruddell, D., Hoffman, D., Ahmad, O., Brazel, A. (January, 2010). Historical Thresholds Temperatures for Phoenix (Urban) and Gila Bend (Desert), Central Arizona, USA. Climate Research. Vol. 55: 201-215, 2013 DOI: 10.3354/cr01130
Dungan, R. (September 21, 2013). *Phoenix Summer Hottest Ever*. The Arizona Republic. Phoenix Arizona. Retrieved from: http://www.azcentral.com/weather/articles/20130920phoenix-summer-hottest-ever.html

[6] NWS data was pulled from a data request to the NOAA National Climate Data Center available here: http://www.ncdc.noaa.gov/cdo-web/datasets/GHCND/locations/CITY:US040011/detail

the appropriate time for regional cooperation to occur. As a result, EPA's procedures should allow for states to cooperate in setting and achieving regional reduction targets.

Arizona also recommends that EPA's procedures allow for the consideration of all real world costs associated with implementing any air pollution controls, including the costs of any additional air pollution controls triggered for criteria pollutants under NSR and PSD during the installation of any controls under this program.

Finally, Arizona recommends that EPA consider the co-benefit of reduction of criteria pollutants as a result of this program to be creditable for other State Implementation Planning purposes. For example, efficiency improvements that achieve both a CO_2 and O_3 emission reduction should be creditable for planning purposes under Section 111(d) as well as Section 110.

What requirements should state plans meet, and what flexibility should be provided to states in developing their plans?

Arizona requests EPA allow states to propose and develop a "system of emissions reductions" that conform to procedures set by EPA. EPA should provide concise methodology for evaluating alternative systems for emissions reductions.

Arizona also recommends that EPA's procedures allow energy efficiency, renewable energy resources, and programs outside of the electric power sector (building energy efficiency standards, building codes, etc.) as compliance credits as long as they are quantifiable, surplus, enforceable and permanent. Additionally, EPA should provide guidance and methodologies for quantifying these credits; processes to prevent double counting; and their comparability between mass based and rate based standards to harmonize and facilitate regional compliance trading to maintain affordability. Arizona also requests that EPA's procedures provide flexibility to bank credits for early emissions reductions.

EPA should also allow credit for existing programs that have provided a quantifiable reduction in emissions (e.g. renewable energy and efficiency mandates, early retirement of CO_2 emitting EGUs, fuel switching, etc.) that occur after the baseline has been established. This crediting of early action will ensure ratepayers receive full value for emission reductions while incentivizing investment and participation in programs in the future.

Finally, when establishing its procedures, EPA must recognize, as alluded to earlier, that states have the primary role in establishing and implementing performance standards under section 111(d) as determined in the state plan, and should clearly define a consultation process to evaluate state plans and determine equivalency. EPA's guidelines should provide states with the maximum amount of flexibility to set an appropriate state-specific standard; and in doing so, should allow for the development and implementation of regional and national solutions should states decide that such an approach is most beneficial. It is in both EPA and the states interests to establish a clear, predictable, defensible and transparent program in order to avoid the years of frustration, delay and waste of resources that have been observed in programs such as inter-state transport of air pollution and regional haze.

What can EPA do to facilitate state plan development and implementation?

One of the most important recommendations is for EPA to extend the timeline necessary for the development of the 111(d) standards to facilitate multistate coordination and ensure states establish the standards and compliance mechanisms correctly the first time. In this respect, Arizona recommends at least 24 months for the development of the State Implementation Plan (SIP) and an additional 24 months to resolve any partial or full disapproval of a SIP prior to EPA prescribing and implementing a Federal Implementation Plan (FIP). This will ensure EPA provides the necessary commitment that the federal government will provide states with the appropriate opportunity to address plan shortcomings and perform the necessary consultation amongst state and regional stakeholders involved in the development of a plan.

EPA should promote regulatory and market certainty by providing clear guidance prior to the SIP process beginning. This certainty should be legally durable and provide market signals that promote long-term investment in emission reductions. In defense of this justification, Arizona points out that EPA has still not sent the NSPS under CAA section 111(b) to public comment despite being signed on September 20, 2013. It has been over two and a half years since EPA initiated the process to establish a carbon pollution standard for new sources[7], yet states are only being afforded one year to develop existing source standards. It is unreasonable to expect states to develop a program that is inherently more complicated due to issues such as retrofit technology and existing source mix in less time that it has taken EPA to develop a program for sources that do not exist today and can be more easily designed to meet the standards.

In Conclusion

Should EPA decide to proceed down this path, EPA's authority under 111(d) should be interpreted in the most defensible way possible, and nothing more. It is clear that 111(d) limits EPA's role to that of setting procedures that states must follow when the states set the appropriate standards. If EPA chooses to develop standards as part of the 111(d) procedures, that decision will result in lawsuits and thus also result in delay, uncertainty, an no immediate action or benefit. While the Statute provides EPA with the authority to approve or disapprove a State's plan, Arizona believes that this authority is constrained to determining conformance with the procedures, not EPA's opinion regarding the adequacy of the standard the State chooses to set.

The aforementioned complexities and considerations underscore the delicacy required in setting guidelines for CO_2 standards that ensure climate change mitigation balanced with sustainable economic growth, sociocultural sensitivity, and environmental health and safety. EPA guidance should be a catalyst for the modernization of the electric power sector, guiding the states in developing sound and adaptable programs that align with our shared mission to protect human health and the environment.

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[7] according to http://yosemite.epa.gov/opei/rulegate.nsf/byRIN/2060-AQ91 they initiated the process in March of 2011

Arizona recognizes that these issues are complicated, and that they require significant thought and effort on the part of EPA. We encourage EPA to continue its unprecedented outreach as it considers these comments, and work directly with the states as they are best situated to resolve these complicated problems.

Sincerely,

Eric C. Massey, Director
Air Quality Division

cc: Gina McCarthy, EPA Headquarters
Jared Blumenfeld, EPA Region IX
Deborah Jordan, EPA Region IX
Amy Zimpher, EPA Region IX
Colleen McKaughan, EPA Region IX
Peter Tsirigotis, EPA OAQPS
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Sarah Dunham, EPA
carbonpollutioninput@epa.gov

ATTACHMENT B

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

January 14, 2014

Ms. Gina McCarthy, Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

Re: Comments on CO_2 emissions for EGUs, Section 111(d) of the Clean Air Act

Dear Administrator McCarthy:

The Texas Commission on Environmental Quality (TCEQ) and the Public Utility Commission of Texas (PUCT) appreciate the opportunity to provide input to the Environmental Protection Agency (EPA) regarding its plans to develop regulations to address carbon dioxide (CO_2) emissions from existing electric generating units (EGUs) under Section 111(d) of the Clean Air Act (CAA).

We have enclosed our initial responses to the list of questions EPA developed to solicit input from states and other stakeholders on the design of the 111(d) proposal. In addition, we also want to emphasize four specific overriding concerns and issues that require specific consideration by EPA.

First, the State of Texas believes that climate change policy should be at the direction of Congress and not through EPA regulatory efforts under sections of the CAA that were not specifically developed to address the complex nature of greenhouse gases. However, we understand that, under the President's direction, EPA is moving forward in development of regulations under CAA 111(d). In that light, the comments provided herein should not be interpreted as TCEQ's or PUCT's endorsement of EPA's regulatory initiative. In addition, our comments are necessarily initial impressions at this time and not final opinions, and we reserve the ability to alter our opinions based on the EPA's continued development of its regulatory program.

Second, we are also concerned that CAA 111(d) is not the appropriate vehicle for regulating CO_2 emissions from existing EGUs. Under Section 111(d)(1), EPA does not have the authority to prescribe regulation under Section 111(d) for an air pollutant if the source category is already regulated under Section 112 of the Clean Air Act. Existing EGUs are now a regulated source category under Section 112 of the CAA through the EPA's Mercury and Air Toxics Standards and as such, are precluded from regulation under 111(d).

Additionally, section 111(d) of the CAA is not a technology-forcing standard. Under 111(d), the Best System of Emission Reductions (BSER) must be adequately demonstrated and take into account cost and energy requirements. We note that you have publicly stated that carbon

capture and storage (CCS) will not be considered as a requirement as EPA moves forward in its development of 111(d) rules. TCEQ and PUCT support this position and do not consider CCS to be "commercially available" as defined in the CAA for either new or existing EGUs. CCS is not in full-scale operation at any plant in the United States, and current CCS projects have only been possible through significant incentives, government subsidies, and proximity to enhanced oil recovery reserves.

Third, due to the specifics of federal and state electricity regulation, each state has a unique set of circumstances relevant to the provision of electricity in their state which creates unique complications for standard-setting under 111(d). Regulated vs. deregulated electricity market designs as well as the existence or lack of multistate independent service operators/regional transmission organizations within a state may affect how different states are able to address reliability and cost issues within their states. EPA must provide maximum flexibility to states to craft state plans to meet a performance standard to account for the diverse nature of each state's power generation mix and market structures.

In the Electric Reliability Council of Texas (ERCOT) region, which manages the electric grid for over 85% of Texas's electricity load and 23 million customers, economic dispatch is already resulting in lower GHG emissions. The fall in natural gas prices has led to seasonal mothballing of coal units and overall lower output from coal units in the ERCOT fleet, which, of course results in lower GHG emissions. Low natural gas prices have also led to the development of more natural gas plants, which have lower emissions than coal plants.

However, generation resource retirements can affect the reliability of the grid by reducing system-wide reserve margins and by creating areas of the grid (load pockets) in which local generation and import capacity provided by existing transmission infrastructure are insufficient to serve expected peak customer demand. In ERCOT, competition in the current energy-only market design has led to system-wide reserve margins that are at or near the current target reserve margin of 13.75% (established based on a risk tolerance of one outage event due to insufficient system-wide resources every 10 years). If a change in regulations resulted in the retirement of a significant amount of generation capacity, the ERCOT system would likely be left without sufficient reserves to minimize the risk of rotating outages during peak load conditions until changed market conditions led to new investment in generation resources. Given the current timeframe to permit and build new base-load natural gas-fired generation (approximately four years), an implementation period for new greenhouse gas regulations would have to be at least five years (from announcement of unit retirements) in order for the ERCOT market to compensate for any significant unit retirements. An additional year would be necessary for resource owners to complete economic assessments of their generation assets and to determine which units should be retired. One year for retirement analysis and five years for generation development results in the need for at least a six year implementation period from publication of final requirements to rule implementation. Please note that this six year horizon is based on the assumption that the new regulations would not create new barriers to the development of new economically competitive dispatchable generation resources.

ERCOT has a well-developed interconnection wide transmission planning process that assesses system needs for the following six years and establishes any necessary projects to maintain system reliability. This six year planning process has been established because it typically takes up to six years for major transmission projects to be planned, routed and constructed. Based on

this experience, any significant unit retirements resulting from new regulations would have to allow a six year window of implementation to allow for assessment, planning and implementation of any transmission projects needed to address local load-serving needs.

In the event that a proposed unit retirement is expected to result in a local transmission reliability issue, ERCOT has the authority to negotiate Reliability-Must-Run (RMR) contracts with the resource owner. However, the resource owner is not required to enter into an RMR contract. Also, there is no precedent in ERCOT for trying to establish an RMR contract to maintain the operation of a resource that is being retired due to not being in compliance with environmental regulations. So, this alternative may not be sufficient to eliminate the risk of new regulations affecting local transmission reliability.

ERCOT is a summer peaking region with the greatest demands typically taking place during August and early September. EPA should allow states the flexibility to operate their electric grids without penalty in ways that will maintain system reliability. For example, to maintain reliability, ERCOT may require that all available units to operate during peak summer hours. Generators should not be penalized for operating units needed to maintain system reliability, especially during peak periods.

Texas's renewable energy story is well known. Texas is by far the single largest wind energy producing state in the nation. Texas's wind capacity is more than twice the amount of the second closest state (Iowa). Through calendar year 2012, Texas has added 12,776 MW of installed wind capacity. Because wind generation is an intermittent resource, it is necessary to have other generation available to serve load in the event expected wind generation is unavailable. Cycling of fossil fuel units in response to the variable output of wind generation can lead to greater GHG emissions by these plants. Again, generators should not be penalized for increased GHG emissions that may result from operating their plants as needed to maintain system reliability.

The PUCT and TCEQ urge EPA to consider all aspects of grid reliability in developing any GHG rule for existing sources. Maintaining electric reliability and minimizing consumer costs as a result of the rulemaking is a necessity. EPA must be clear and transparent about data and assumptions they make regarding effects on reliability and costs to consumers. In addition, there should not be tradeoffs between EPA's desire to reduce CO^2 emissions and the progress that states have made in reductions of other air pollutants.

Fourth, it is also very important that EPA not penalize states for demographic and geographic factors that complicate the supply of, and demand for, electricity within and between states. Texas's population is growing faster than any other state. Texas is also the nation's leading producer of oil and gas, refined products, and chemicals. These industries are energy dependent, and Texas should not be penalized for the energy used by these industries that provide products to the rest of the nation and the world. According to the U.S. Energy Information Administration (EIA), Texas is also the largest lignite producer and the fifth largest coal producer in the nation.

Texas produces more electricity than any other state, generating almost twice as much as the next largest generating state. Texas is also the largest electricity consuming state. Unlike other regions where large net interstate electricity deliveries are available, the Texas power grid is

largely isolated from the interconnected power systems serving the eastern and western United States. The largest portion of the retail electricity sales in Texas is to the residential sector. One-half of the households in the state use electricity as their primary heating fuel. The residential use of electricity is higher in Texas than in other states, in part because of population size, but also because of high demand for air conditioning during the hot summer months and the widespread use of electricity as the primary energy source for home heating during the generally mild winter months.[1] Any program developed by EPA under 111(d) that does not take factors such as these into account could result in unequal negative impacts on Texas economy relative to other states.

EPA should recognize the difficulty stakeholders have in providing meaningful comment without knowing what direction EPA intends to take. As EPA starts to develop its proposal, it is of the utmost importance that EPA continues to be open regarding its intentions and be inclusive in the process. Not knowing what EPA intends to propose until the rule is actually proposed will not allow adequate time for states to be able to provide meaningful input into the process and prepare for the task of developing state plans.

Thank you for the opportunity to provide comments on this important matter. If you have any questions, please contact Mr. Steve Hagle, Deputy Director of the TCEQ Office of Air at (512)239-2104 (Steve.Hagle@tceq.texas.gov) and/or Mr. Tom Hunter, Agency Counsel of the PUCT at (512)936-7280 (Tom.Hunter@puc.texas.gov).

Sincerely,

Richard A. Hyde, P.E., Interim Executive Director
Texas Commission on Environmental Quality

Brian H. Lloyd, Executive Director
Public Utility Commission of Texas

Enclosure

[1] http://www.eia.gov/state/analysis.cfm?sid=TX

Texas Commission on Environmental Quality and Public Utility Commission of Texas

Response to EPA Questions for States on Federal Clean Air Act (FCAA) §111(d) Plan Requirements for Regulating Carbon Dioxide (CO_2) from Existing Power Plants

1. What is state and stakeholder experience with programs that reduce CO_2 emissions in the electric power sector?

- What actions are states, utilities, and power plants taking today that reduce CO_2 emissions from the electric power system? How might these be relevant under section 111(d)?

While Texas does not implement programs specifically to target CO2 emission reduction at this time, Texas has consistently implemented programs designed to both reduce energy demand and to encourage renewable energy resources. States should be allowed to take credit for programs such as renewable energy development, energy efficiency, and demand response for purposes of compliance with a 111(d) performance standard. Texas has more installed wind energy than any other state in the U.S. and has significantly expanded transmission capability in the state to integrate wind-generated electricity into the state's power supply. Texas has over 12,000 MW of wind capacity, more than twice the amount of any other state and more than all but five countries worldwide. In addition, Texas has a number of energy efficiency programs that result in energy savings. Demand response activities have resulted in an impact of greater than 900 MW in 2012. Efforts by states to address both energy demand and renewable energy development could be relevant in EPA's consideration of how a state demonstrates compliance with any standard.

- What systems do states and power plants have in place to measure and verify CO_2 emissions and reductions?

Texas at this time does not have specific regulatory requirements for the reporting of CO2 emissions or reductions in CO2 emissions, but rather relies on the EPA greenhouse gas reporting requirements.

Texas can provide information on its renewable energy portfolio and energy efficiency savings. Specifically, the Energy Systems Laboratory of Texas A&M University develops annual reports of energy savings due to energy efficiency measures in collaboration with the Public Utility Commission of Texas (PUCT), Texas Commission on Environmental Quality (TCEQ), and USEPA's Office of Atmospheric Programs. The energy savings submitted in the reports are based on projects implemented and achieved through the PUC energy efficiency program adopted under state legislation in 1999, 2001, 2007, and 2011.

- How do state programs and measures affect electricity generation and emissions at a regional level? How are interstate effects accounted for when measuring the progress of a state program? For example, are the multi-state effects of state renewable portfolio standards, end use energy efficiency resource standards, emissions performance

standards, and emissions budget trading programs currently accounted for by the state, and if so, how?

The TCEQ and PUCT acknowledge that regional issues can result due to the overlapping nature of the electrical grid in most states. Accounting for renewable energy programs and energy efficiency measures may necessitate coordination with other states for areas that have regional independent service operators (ISOs) or RTOs for electric markets that cross multiple state boundaries. However, ERCOT, which manages the flow of electricity to 85% of Texas, only operates within Texas. As such, while the areas of Texas outside of ERCOT are comprised of several other ISOs that encompass more than one state, Texas' renewable energy and energy efficiency programs in the ERCOT region will not have significant interstate linkages. The EPA needs to consider such unique circumstances when deciding what requirements may be needed for states that wish to include energy efficiency and renewable energy measures in their state plans.

2. How should EPA set the performance standard for state plans?

- Which approaches to reducing CO_2 emissions from power plants should be included in the evaluation of the "best system of emission reduction" that is used to determine the performance level(s) that state plans must achieve? Should the reduction requirement be source- or system-based?

A single approach is not appropriate given the diverse nature of the states' generation mix and utility market structures. A source-based approach may be appropriate for some states while a system-based approach is more appropriate in other states. A system approach would likely provide the most flexibility for Texas given our diversified generation mix.

111(d) limits EPA to establishing, "... standards of performance for any existing source for any pollutant...if such existing source were a new source,..." Establishment of the performance standard must be based upon BSER on a source specific basis. A "system" standard may face additional practical and legal challenges; however, a "system" approach should be allowed as a part of any state's plan on how it will apply the standard of performance to any particular source under the plan.

- How does the amount of flexibility that states are given to include different types of programs in their state plans relate to the "best system of emissions reduction" that is used to set the performance bar for state plans? For example, if state standards to improve end-use energy efficiency were included in state plans, should EPA consider potential improvements in end-use energy efficiency in setting the performance target for states?

The states should have the flexibility to consider and account for current and possible future energy efficiency and renewable energy measures in developing state plans. However, the EPA *should not* attempt to incorporate assumptions regarding energy efficiency or renewable energy generation when setting the performance target under FCAA §111(d). A state's ability to improve energy efficiency measures or expand renewable energy generation is dependent on a

multitude of technical, geographic, and legal factors. If the EPA attempts to set a more stringent performance target for states that account for energy efficiency or renewable energy in their state plans, this will only serve as a disincentive for states to include energy efficiency and renewable energy. Additionally, the EPA may inadvertently penalize states that have been proactive in implementing energy efficiency and renewable energy measures.

111(d) does not convey flexibility to EPA in how they are to establish standards of performance, simply because states are given implementation flexibility in preparing plans that describe how standards of performance will be applied to existing sources. EPA's flexibility exists in its approval of each unique state plan.

- What should be the form and specificity of the performance level(s) in EPA guidelines? (Rate-based or mass-based? Separate levels for each subcategory of sources, or one level for the covered sources in the state? A uniform national level, or different levels by state/region based on an established evaluation process?)

As with the question of source-based vs. system-based, a single approach may not be appropriate for all states. A rate-based approach may be more appropriate in some states whereas a mass-based approach could be more appropriate in others. Rate-based standards of performance may appear to be the most defensible form of a potential standard because they could account for BSER on a source specific basis. However, whatever form of the standard the EPA ultimately decides on, states should have the latitude to translate the standards from one basis to another for purposes of developing the state plans, e.g., converting rate-based standards to a mass-based strategy for compliance, or source-based standards to system-wide approach. The EPA should provide guidance on various mechanisms in which a state can convert the standards to difference compliance approaches for the §111(d) plans.

Regardless of the different possible forms or specificity of the standards of performance, EPA must recognize the difference in source categories [e.g., coal-fired utility boilers (sub-critical, supercritical, and ultra-supercritical), gas-fired boilers, liquid-fired boilers, simple-cycle combustion turbines, combined-cycle units] in developing the standards of performance that reflect BSER. Because of the unique design characteristics of plants that burn different types of coal, performance standards should be based on a further subcategorization of coal plants.

Regional differences in electric markets create additional complexity in the setting of a standard under 111(d). While 111(d) doesn't appear to give EPA authority to establish different standards of performance based upon geographical considerations, the TCEQ supports considerations of regional issues in the standard setting process based on the unique nature of the regulated pollutant and the multiple overriding statutory and regulatory constraints for electric generation.

- When can emission reductions from existing power plants be achieved, considering different reduction strategies?

The amount of time necessary to achieve the emission reduction is dependent on how much reduction will be required to comply with the FCAA §111(d) requirements and the form of the standard. Without knowing the degree of reduction required and what options are available, states cannot estimate the amount of time necessary. We note that 111(d) has no specific compliance timeframes unlike other statutory air programs such as Section 112. We believe that under Section 111(d), that states have the authority to determine compliance timelines through their state plans. This is absolutely necessary given the differences in state energy mixes and the need to ensure that electric reliability is maintained. States need the flexibility to establish compliance deadlines based on a number of factors including the economic and energy needs of the state, the remaining useful life of affected EGUs, grid reliability, and unit-specific factors.

- How should a state, in applying a standard of performance to any particular source, consider a facility's "remaining useful life" and other factors?

The consideration of "remaining useful life" is one that is left to states under 111(d). States should be able to consider the relative age of different portions of its fleet, the present and future investment in pollution controls made at individual plants, and the amount of stranded investment if plants were to be prematurely required to shut down.

3. What requirements should state plans meet, and what flexibility should be provided to states in developing their plans?

- What level of flexibility should be provided to states in meeting the required level of performance for affected EGUs contained in the emission guidelines?

Given the diversity among the states' utility market structures and generation mixes, the EPA should give the maximum flexibility allowed by the FCAA.

- Can a state plan include requirements that apply to entities other than the affected EGUs? For example, must states place all of the responsibility to meet the emission performance requirements on the owners or operators of affected EGUs, or do states have flexibility to take on some (or all) of the responsibility to achieve the required level of emissions performance themselves or assign it to others (e.g., to require an increase in the use of renewable energy or require end-use energy efficiency improvements, which will result in emissions reductions from affected EGUs)?

Energy efficiency and renewable energy measures from sources other than affected EGUs should be tools that states can use in developing state plans. Energy efficiency and renewable energy ultimately affect the energy produced by affected EGUs. However, while we encourage EPA to provide maximum flexibility to states in developing state plans, including other sources that do not have this direct linkage back to the affected EGUs may be problematic. For example, if a state wishes to include non-EGU combustion sources in its state plan, will the state or the EPA decide the appropriate level of performance for these non-EGU sources?

- What components should a state plan have, and what should be the criteria for approvability?

Since EPA has already promulgated general requirements that all state plans must meet in 40 CFR Part 60, Subpart B, the TCEQ and PUCT are unclear as to the intent of EPA's question. If the EPA's question is whether the components in 40 CFR Part 60, Subpart B, are necessary for state plans for control of CO_2 emissions from existing EGUs, then the TCEQ supports reviewing these general requirements to determine whether they are necessary or appropriate in this case. If EPA's question is whether there should be requirements in addition to those in 40 CFR Part 60, Subpart B, it is difficult to answer that question without specific details of the form of the standard and what options will be available for development of the state plans. In general, the TCEQ and PUCT reemphasize the previous comment that maximum flexibility needs to be provided to states in order for states to address their unique situations. Similarly, with regard to approvability, criteria for approval of state plans should be broad in order to better fit the flexibility of the standard currently under consideration.

- Can a state plan include programs that rely on a different mix of emission reduction methods than assumed in EPA's analysis of the "best system of emission reduction" that is used to set the performance standard for state plans?

Yes. EPA should not attempt to limit the methods states might use in their state plans. A performance-based approach encourages innovative solutions.

- What should be the process for demonstrating that a state plan will achieve a level of emissions performance comparable to the level of performance in the EPA emission guidelines?

The information necessary to demonstrate a state plan will achieve emissions performance comparable to that established by the EPA's emission guidelines will be dependent on the form of the standards in the emission guidelines and the approach that a state chooses to follow in their state plan. The TCEQ and PUCT encourage the EPA to be flexible in this process to allow for the wide range of approaches that states are likely to implement in the state plans.

- What enforceability, measurement, and verification issues might arise, depending on the types of state measures and programs that states include in their plans? For example, what issues are raised by actions that have indirect effects on EGU emissions, such as end-use energy efficiency resource standards, renewable portfolio standards, financial assistance programs to encourage end-use energy efficiency, building energy codes, etc.?

With regard to energy efficiency and renewable energy measures, does the EPA intend to hold states to the same requirements as in EPA's guidance for claiming credit for such measures in the state implementation plan (SIP) process? If so, this may be a strong disincentive for states to rely upon energy efficiency and renewable energy in state plans for FCAA §111(d), as has been the case with the SIP process.

- Do different CO_2 reduction methods under different state plan approaches necessitate different timelines for the achievement of emission reductions?

Yes. If a standard is set that will require changes to a state's generation mix, it will take substantial time to avoid adverse consequences for electric reliability. Demand side changes, such enhancing energy efficiency programs, can also require substantial time for the cumulative benefits to be realized. Additionally, factors such as the utility regulatory and market structure, the diversity of the generation fleet, and the amount of reserve resources available in a particular region can also affect the amount of time needed for a particular strategy, i.e., a particular strategy may require more time in one region than may be necessary in another.

- What issues arise from the fact that operation and planning of the electricity system is often regional, but FCAA section 111(d) calls for state plans? How should interstate issues be addressed, where actions in one state may affect EGU emissions in another state? For example, where actions have interstate impacts, which state would receive credit for the emission reductions in its state plan? Could EPA provide for coordinated submittal of state plans that demonstrate performance on a regional basis?

Due to the specifics of federal and state electricity regulation, each state has a unique set of circumstances relevant to the provision of electricity in their state which creates unique complications for standard-setting under 111(d). Given the fact that many ISOs cross state boundaries makes development of individual state plans even more complicated. States should have the flexibility and necessary time to coordinate with other states and ISOs so that individual plans are complementary.

4. What can EPA do to facilitate state plan development and implementation?

- What types and amount of guidance and implementation support should be provided to states?

Given the EPA's aggressive schedule on the FCAA §111(d) rulemaking and for states to develop state plans, states need detailed information early in the process. EPA should not wait until the rule is proposed to give specifics to the states. A 30 or 60-day comment period will not be sufficient for state environmental and utility agencies to assess the potential impacts of the performance level proposed by EPA. EPA needs to continue to be transparent and communicative with states while they develop the 111(d) guidance.

Given the extreme complexity of state energy programs, market structures, ISOs that may cross state lines, etc., Texas is very concerned that the regulatory timelines that EPA is working under may not be adequate for states to develop their plans. At a minimum, guidance regarding EPA's expectations dealing with multijurisdictional issues will be critical and should be available no later than the effective date of the standard.

- Are there benefits for coordination among neighboring states in the development and submittal of state plans? Should EPA facilitate the coordination of multi-state plan submittals?

It is difficult to answer this question without knowing the final nature of the performance standard. In any case, EPA facilitation of multi-state planning process should only occur if requested by the states involved.

- Would certain types of measures that might be included in state plans increase the need for coordination among states?

- Are there model rules that EPA could develop that would assist states, and what would those rules cover?

Other Questions and Issues

States may need to include an emergency provision or a "safety valve" in their state plans for energy emergencies.

ATTACHMENT C

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING

RICK SNYDER
GOVERNOR

DAN WYANT
DIRECTOR

April 11, 2014

VIA E-MAIL AND U.S. MAIL

The Honorable Regina McCarthy, Administrator
United States Environmental Protection Agency
William Jefferson Clinton Building (Mail Code: 1101A)
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Dear Ms. McCarthy:

As the United States Environmental Protection Agency (EPA) undertakes the challenging task of developing guidelines for regulating greenhouse gas (GHG) emissions from existing power plants under the federal Clean Air Act (CAA), Section 111(d), the Michigan Department of Environmental Quality (MDEQ) wishes to provide recommendations for moving forward. Although we appreciate the desire to move expeditiously, there are some very important details that should not be overlooked in the drafting of these regulations; and thus, we submit this letter for your consideration.

The EPA's approach to the existing source guidelines should take into account the variations among the states and avoid giving one state or region competitive advantages over another (especially when those competitive advantages result from disproportionate federal investment in the energy infrastructure), should recognize that States have the lead role in determining achievable measures, and should take into account impacts on service reliability.

Manufacturing states with higher percentages of coal generation in their portfolio could be placed at risk for huge economic disruptions for ratepayers. This is a reality that must not be overlooked in the development of the guidelines. It is not an acceptable result to produce disproportionate adverse economic impacts on one region over another. The United States Court of Appeals' decision in the case of *Sierra Club v. Douglas M. Costle, Administrator of the United States Environmental Protection Agency*, decided April 29, 1981, amended June 1, 1981, stated that "...in considering the various factors and determining the "best system," the EPA must be mindful of the purpose of 111, and should not give competitive advantage to one State over another in attracting industry." While the market is driving some generation toward natural gas and the cost of renewable energy is decreasing, both of these would require capital investments in transmission lines and pipelines that must be borne by the ratepayers. Though Michigan will continue to invest in renewable energy alternatives, the shift away from coal will take time. If a drastic reduction in GHGs is required in a short time frame or carbon sequestration becomes requisite for existing generators, Michigan's economy would be adversely affected in comparison to other states of equal or larger population with different electric generating portfolios.

The flexibility of either a rate-based [pounds/megawatt-hour (lbs/MWh)] or mass-based standard with a mechanism providing for economic growth should be incorporated into the guideline. Rate-based regulation by unit or combination of units would be the most restrictive as well as the hardest to establish because there is a wide variation of emissions from existing units, especially coal-fired units. Given the diversity of power providers in Michigan, averaging would be quite limited, leading to more extensive emission reduction requirements. A mass-based (or rate-based converted to mass-based approach) to regulation by state or region offers the most flexibility and cost-effectiveness. The mass-based approach was used successfully in the acid rain and interstate transport trading programs and would be the preferred starting point for the states in developing their State Implementation Plans (SIPs). The development of regionally-based programs should be an option, but not mandated by the guideline.

The EPA should also allow the States flexibility in developing baseline emissions to include variability of individual unit operations from year to year. We recommend that the average of three years around 2005, or another year demonstrated as being more representative by the entity to the State agency, be considered.

The MDEQ has several recommendations with regard to time frames, compliance deadlines, and credit for investments made. Given the complexity and time required to develop new state regulations and/or negotiate agreements with neighboring states, we suggest that States be given up to three years after final guidelines have been promulgated to allow for adequate development of SIPs. We believe that three years for the development of plans with such complexity is not unreasonable. In lieu of three years, perhaps a phased approach could be utilized. In addition, we recommend that consideration be given to allowing for flexibility in developing SIPs with extended compliance deadlines, like those utilized in the Mercury and Air Toxics Standard. This would allow for the recognition of existing investments in pollution control technologies and other major investments previously approved by Public Service Commissions or State agencies. This would also recognize the time necessary to transition existing generation fleets so as to minimize financial impacts to electric customers and/or assure reliability of the electricity supply.

States should also be allowed the flexibility to take SIP credit for any investments and measurable efforts that have been taken following the established baseline period that result in the reduction of total GHG emissions. For example, some combination of plant shutdowns, combined heat and power projects, demand side management and demand response (curtailment versus on-site generation), and renewable portfolio standards (incorporating alternative forms of renewable energy such as wind, solar, and landfill gas energy) would all reduce GHGs from existing utility sources. Reduced energy waste would also demonstrate reduced generating utilization and should be credited with a quantifiable method to determine energy savings that could be applied to any state.

Municipal waste combustors should be exempt from the definition of fossil fuel electric generating units since municipal waste units are not combusting fossil fuels and are

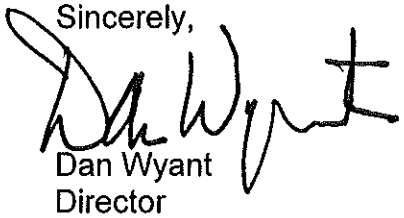
offsetting methane emissions that otherwise would be emitted from a landfill. A municipal waste combustor exemption should only apply if the unit is not combusting fossil fuel and is compliant with all environmental regulations.

Lastly, consideration should be given to the sub-categorization by fuel type and technology to any extent possible if EPA standards are established for specific units or power plants. Standards should be based only on technologies that have been adequately developed.

Michigan understands the need to reduce GHG emissions and has taken many strides in that direction starting with the Clean, Renewable, and Efficient Energy Act of 2008, which established a Renewable Energy Standard/Renewable Portfolio Standard. Since that time, several studies have been completed and additional programs have been developed to further curtail GHG emissions. In 2011 avoided electricity generation due to reduced energy waste programs can be credited with emissions reductions of approximately 2.2 billion pounds of carbon dioxide. Reductions of 13 million pounds of sulfur dioxide emissions and 6 million pounds of nitrogen oxide emissions were also observed, according to the Michigan Public Service Commission. It has been estimated that once fully operational, Detroit Edison and Consumers Energy (two of Michigan's main power producers) owned and contracted renewable energy projects will displace four to five million tons of carbon dioxide annually and those numbers will increase over time. We believe the future of GHG reductions lies in eliminating energy waste, renewable energy sources, and alternative fuel choices.

If you have any questions regarding this or would like to discuss this matter further, please contact Mr. G. Vinson Hellwig, Chief, Air Quality Division, at 517-284-6773; hellwigv@michigan.gov; or MDEQ, P.O. Box 30260, Lansing, Michigan 48909-7760; or you may contact me.

Sincerely,



Dan Wyant
Director
517-284-6700

cc: Dr. Susan Hedman, EPA, Region 5
Ms. Valerie Brader, Governor's Office
Mr. Bill McBride, Governor's Washington Office
Mr. Eric Brown, Governor's Washington Office
Mr. John Quackenbush, Chairman, Michigan Public Service Commission
Mr. Jim Sygo, Deputy Director, MDEQ
Ms. Madhu R. Anderson, Director of Policy, MDEQ
Mr. G. Vinson Hellwig, MDEQ
Ms. Mary Maupin, MDEQ

Exhibit 2

IN THE UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT

STATE OF WEST VIRGINIA, ET AL. Petitioners, v. UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, ET AL. Respondents.	No. 15-1363 (and consolidated cases)

DECLARATION OF REID P. HARVEY

I. Introduction

1. I, Reid P. Harvey, declare under penalty of perjury under the laws of the United States of America that the following statements are true and correct to the best of my knowledge and belief and that they are based upon my personal knowledge, or on information contained in the records of the United States Environmental Protection Agency (EPA), or on information supplied to me by EPA employees.

2. I am the Director of the Clean Air Markets Division in the Office of Atmospheric Programs within the Office of Air and Radiation at EPA. Since the early 1990s, the Division has operated several market-based clean air programs for large stationary sources of pollution, including EPA's Acid Rain Program, NO_x Budget Trading Program, Clean Air Interstate Rule (CAIR), and Cross-State Air

Pollution Rule (CSAPR). The Division designs and operates emissions trading programs to reduce emissions of air pollutants, creates public access to emissions data, facilitates emissions monitoring and reporting, assesses emissions control technology options, conducts atmospheric deposition monitoring and analysis, develops information systems for market-based programs, assesses environmental and human health effects, assesses benefits and costs of programs, and educates the public about acid rain, other regional and national air pollution problems, and market-based programs.

3. In my capacity as Director of the Division, I oversee EPA's implementation of major portions of the Clean Air Act (CAA) including Title IV (acid deposition control) and parts of Title I (air quality standards and associated emission limitations). In coordination with other EPA offices, I manage the promulgation of regulations pursuant to the CAA such as the Clean Power Plan and CSAPR, as well as regulations relating to the Acid Rain Program. I also manage and evaluate the implementation of such regulations from EPA headquarters. I manage all of the Division's activities as listed in ¶ 2, including overseeing EPA's collection of emissions data from the power sector (and other stationary emissions sources) under several programs including the Acid Rain Program and CSAPR. I have been the Director of the Division since late 2012.

4. Prior to becoming Director of the Division, I held several management positions in the Division and EPA's Office of Atmospheric Programs. Before joining

EPA in 1994, I was a project manager at ICF Consulting (now ICF International), engaged in energy and environmental policy analyses. I hold a master's degree in public policy from the University of California Berkeley's Goldman School of Public Policy and a bachelor's degree from Duke University.

5. I am familiar with the records and files in the Division's possession relating to the modeling for the Clean Power Plan.

6. The purpose of this declaration is to explain the modeling the Agency conducted for the Clean Power Plan (the Rule) and respond to a number of mischaracterizations of the modeling in the Movants' motions and attached declarations.

II. Summary of Declaration

7. I will provide an overview of EPA modeling using the Integrated Planning Model (IPM) and discuss its application to the Rule. In this discussion, I address the various assumptions that are integral to the Model, including the use of model plants, model years, perfect foresight of regulatory and market conditions, conditions for retirement, and application of parsing (see Sections III and IV below). I then explain that the Model does not reflect a prediction of near term consequences of the Rule in 2016, nor does it reflect or impose any near term requirements given that state plans will set the actual requirements on power plants. (Section V below).

8. After providing this overview and responding to specific assertions about these alleged near term impacts, I will respond to a number of methodological claims raised

by declarants (e.g., that EPA's base case over-predicts the number of coal unit retirements that would occur even in the absence of the Rule) (Sections VI and VII). Lastly, I will address claims that use of the IPM in MATS was improper or somehow flawed (Section VIII).

III. EPA Modeling using IPM – Description and Overview

9. Modeling is used to support many EPA actions. For this Rule, EPA's modeling is designed to provide a reasonable assessment of likely impacts of the regulatory policy, in the aggregate for the power sector nationwide, using two illustrative scenarios that reflect a multi-decade time horizon, consistent with the timescales of the Rule. The utility of specific modeling results needs to be understood in relation to the purpose the modeling serves.

10. Modeling is not designed to be a crystal ball; no model can predict the future. Further, the modeling for this Rule is designed to be informative at the national, regional, and state levels rather than the level of individual generating units. In the interest of completeness and transparency, EPA uses a post-modeling process to disaggregate the system-wide impacts from the modeling to illustrate representative impacts at the generating unit level. These disaggregated results illustrate possible ways in which individual generating units could behave under an illustrative form of a state plan implementing the Rule, but they in no way represent obligations or requirements for any individual generating unit. For this Rule, the disaggregated information was provided for the years 2025 and 2030, consistent with the focus of

the rulemaking and to assess the 2020-2030 period. The EPA did not produce any unit-level estimates as part of the final Rule for any other year, contrary to assertions made by Movants, who drew their own inferences about which units the modeling represented. In particular, EPA's modeling was not used to assess short-term impacts at the unit level for 2016, because this is before the time when state plans would be known, and the Rule does not impose any emission reduction compliance obligations on any power plants before 2022.

11. EPA typically uses the Integrated Planning Model (IPM), developed and owned by ICF International, to evaluate the potential impacts of Clean Air Act rules applicable to the power sector. EPA has used its own versions of IPM for over two decades to better understand potential power sector behavior under future business-as-usual conditions and evaluate the economic and emission impacts of prospective environmental policies. IPM is a multi-regional, dynamic, deterministic linear programming model of the contiguous U.S. electric power sector that simulates the economic decisions that power plant operators face. IPM is the best available modeling tool for assessing the possible impacts of air emission regulations for the power sector and is also used by a number of analysts in the public and private sectors for their own analyses. IPM is periodically updated to reflect the best information and modeling tools available. EPA is currently using IPM version 5.15.

12. IPM provides forecasts of least cost capacity expansion, electricity dispatch, and emission control strategies while meeting energy demand and environmental,

transmission, dispatch, and reliability constraints. IPM is designed to reflect electricity markets as accurately as possible. EPA uses the best available information from utilities, industry experts, gas and coal market experts, financial institutions, and government statistics as the basis for the detailed assumptions that inform power sector modeling. IPM modeling for these purposes is considered reasonable and EPA's application of IPM has been upheld multiple times by the courts. *E.g., EME Homer City Generation, L.P. v. EPA*, 795 F.3d 118, 135-36 (D.C. Cir. 2015).

13. When used for its intended purpose, IPM produces a reasonable assessment and reflects the multitude of influences and dynamics that affect the power sector. For example, EPA analysis of the IPM projections used to assess the potential impacts of MATS yielded projected national average annual retail electricity impacts for 2015 that were consistent with actual national average retail electricity prices for 2015. The Regulatory Impact Analysis for MATS projected a modest price increase of 0.3 cents per kilowatt-hour (kWh) on average nationally as a result of MATS. Recently the U.S. Energy Information Administration (EIA) published new data showing that the average retail electricity price for all sectors for the annual period ending August 2015 was 9.30 cents/kWh ($2007), while the retail electricity price over the 12 month period just prior to MATS implementation was 9.29 cents/kWh

($2007).[1] In essence, as EPA projected, the price remained stable and consistent with historical levels at least in the immediate period after MATS went into effect.

14. EPA's projections for the potential impact of MATS on retail electricity prices were far more accurate than the modeling or analyses conducted by third parties attempting to discredit EPA's cost estimates for that rule. The American Coalition for Clean Coal Electricity (ACCCE) claimed that MATS would increase electric prices nationwide by 11.5%, relying on erroneous assumptions about the requirements of MATS and the cost of pollution control technologies.[2] Actual pollution-control costs so far have ended up being lower than anticipated, and bear no resemblance to the assumptions used by ACCCE.

IV. The IPM Modeling for this Rule

15. EPA used IPM version 5.15 (as applied to the Rule, I will refer to this as the Model) to estimate the costs, emission reductions, and economic impacts of two illustrative representations of the final Clean Power Plan (the Rule). To run the Model, EPA supplied input data that reflect our best assessment of the U.S. electric power generation fleet. This information for individual units is documented in the

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[1] U.S. Energy Information Administration, Form EIA-826, http://www.eia.gov/electricity/data/eia826/ (last visited Dec. 3, 2015); and U.S. Bureau of Economic Analysis, Quarterly Implicit Price Deflator (2015), *available at* https://research.stlouisfed.org/fred2/series/GDPDEF/downloaddata.

[2] *See* NERA Economic Consulting, Proposed CATR + MACT (May 2011) (prepared for ACCCE), *available at* http://www.americaspower.org/sites/default/files/NERA_CATR_MACT_29.pdf.

National Electric Energy Data System or "NEEDS" database. This database, which is included in the docket for the Rule, contains the generation unit profiles used to construct the "model" plants that represent existing and planned or committed units in EPA modeling applications of IPM. NEEDS includes basic geographic, operating, air emissions, and other data on these generating units.

16. The modeling for this Rule is most useful for assessing and estimating the aggregate impacts of regulatory policy over the timescale that the modeling was designed to address. To estimate the impacts of the Rule, EPA first modeled a scenario over the 40-year time horizon without the Rule. This scenario is called the "base case." EPA then made various assumptions regarding illustrative state plans, and ran the model again with these assumptions in place. This scenario is called the "policy case." For the Rule, EPA ran IPM based on two illustrative state plan approaches all states could take to implement the Rule. The two approaches were the "rate-based" illustrative plan approach and the "mass-based" illustrative plan approach. ("Policy case" as used here generally refers to the rate-based illustrative compliance scenario.[3]) The modeled impact of the Rule can be seen by comparing the

[3] In addition to the base and policy cases for illustration of the Rule's impacts, EPA included the following model runs in the docket to support its determination of the best system of emission reduction: Building Block 2 – 70% capacity factor for existing natural gas combined cycle units; Building Block 2 – 75% capacity factor for existing natural gas combined cycle units; Building Block 2 – 80% capacity factor for existing natural gas combined cycle units; Building Block 3 – cost-effectiveness scenario; and Building Block 3 – generation assignment scenario.

policy case projections and the base case projections for particular modeled years.

17. These scenarios are "illustrative," due to the range of choices available to states in developing their state plans, and the uncertainty about the specific choices states will make. For instance, the IPM runs did not model all of the possible "glide paths" states may develop during the interim period; rather, it modeled a single set of state goals that represent the interim period, based on the interim steps that were provided by EPA to help states in their planning processes. Because of the inclusion of simplified modeling assumptions that do not capture all the implementation flexibilities available to states, near term impacts on the power sector in the policy case will generally tend to be overstated. *See* McCabe Decl. ¶¶ 6-9.

18. In order to assess the potential impacts of the two illustrative scenarios, EPA designed the modeling to project aggregate impacts to the power sector over the period of time during which power plants would need to improve emissions performance under the Rule (i.e., the 2020s). EPA did not design this modeling to evaluate unit-level source impacts of the Rule, particularly before state plans are known. Nor did EPA rely on the Model's output data for 2016 in the final Rule. Furthermore, the agency did not rely in the Rule on any unit-specific outputs for any year. In order to better understand how the Model was designed for this purpose, I will explain several key aspects of the IPM modeling as it was designed and used to evaluate the impacts of this Rule.

19. **Model Plants:** IPM is based on information about power plants at the unit

level; however, for computing efficiency in running the model, EPA combines individual units with similar characteristics into a single entity, which EPA refers to as a model plant.[4] We combine actual units into model plants due to the excessive cost in time and resources that would be needed to run the IPM model with each individual power plant directly simulated while maintaining the Model's substantial level of detail about other aspects of the power sector that affect regional power sector operations.

20. **Model Years (or "run years"):** Similar to the aggregation of actual power plants into model plants, IPM modeling aggregates future calendar years into "model years" (also referred to as "run years"). We refer to these years as "model years" because in fact they may represent an averaging, or aggregation, of anticipated effects over a multi-year period. The years modeled are selected by EPA and determined based upon demand for analysis to support multiple EPA air regulatory efforts (e.g., CSAPR and MATS). For IPM v5.15, those model years are 2016 (2016 to 2017), 2018 (2018), 2020 (2019 to 2022), 2025 (2023 to 2027), 2030 (2028 to 2033), 2040 (2034 to 2045), and 2050 (2046 to 2054).

21. EPA presented aggregated information from its modeling runs in the Regulatory Impact Analysis for the final Rule for the "model years" 2020, 2025, and

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[4] The "model plant" aggregation scheme encompasses a variety of different classification categories, including location, size, technology, heat rate, fuel choices, unit configuration, SO_2 emission rates, and environmental regulations among others. Units are aggregated together only if they match on all the different categories specified for the aggregation.

2030, which were the three model years EPA found most useful in providing relevant information on the longer-term impacts of the Rule. The model year 2020 represents an aggregation of the years 2019 – 2022, and illustrates potential scenarios at a point just prior to the beginning of the interim performance period in 2022 under the Rule. The model year 2025 is an aggregation of years 2023 – 2027, and illustrates potential scenarios at a point approximately midway into the interim period. Finally, the model year 2030 is an aggregation of years 2028 - 2033, and illustrates potential scenarios at the start of the final performance period in 2030.

22. Model year 2016 does not serve a representative purpose for the Rule. In addition, this model year is actually an aggregation of calendar years 2016 and 2017. In other words, the outputs for model year 2016 represent both calendar years, not 2016 in isolation.

23. Typically, IPM is configured to include modeled years in the shorter-term, the mid-term, and long-term. Where possible, and as is the case here, the earliest years of a modeled period are preferably those in which the new environmental standards or regulatory policies *are not* in effect. It is easy to over-interpret the first years' results and important to keep in mind that IPM will tend to show more immediate behavioral changes in the pre-compliance period than would be expected of real-world decision makers because of IPM's "perfect foresight."

24. **Perfect Foresight:** A critical aspect of IPM that is important to understand in order to be able to interpret its outputs meaningfully, especially for early years, is the

assumption of "perfect foresight." IPM's assumption of perfect foresight implies that agents know precisely the nature and timing of conditions in future years that affect the ultimate costs of decisions along the way. For example, IPM's algorithms assume complete foreknowledge by power plant owners and operators of future electricity demand, fuel supplies and prices, and other variables (including regulatory requirements and projected prices that are determined within the model based on supply and demand) that in reality are subject to uncertainty and limited foresight. Modelers frequently assume perfect foresight in order to establish a decision-making framework that can estimate cost-minimizing courses of action given the best-guess expectations of these future variables that can be constructed at the time the projections are made. With this "perfect foresight," the Model looks throughout the 2050 modeling horizon, and selects the overall lowest cost solution for the power sector over that time frame.

25. IPM will project actions in advance of a compliance deadline if completing those actions early will result in an overall lower-cost solution to the modeled constraints. For example, in the illustrative Rule scenarios, the model "sees" the future emission requirement starting in 2022 and will find a solution that optimizes the response over the entire time horizon of the model with the least cost. This is reflected, for instance, in the model projecting a 6 – 7% reduction in coal generating capacity over the base case as a result of the rule in the model year 2020. *See* RIA 3-31, Table 3-12. The model "knows," for instance, that an increase in natural gas-fired

power would be a cost-effective way to reduce emissions across the system, and will thus make earlier investments in natural gas production than may otherwise occur under real-world levels of uncertainty. Importantly, the model, unlike real-world actors, also "knows" the form of requirement that will be imposed by its state – i.e., the illustrative rate-based or mass-based policy scenario. These scenarios, however, do not capture all of the various options available to states in the design of their plans.

26. **"Retirements":** The "retirement" of a model plant occurs in IPM when "known" going-forward costs exceed "known" going-forward revenues—in any amount. Even a 1-cent difference between costs and revenues can lead to a unit retiring in the model, because the model has certainty that retiring the unit in that circumstance is a least-cost decision. The model treats a retirement as an enduring decision that is not revisited over time; there are no unforeseen changes in the perfect-foresight modeling horizon and hence no reason for a model plant to come back online once it ceases to be a part of the least cost solution for the entire sector. Of course, in the real world, actors lack perfect foresight and do not make investment or retirement decisions based on margins of one cent. Further, units do not always cease operating permanently; they can return to service, or undergo other modification or repurposing over time.

27. **"Parsing":** Once a model run is complete, it is possible for EPA to estimate projections for actual power plants based on a disaggregation of the model plants back to the original unit-level data that serve as the inputs to IPM. EPA calls this

disaggregation "parsing." The parsing process was designed to provide EPA with emissions data from power plants, which is used in air quality modeling and assessments. This is a resource-intensive process that EPA sometimes undertakes for certain model years in certain modeling scenarios. A "parsed" file of an IPM scenario, or IPM run, approximates the IPM results at the generating unit level for a particular year. Parsed data, representing model projections disaggregated to the unit level, will often differ from the corresponding variables (e.g., pollutant emission rates) historically reported for each unit, because the model may select different fuels, add new pollution control technologies, or revise the operation of particular units in response to future economic and regulatory conditions.

28. When this process is completed, it provides estimates of impacts, including projected closures, at the individual unit level. Parsing is useful for some purposes, but less so for others. EPA has typically parsed files in order to assess air quality impacts of our regulations. Parsing allows us to see with greater geospatial specificity how regulations can impact levels of emissions of conventional pollutants that may be relevant at a more local or regional scale. Parsed files, however, can create a false sense of certainty.

29. For this Rule, ICF parsed files for EPA for two model years – 2025 and 2030 – and for three IPM scenarios, (six parsed files in total). Those scenarios include the base case, the illustrative rate-based compliance scenario for the Rule, and the illustrative mass-based compliance scenario for the Rule. EPA chose to parse 2025

and 2030 because they are anticipated to best reflect the potential impacts of the Rule during the compliance period. Prior years, including model year 2016, were not parsed for this Rule because EPA concluded that the parsed results for years other than those relevant to the performance period would not be useful or meaningful at the unit level.[5]

30. Thus, EPA's IPM modeling, when used appropriately, provides the public and interested parties with a reasonable projection of the likely system-wide power sector impacts of the Rule. We do this not by focusing on unit-level IPM results, but by looking at the behavior of the system, which necessitates the simplifying assumptions of "model plants" in certain "model years" behaving with "perfect foresight." Modeling, especially of the type performed with IPM that can be run with many parameters and incredibly large data sets, inherently risks creating a false sense of certainty that can be misleading to the public and interested parties—particularly with respect to the outputs that it generates that are only indirectly related to the purposes for which the modeling is being conducted.

31. It is important, however, to distinguish between the modeled environment,

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[5] I would note that the parsed files for IPM model year 2018 of the "Ozone Transport Base Case" (which includes the Rule's rate-based illustrative policy case) are included in the docket for a separate EPA proposal, Cross-State Air Pollution Rule Update for the 2008 Ozone NAAQS, EPA-HQ-OAR-2015-0500; RIN 2060-AS05 (hereinafter "CSAPR Update Proposal"), which was signed on November 16, 2015. The parsing in this instance was done primarily to support air quality modeling, for a time period in which (unlike under the Rule) EPA is considering imposing emission reduction requirements directly, and for a different pollutant (ozone-season NO_X).

which is designed to simulate the real world, and all the actual decision variables, opportunities, and costs that owners and operators of power plants face in the real world. The model, by necessity, must make simplifying assumptions about power sector operation, in spite of all the detail and data that the model contains. The model does not consider what may ultimately be in the best interests of an individual plant factoring in every real-world variable affecting that particular plant. In practice, of course, there are many factors that operators consider in their decision making, not all of which can be included in a modeled framework.

32. Further, if anything in the real world differs from the constraints or operating parameters or assumptions in the model, the modeled results will obviously not reflect what actually happens at the unit level. One key example for this Rule is that state plans may differ from the illustrative compliance scenarios we assumed. For example, the actual state plan may adjust the "glide path" so that only base-case level changes in emissions are set to occur in the early years of the interim period. States may give a particular unit a lower or higher rate-based emission standard compared to the standards assumed to apply in EPA's modeled scenario. Because states will ultimately make the unit-specific implementation decisions, the Model can do no more than provide illustrative benefits and costs.

V. IPM Results do not represent a prediction by EPA that the Rule will cause, much less require, identifiable retirements in 2016 or any other year.

33. Several declarants for Movants assert irreparable harm from the Rule based on

the 2016 modeling results, specifically focusing on the Model's projection of coal generation capacity reductions (which they refer to as plant "retirements"). *See, e.g.*, Pemberton Decl. ¶ 2 (assuming 4,200 MW of fossil-fuel retirements in 2016 based solely on IPM outputs); Heilbron Decl. ¶ 2 (assuming 2,600 MW of fossil-fuel retirements in 2016 based solely on IPM outputs); and Burroughs Decl. ¶ 2 (assuming 1,100 MW of fossil-fuel retirements in 2016 based solely on IPM outputs). These declarants treat the Model as somehow representing a "compliance solution" EPA has created for their states or utilities. *See, e.g.*, Pemberton Decl. ¶ 12; Green Decl. ¶ 14. This is a term EPA never used, and it is inaccurate. EPA's modeling is not a "compliance solution" for anybody, and especially for this Rule, in which states have the authority and the discretion to design state plans, which will in turn determine the actual compliance obligations for each individual plant.

34. Several declarants have further noted that the Model shows their own plants retiring in model year 2016. These declarants do not state affirmatively that they are in fact planning to retire generating units in calendar year 2016, and indeed some of them specifically disclaim such intentions. For instance, the Greene Declaration on behalf of Southern Company recognizes that state planning must take place in order for units to know what their regulatory obligations will be. Green Decl. ¶¶ 12-13. The Frenzel Declaration on behalf of Luminant explicitly recognizes that an allegedly modeled retirement in 2016 might be avoided through design options available to state plans such as various forms of interstate trading not included in the policy case.

Frenzel Decl. ¶¶ 41-42.

35. To the extent these declarants are asserting that EPA's Model is predicting individual unit retirements that may not occur in the real world, I agree with this assessment. Just because IPM projects a particular model plant to retire is no reason to assume that a real-world unit represented by that model plant will actually do so, much less that there is any *requirement* that it do so (model projections of the two illustrative compliance scenarios are not regulations).

36. Nonetheless, it is important to understand why the Model produces these outputs for model year 2016, despite the fact that the Rule's requirements would not apply at the earliest until 2022. The projected results in model year 2016 are a function of the model's optimizing for the least-cost solution over the entire modeled time frame with the assumption of perfect foresight. The model will take advantage of cost-saving opportunities by taking certain actions well in advance of when they may occur in the real world, if that early action results in a lower cost over the time frame analyzed.

37. Declarants have drawn attention to what they view as a surprising number of retirements that appear to occur in the model in model year 2016 rather than later in the period. Schwartz alleges that EPA's modeling shows 238 coal-fired power plant retirements from 2016 through 2018 and that all but 5 of those plants are shown to retire in 2016. Schwartz Decl. ¶ 36. First, Schwartz fails to acknowledge that our modeling shows the vast majority of those retirements occurring in the base case and

not caused by the Rule. Second, as explained above, the timing of retirements in the model is a function of IPM immediately optimizing for least cost with perfect foresight. In the real world, owners and operators of power plants may base their action on a variety of information and assumptions that will be different from what is, or can be, included in the Model. To make this point clearer, if we had assessed a time frame beginning in model year 2020 rather than model year 2016, the Model would have likely projected the retirement of a similar amount of capacity in that year as it did for 2016. This of course is not necessarily how each individual *real world* actor may be anticipated to behave in *calendar* year 2016.

38. Furthermore, the model adheres strictly to the least-cost solution, even at marginal cost differences that are well within real-world margins of uncertainty. (In other words, the model will retire a model plant if the cost to operate it is only slightly greater than the least-cost solution.) In the real world, power plant owners and operators do not have perfect knowledge; there are uncertainties about prices and other variables; and actors are free to make other decisions about these facilities. Most importantly, owners and operators may want to keep a marginally unprofitable plant open to retain more options for the future. Or, for various reasons, an owner/operator may delay taking action that would provide the substitute for the coal-fired power plant, and therefore need to keep it open longer. They may choose to maintain current operations at these facilities beyond 2016 and consider compliance-related operational changes at these facilities at a later point in time, given the long

lead-time EPA has provided ahead of the start of the first compliance period (2022). In no way do EPA's modeling results reflect any "requirements" that affected power plants take any Rule-related actions by 2016.[6]

39. The Utility declarations concerning the assumption that certain units must retire in 2022, at the latest, are similarly unfounded, and cannot be derived from any model results. For instance, the Brummett Declaration (on behalf of the San Miguel rural co-op in Texas) assumes that the plant will be forced to close in 2022. Brummett Decl.¶ 24. At the same time, it states that EPA modeling for the CSAPR and MATS rules incorrectly showed a retirement of the plant in question. The plant has apparently complied with CSAPR and MATS and has no plans to retire. Id. ¶ 14. Further, Brummett notes that it is "far from clear" what the state of Texas will do in the design of a state plan. *Id.* ¶ 18. *See also* Patton Decl. ¶ 18; Jura Decl. ¶ 19-21; Voyles Decl. ¶ 7.

40. These and similar assertions are apparently based on the fact that 2022 is the

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[6] As noted above, *see* note 5, EPA included the Rule in the base case modeling for the recently signed CSAPR Update Proposal, following historic practice and Executive Order direction to include all final rules in the analytic baseline when assessing the impacts of a new proposed regulation. However, recognizing the high degree of uncertainty associated with any Rule-related modeling prior to the finalization of state plans, EPA is requesting comment in that proposal on the appropriateness of including or excluding the Rule from the analytic baseline modeling in this instance. *See* Memorandum to Docket, Inclusion of the Clean Power Plan in the baseline for the proposed Cross-State Air Pollution Rule Update for the 2008 Ozone NAAQS (December 1, 2015) (EPA-HQ-OAR-2015-0500). This is consistent with the basic point I emphasize here: this Rule's modeling results for the early years are not meaningful with respect to any specific units.

start of the interim period, and thus—potentially (depending on the design of state plans)—the beginning of compliance obligations on the units. Jura Decl. ¶ 9, 26; Brummett Decl. ¶ 24. In other words, these declarants seem to proceed from the false premise that the start of the compliance period means that units "must" retire. The Rule, however is designed to reduce emissions from the power sector gradually and with considerable flexibility afforded to individual units within that system. The declarants fail to acknowledge that states are able to adjust the glide path or adjust plant-specific obligations to reduce the stringency of an emissions standard for particular units. Similarly, they do not acknowledge the availability of multi-year compliance periods that would allow for averaging of emissions over several years.

41. These declarations also fail to adequately consider the role of emissions trading—either at an intra- or inter-state scale—that would allow units for which emissions reductions might be particularly difficult or expensive (e.g., rural minemouth coal plants such as San Miguel, *see* Brummett Decl. ¶ 4) to continue emitting at historical levels. For instance, the Brummett declaration fails to establish that the simple acquisition of compliance instruments such as allowances or emission rate credits would be so prohibitively costly as to force the plant to shut down. The Ledger Declaration completely skips over the potential design options for an Arizona state plan and incorrectly assumes an "emission limitation" based on the *proposed* federal plan's approach to initial allowance *allocation* (which is not an emission limitation) within an emission trading program. Ledger Decl. ¶ 21. In short, the

declarants do not have meaningful IPM modeling results to support their assertion that the Rule will cause shutdowns of units in 2022.

VI. Methodological Attacks on EPA's Modeling Do Not Hold Up

42. Movants assert that EPA's modeling shows a level of retirements in the base case in the early years of the modeled period that are higher than the Movants' estimates of retirements. However, their estimates use different assumptions about economic trends and draw comparisons between a base case using one set of assumptions and a policy case using a different set of assumptions.

43. The projections of future electric generating capacity from IPM modeling that EPA relied on in the Regulatory Impact Analysis are in Table 3-12 in the RIA at 3-31. This table shows that in 2020, under the base case, there would be approximately 208 GW of coal generation capacity remaining, under a rate-based illustrative scenario there would be 195 GW, and under a mass-based scenario there would be 193 GW. According to Movants' expert consultants, EPA's base case estimate of 208 GW for 2020 means EPA "expects" a loss of 68 GW in coal generation capacity in the base case. *See* Heidell & Repsher Decl. ¶ 9.[7]

44. Moving beyond the modeling results EPA actually relied on in the RIA,

[7] It is unclear how Heidell & Repsher (PA Consulting) derived the 68 GW figure. The IPM System Summary Report for the Base Case shows 66 GW of cumulative reduced coal generation capacity in 2020. *See* IPM System Summary Report (EPA-HQ-OAR-2013-0602-36460), *available at* http://www2.epa.gov/airmarkets/analysis-clean-power-plan.

according to these declarants the modeling for the final Rule projected that 60 GW of coal generation capacity would retire in 2016 in the base case, and that 71 GW of coal generation capacity would retire in 2016 in the policy case. Thus, according to them, the Model projects 11 more GW of coal generation capacity losses by 2016 in the illustrative policy case than in the base case. *Id.* ¶ 8. (For all of the reasons discussed in the above sections, we do not take these assumptions regarding 2016 as given.)

45. Regardless of the cause of the modeled 2016 generation capacity changes (i.e., without distinguishing between the base case and policy case), these declarants assert that the amount of retirements in 2016 in IPM's base case is higher than other sources such as the U.S. Energy Information Agency's Annual Energy Outlook (AEO) reports. Similarly, these declarants believe there should be far fewer retirements in the base case by 2020 than EPA's Model shows. Nonetheless, they believe the total number of retirements by 2020 in EPA's *policy case* should be taken as correct and thus should be attributed almost entirely to EPA's Rule rather than the other factors in EPA's base case.[8] In essence, these declarants attempt to call into question the

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[8] PA Consulting's report would use different assumptions from those in the Model to reduce the amount of base-case coal generation capacity loss to 26 GW between 2015 and 2020. *See* PA Consulting report for the American Coalition for Clean Coal Electricity, at 13 (Attachment C to UARG's Motion for Stay) (hereinafter ACCCE). But it would continue to rely on the Model (and thus the Model's assumptions) for *total* coal capacity generation reduction (base case plus policy case) by 2020. By doing so, PA Consulting comes up with 50 GW of plant retirements as a result of the Rule by 2020. *Id.* at 14. This is in sharp contrast with EPA's estimate of an incremental 13-15 GW reduction in coal generation capacity by 2020 over the base case in RIA table 3-12.

reasonableness of EPA's Model where its results do not support their assertions of harm, but then rely heavily on the *same* Model where its results are more superficially consistent with their assertions. *See* ACCCE, at 12-14. Indeed, they are explicit about their preferred "mix-and-match" approach to forecasting. *Id.* at 12 ("[W]e broadly accept EPA's modeling of . . . the cumulative (base case plus CPP) coal retirements by 2020 . . . . However, we do not accept EPA's conclusions regarding the amount of retirements that will occur in the base case absent the CPP.").

46. Similarly, the Schwartz Declaration contradicts itself because it claims first that IPM erroneously *over-projects* retirements in the base case (i.e., IPM is trigger-happy), *see* Schwartz Decl. ¶ 32 (asserting EPA's base case overstates reduction in coal capacity in 2016 compared to AEO data). The Schwartz Declaration claims next that IPM *under-projects* retirements in the policy case (i.e., IPM is gun-shy), *see id.* ¶ 34 ("The units which EPA projects will retire in 2016 and 2018 in its base case should be considered as retiring due to the impact of the CPP.").

47. The positions of both Schwartz and PA Consulting are internally inconsistent for the same reason: they insist all of the early retirements must be assumed to occur (and thus produce a wide range of harms) under the policy case, but many of those same retirements must be rejected as implausible under the base case. They cannot have it both ways. The same inputs into the Model generated both results. These declarants' preferred approaches would use one set of inputs and assumptions for the base case and a different set of inputs and assumptions for the policy case. In my

experience managing economic and modeling analysis for EPA, the results of such a comparison would lack any analytical integrity or utility.

48. In my professional judgment, these declarants' methodologies for estimating near term impacts of the Rule should be considered with skepticism for additional reasons. PA Consulting expressly concedes that it "did not perform a comprehensive independent modeling analysis" of the Rule. ACCCE, at 6. Rather, PA Consulting relied for its estimate on "statements made in relation to the *proposed* rule rather than the final rule" (emphasis added), because "these sources conform to a market view that is closely aligned with PA's view of coal retirements under the final rule." ACCCE, at 14. "Studies, comments, and public statements made in anticipation of 50 GW of retirements are therefore a more credible indicator of the expected potential for irreparable harm…" *Id.* This is incomprehensible, not to mention tautological. ACCCE's consultants seem to be saying that they picked qualitative sources of information based on the *proposed* form of the rule rather than the final Rule, on the basis that such information aligned with their preexisting views.

49. The Schwartz Declaration makes backward-looking assumptions about energy markets that ignore current and likely future trends. Schwartz asserts that there is "good reason to doubt" anticipated demand reductions, for no other reason than that they would be "unprecedented." Schwartz Decl. ¶ 25. EPA's assumptions about renewable growth are similarly "aggressive" in Schwartz's view, because such growth rates would be higher than "the past 5 years." *Id.* ¶ 26. Whether EPA's estimates are

"aggressive" or not in relation to past trends, however, is not the question that is most relevant when selecting the inputs for modeling. Rather, we use the best and most up-to-date information on what power sector experts expect the future will look like. The Schwartz declaration asserts an "opinion" that certain energy trends in the future will be as they were in the past. The information from the real world that EPA used to run its modeling call that opinion into doubt. I will discuss this information, and the contrast between our assumptions and the U.S. Energy Information Administration's in the next section.

50. Finally, the report that the Electric Reliability Council of Texas (ERCOT) released in October, discussed in Lloyd Decl. ¶ 43, purports to model potential impacts of the Rule on grid reliability and resource mix in Texas, but is based on highly constrained modeling assumptions.[9] The use of artificially constrained modeling assumptions exaggerates the potential impacts of the Rule in the ERCOT region.

51. In particular, unlike IPM, which models the economic choice of whether to retire a coal unit, ERCOT did not model whether to retire units, but merely assumed that a coal unit that was predicted to generate less would retire if it generated below a threshold amount. Furthermore, ERCOT assumed a 1% reduction in load from

[9] ERCOT, Analysis of the Impacts of the Clean Power Plan *Final Rule Update* (October 16, 2015) (hereinafter ERCOT), *available at* http://www.ercot.com/content/news/presentations/2015/ERCOT_Analysis_of_the_Impacts_of_the_Clean_Power_Plan-Final_.pdf.

energy efficiency each year in both its base case and core policy cases—substantially lower than reasonable assessments of anticipated energy efficiency growth under a policy case for the Rule. Finally, ERCOT models a mass-based "limit" scenario, but does not consider how a market-based trading approach could be used to help reduce the costs of compliance. These assumptions lead ERCOT's modeling to a much more severe forecast of the Rule's impacts on reliability and electricity rates than can reasonably be expected.[10]

VII. EPA Reasonably Rejected Movants' Preferred Modeling Assumptions as Less Accurate in Predicting Power Sector Trends

52. It is important to note several key differences between EPA's modeling using IPM and the U.S. Energy Information Administration's (EIA) projections from the Annual Energy Outlook. According to the U.S. EIA, its "projections provide a basis for examination and discussion of energy market trends and serve as a starting point for analysis of potential changes in U.S. energy policies, rules, and regulations, as well as the potential role of advanced technologies."[11] In EIA's view of its own data, "because of the uncertainties inherent in any energy market projection, the Reference case results should not be viewed in isolation. Readers are encouraged to review the

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[10] Even with these assumptions, however, the report suggests some impacts that are considerably more moderate than those portrayed by other declarants. For instance, the report shows no additional coal unit retirements above base case by 2030 under ERCOT's "CO_2 limit" policy case scenario. *See id.* at 7.

[11] U.S. EIA, Annual Energy Outlook 2015, http://www.eia.gov/forecasts/aeo/ (last visited Dec. 3, 2015).

alternative cases to gain perspective on how variations in key assumptions can lead to different outlooks for energy markets." *Id.*

53. One reason for the differences between EPA's Model results and the EIA's projections in its Annual Energy Outlook reports, is that the Annual Energy Outlook has tended to assume a lower rate of change in the cost of renewable energy technologies, which impacts their cost competitiveness. We did not rely on Annual Energy Outlook assumptions in this regard because we found that other sources of data were more reflective of current trends. It became difficult to justify continued reliance on the EIA's assumptions for new renewable energy technologies when some of their stated cost assumptions for various technologies for modeled projections in 2020 and beyond were higher than prices in contracts for these technologies that are being signed today in the marketplace.

54. In our modeling for the final Rule, EPA used National Renewable Energy Lab (National Lab) cases for future renewables costs. EPA determined that the National Lab estimates were more likely to be representative of future renewable prices than the Annual Energy Outlook estimates originally used in the proposed rule. *See* Greenhouse Gas Mitigation Measures TSD, at 4-12 ("EPA selected the [National Lab's] 2015 . . . estimates based on the quality of its data and consistency with recent [renewable energy] cost and performance trends."); *id.* at 4-13 n.20. For instance, EPA found that rapid cost declines for wind and solar have been well documented and that costs are significantly lower than near-term and longer term AEO forecasts.

Mitigation Measures TSD, at 4-14.

55. Similarly, EPA used independent natural gas supply information showing a steady supply and relatively stable prices over the long-term, suggesting that natural gas generation would likely become increasingly cost-competitive with coal-fired generation. *See* Mitigation TSD, at 3-4 to 3-19. This information is reflected in the IPM modeling for the final Rule. *Id.* at 3-20 to 3-22.

56. At the same time, the price of coal, again reflected in EPA's IPM modeling, has historically been rising, making coal generation less cost-competitive, even in the absence of the Rule. *See* RIA at 2-43. EPA used different assumptions than EIA regarding coal supply, resulting in projections of delivered coal prices that are slightly higher than EIA's on average. We perform a detailed bottom-up analysis of all mines across the country and different coal types in each mine, which are mapped to certain power plants based on coal supply transportation networks. The analysis indicates that coal is getting more expensive to extract. EPA's projections of coal price follow the same trajectory as EIA's projections but are a few percent higher, which is one reason we project a larger amount of coal generating capacity retiring than EIA does.

57. Declarants take issue with the fact that EPA updated inputs for the modeling between the proposed rule and the final Rule. This appears to imply that models should be static and not be updated based upon better and more recent data and information. Indeed, with no evidence to support the assertion, the Schwartz declaration implies that EPA's choice of modeling inputs was in bad faith or

"artificial." *See* Schwartz Decl. ¶ 4. This suggestion is groundless. In fact, the changes in assumptions made by EPA between the modeling conducted for the proposed rule and final Rule simply reflect good modeling practice of using the best and most up-to-date real world information as modeling inputs and they follow from EPA's requests for comment on the data and information used to develop the proposed-rule analysis.

58. In short, these inputs reflect trends including the fact that renewable energy prices have dropped and are anticipated to continue to drop, natural gas prices have been and will likely remain relatively low and stable, and coal prices have increased. *See* Culligan Decl. ¶¶ 7-19 (providing an overview of power sector trends). EPA's modeling would only have been "artificial" had EPA ignored public comments and continued to rely on outdated information about the relative cost-competitiveness of various energy resources as inputs to IPM.

VIII. IPM Modeling for MATS was Reasonable; Higher Rate of Retirements is due to Economic Factors

59. The Schwartz Declaration argues that experience with the MATS rule should be taken as indicative of flaws in the IPM modeling for this Rule. Schwartz alleges that IPM under-estimated coal plant retirements due to the MATS rule. Schwartz Decl. ¶ 44. Schwartz fails to establish, however, that the larger number of coal plant retirements actually occurring was in fact due to MATS, rather than a combination of economic factors affecting coal generation in combination with regulatory costs.

60. In fact, the economic evidence suggests that much of the retired coal

generation capacity that has occurred in the relevant time period has been driven by continuing broader economic trends, including substantially lower and more stable natural gas prices, relatively low electric demand during that time period, and the deployment of new electric generating capacity like renewables and natural gas facilities that compete with the existing and aging coal fleet. *See* Culligan Decl. ¶¶ 7-19.[12] For instance, the market experienced a sustained drop in natural gas prices in the years preceding the first compliance year for MATS (i.e., 2015), something the model had not projected based on our inputs at the time the analyses were conducted. The model also did not fully capture the ultimately realized, sustained weakness in electric demand growth. When electric demand and gas prices are considerably lower than expected, there is downward pressure on wholesale electric prices and gas power plants are much more competitive, which exerted significant pressure on the least economic units (older and less efficient coal plants).

61. These are market impacts, not the impacts due to MATS. Nonetheless, I would continue to maintain that EPA's assumptions at the time of the MATS analysis were reasonable. While in hindsight we know these economic trends were more powerful than we thought, this proves no more than that a model's results will reflect its assumptions. Furthermore, an underestimate of *economic trends* certainly does not mean

[12] *See also, e.g.*, Susan Tierney, Power Magazine, Why Coal Plants Retire: Power Market Fundamentals as of 2012 (July 30, 2012), http://www.powermag.com/why-coal-plants-retire-power-market-fundamentals-as-of-2012/ (last visited Dec. 3, 2015).

that EPA underestimated the *cost* of the regulation. Indeed, had EPA used different assumptions about economic trends in the sector (e.g., regarding natural gas supply) for its MATS analysis, EPA would have likely projected the overall cost of the MATS rule to be lower, as in fact might actually be the case, *see supra* ¶¶ 13-14.

December 3, 2015

Reid P. Harvey

Exhibit 3

IN THE UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT

STATE OF WEST VIRGINIA, ET AL.,	
Petitioners,	
v.	No. 15-1363 (and consolidated cases)
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, ET AL.,	
Respondents.	

DECLARATION OF KEVIN P. CULLIGAN

1. I, Kevin P. Culligan, declare under penalty of perjury under the laws of the United States of America that the following statements are true and correct to the best of my knowledge and belief and that they are based upon my personal knowledge, or on information contained in the records of the United States Environmental Protection Agency (EPA), or on information supplied to me by EPA employees.

2. Since 2010, I have served as the Associate Division Director for the Sector Programs and Policy Division within EPA's Office of Air Quality Planning and Standards. As part of my duties as Associate Division Director of the Sector Programs and Policy Division, I coordinate cross-office air regulatory efforts including the final Mercury and Air Toxics Standards, and greenhouse gas rulemakings under Clean Air Act section 111, 42 U.S.C. § 7411. Those

responsibilities include coordinating the development of the Rule that is the subject of this litigation.

3. I have 23 years of technical regulatory experience at EPA, where my focus has been air regulations affecting the electricity sector. Among the major regulations I have provided significant technical expertise for are the NO_x SIP Call, the Clean Air Interstate Rule, and the Cross-State Air Pollution Rule (all three addressing interstate air pollution from power plants); MATS (limiting toxic air pollution from power plants); and electricity sector rules promulgated under Clean Air Act section 111(d) including the Clean Air Mercury Rule (CAMR), and the Clean Power Plan.

4. Prior to my current position, I served in several other management and leadership roles at EPA, during which I have overseen engineers, economists, and other technical staff working on numerous rules affecting the electricity sector. From 2005 to 2010, I was Branch Chief for the Programs Development Branch in the EPA's Clean Air Markets Division, where I lead a technical staff responsible for most of EPA's air regulations for the electricity sector. From 2000 to 2005, I led a team in the Clean Air Markets Division responsible for developing key economic and technological analyses for the Clean Air Interstate Rule. I received a bachelor of science in mechanical engineering (with a focus on energy) from the University of Michigan in 1991.

I. Overview

5. In developing the Clean Power Plan ("the Rule"), EPA closely reviewed the structure of the electricity sector in the United States and the recent and projected trends within the electricity sector relating to (1) generation capacity (*i.e.*, the total resources available to generate electricity), and (2) actual electricity generation. These recent and projected trends show a continued increase in capacity and generation from natural gas and renewable energy, and corresponding decreases from coal.

6. Principal reasons for these trends are market-driven cost advantages of natural gas and renewable energy vis-a-vis coal, an aging coal fleet, and reduced electricity demand.

II. Recent Trends in the Electricity Sector

7. The electricity sector is experiencing ongoing, significant trends away from coal-fired generation, and toward low- and zero-emitting sources (*i.e.*, natural gas and renewable sources) that can produce the same amount of electricity as coal but with 59–100% fewer CO_2 emissions.[1] There are also significant trends toward energy efficiency. All of these trends have existed for many years, beginning well before the promulgation of the Rule.

[1] See U.S. EPA, GHG Mitigation Measures Technical Support Document, p. 3-4.

8. For over a decade, coal's share of total U.S. electricity generating capacity has been declining, while capacity from natural gas and renewables has increased. Increases in wind and solar capacity have been particularly significant.[2] Between 2000 and 2013, roughly 90% of the new electricity generation capacity built in the U.S. was either natural gas or renewable facilities.[3] From 1998 to 2013, non-hydropower renewable energy capacity for the total U.S. electric power industry increased by 15 times, to over 80,000 megawatts ("MW").[4] Between 2004 and 2014, cumulative installed renewable energy capacity grew 83%.[5] Construction of new capacity and retirement of existing capacity in 2014 (the most recent calendar year before signature of the Rule) is illustrative of this preexisting trend away from coal-fired generation, and toward low- or zero-emitting generation. Of the 18,791 MW of new generating capacity added that year, 53% was renewable, 47% was natural gas, and only 1% was coal.[6] By contrast, more MW of retired generating capacity in 2014 came from coal-fired power plants than from any other source.[7] In 2014 overall, the nation's

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[2] Dep't of Energy, National Renewable Energy Laboratory, *2014 Renewable Energy Data Book* (Nov. 2015), p. 11, *available at* http://www.nrel.gov/docs/fy16osti/64720.pdf (last accessed Nov. 25, 2015) (hereinafter "NREL Renewable Energy Data Book"), reproduced as Figure A-1 in the appendix to this declaration.
[3] 80 FR 64694-96.
[4] Id.
[5] NREL Renewable Energy Data Book, p. 18.
[6] Id., p. 13 (reproduced as Figure A-3 in the appendix to this declaration).
[7] Id.

electricity sector saw a net loss of approximately 3,254 MW in coal-fired generation capacity, contrasted with a net gain of approximately 15,721 MW in gas-fired or renewable generation capacity.[8]

9. The trends in terms of actual electricity generation have been even more dramatic. Over the past decade, generation from natural gas and renewable sources has increased as coal-fired generation has declined. The following table illustrates how, in recent years, coal has been producing a smaller and smaller share of U.S. electricity while natural gas and renewables have been responsible for a greater and greater share:

Table 1: U.S. Electricity Generation by Source[9]

	Coal	Natural gas	Renewables
2004	49.7%	17.8%	8.8%
2005	49.5%	18.7%	8.8%
2006	48.9%	20.0%	9.5%
2007	48.4%	21.5%	8.5%
2008	48.1%	21.4%	9.3%
2009	44.4%	23.3%	10.6%
2010	44.7%	23.9%	10.4%
2011	42.2%	24.7%	12.6%
2012	37.3%	30.2%	12.4%
2013	38.7%	27.6%	13.1%
2014	38.5%	27.3%	13.5%

[8] Id.

[9] See NREL Renewable Energy Data Book, p. 13 (full chart reproduced as Figure A-2 in the appendix to this declaration).

10. In 2004, coal-fired generators supplied nearly half of the nation's electricity, while natural gas and renewables combined for roughly a quarter.[10] Within eight years however, by 2012, the trends away from coal and toward low- and zero-emitting electricity were such that the country was generating less electricity from coal than it was from the combination of natural gas and renewables.[11] From 2000 to 2012, generation from natural gas-fired power plants increased by more than four times.[12] From 2005 to 2014, net natural gas generation increased by about 32%.[13] From 2005 to 2013, electricity generated from renewable sources (including conventional hydropower) increased from 9% of total U.S. electricity to 13%.[14] Annual non-hydro renewable electricity generation more than doubled between 2004 and 2014.[15] Since 2009, the cost of wind power has declined by two-thirds, [16] and U.S. wind generation has tripled.[17] Meanwhile, the cost of solar generation has declined by more than half,[18]

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[10] Id. In 2004, natural gas generated 17.8% of the nation's electricity, and renewables generated 8.8%. Id.
[11] Id.
[12] 80 Fed. Reg. 64795.
[13] Id. 64694-96.
[14] Id.
[15] NREL Renewable Energy Data Book, p. 18.
[16] Daniel Cusick, *Wind Power Industry Catches Another Breeze*, CLIMATEWIRE, Oct. 23, 2015, http://www.eenews.net/climatewire/stories/1060026805 (last accessed Nov. 25, 2015).
[17] 80 Fed. Reg. 64694-96; see also NREL Renewable Energy Data Book, p. 54 (reproduced as Figure A-4 in the appendix to this declaration) (illustrating this trend for wind).
[18] See U.S. Dep't of Energy, *Revolution…Now: The Future Arrives for Five Clean Energy Technologies – 2015 Update*, pp. 6–7 (Nov. 2015)

and U.S. solar generation has grown by 20 times.[19] By 2014, the most recent year before signature of the Rule, natural gas and renewables were generating nearly 41% of our nation's electricity, compared to just over 38% from coal.[20]

11. While gas-fired and renewable generation has increased, generation from coal and oil/gas steam fell by about 30% between 2000 and 2012.[21] The decreased demand for coal-fired electricity is also reflected in reduced coal production from mining. Between 2012 and 2013 alone, the total number of U.S. mines producing coal dropped by 14%.[22] The coal industry idled or closed 271 mines in 2013, and began production at fewer new (or reactivated) coal mines that year than at any time in at least a decade.[23] There were fewer active coal mines in 2013 than have ever been recorded.[24] According to the U.S. Energy Information Administration, an independent statistical agency within the U.S. Department of Energy, "The declining

[19] 80 Fed. Reg. 64694-96; see also NREL Renewable Energy Data Book, p. 63 (reproduced as Figure A-5 in the appendix to this declaration) (illustrating this trend for solar photovoltaic).
[20] See NREL Renewable Energy Data Book, p. 13 (reproduced as Figure A-2 in the appendix to this declaration). By 2014 natural gas generated 27.3% of the nation's electricity, and renewables generated 13.5%. Id.
[21] U.S. Energy Info. Admin., *Coal Mine Starts Continue to Decline*, TODAY IN ENERGY (Sept. 23, 2015), http://www.eia.gov/todayinenergy/detail.cfm?id=23052 (last accessed Nov. 30, 2015).
[22] Id.
[23] Id.
[24] Id. While preliminary mining data from 2014 shows a small increase in production and in the number of new and reactivated mines, the levels will remain below recent highs. Id.

number of new mines reflects reduced investment in the coal industry, strong competition from natural gas, stagnant electricity demand, a weak coal export market, and regulatory and permitting challenges"[25]—all of which preceded the Rule.

12. Recently published data demonstrates that these trends toward low- and zero-emitting sources of energy (and away from coal) not only long predate the Rule, but in fact continued in the period leading up to signature.[26] In the third quarter of 2015 alone, the U.S. installed more wind generation capacity—1,602 MW—than was installed in the entire first *three* quarters of 2014.[27] Solar photovoltaic generation capacity has grown by more than 1,000 MW for seven consecutive quarters, with installations of 1,393 MW in the second quarter of 2015 alone.[28]

13. The trend toward natural gas and away from coal continued in the months leading up to signature of the Rule. April and July 2015 were the first two months in American history that the U.S. generated more electricity from natural gas alone than

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[25] Id.

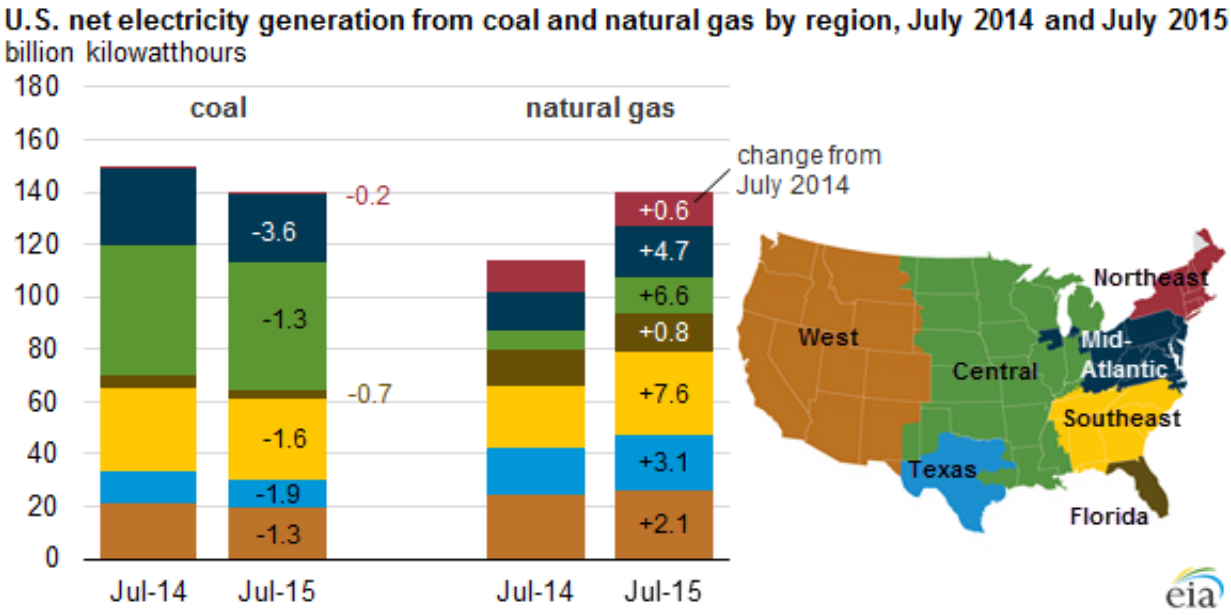
[26] To ensure that changes affected by the finalization of the Rule are not included within a business-as-usual (i.e. base case) scenario, this paragraph and the following paragraph include only data published since signature that describes actions taken or set in motion before signature.

[27] Daniel Cusick, *Wind Power Industry Catches Another Breeze*, CLIMATEWIRE, Oct. 23, 2015, http://www.eenews.net/climatewire/stories/1060026805 (last accessed Nov. 25, 2015).

[28] GTM Research/Solar Energy Industry Ass'n, *Solar Market Insight Report 2015 Q2,* U.S. SOLAR MARKET INSIGHT (Sept. 2015), https://www.seia.org/research-resources/solar-market-insight-report-2015-q2 (last accessed Nov. 30, 2015).

from coal.[29] In July 2015, in every region of the country, natural gas generation was higher (up 23.2% overall)—and coal generation was lower (down 6.3% overall)—than it had been in the previous July, as illustrated in the following figure from the independent U.S. Energy Information Administration:[30]

Figure 1[31]



[29] U.S. Energy Info. Admin., *Nationwide, Electricity Generation from Coal Falls While Natural Gas Rises*, TODAY IN ENERGY (Oct. 7, 2015), http://www.eia.gov/todayinenergy/detail.cfm?id=23252 (last accessed Nov. 30, 2015). In July 2015, natural gas generated 35% of U.S. electricity, while coal generated 34.9%. Id.

[30] Id. The largest decline in coal-fired generation came in the Mid-Atlantic region, followed by Texas. The Southeast and Central regions saw the largest increases in natural gas generation. See id.

[31] Id.

Those year-over-year trends were a continuation of changes seen from June 2014 to June 2015 (natural gas up 22.3%, coal down 7%),[32] and August 2014 to August 2015 (natural gas up 13.8%, coal down 8.6%).[33]

14. A main driver of these trends has been the continued decline in the price of natural gas. Between July 2014 and July 2015, the monthly average price of natural gas at Henry Hub, a major gas trading point, declined nearly 30%—from $4.14 to $2.91 per million Btu (MMBtu). Those prices have continued to drop; in September 2015, natural gas was down to $2.72/MMBtu. The price of natural gas also compares favorably to coal. Last July, in New York City, the average wholesale price of natural gas ($2.06/MMBtu) was less than the average wholesale price of Central Appalachian coal ($2.31/MMBtu)—even *before* accounting for the fact that natural gas power plants generate more electricity per MMBtu than coal-fired power plants do.[34]

15. In addition to these reductions in natural gas price, a second reason for these trends is that as the coal-fired fleet ages, more and more coal-fired power plants are

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[32] U.S. Energy Info. Admin., *EIA Electricity Monthly Update* (Aug. 26, 2015), *available at* http://www.eia.gov/electricity/monthly/update/archive/august2015/ (last accessed Nov. 25, 2015).

[33] U.S. Energy Info. Admin., *EIA Electricity Monthly Update* (Oct. 27, 2015), *available at* http://www.eia.gov/electricity/monthly/update/archive/october2015 (last accessed Nov. 25, 2015).

[34] U.S. Energy Info. Admin., *Nationwide, Electricity Generation from Coal Falls While Natural Gas Rises*, TODAY IN ENERGY (Oct. 7, 2015), http://www.eia.gov/todayinenergy/detail.cfm?id=23252 (last accessed Nov. 30, 2015).

retiring. Even in the absence of the Rule, much of the coal-fired fleet will need modernization and replacement. In the nearly five years preceding signature of the Rule, the average age of a retiring coal plant was 55 years old.[35] Over the next five years, coal plants representing about 23 GW of capacity are already scheduled for retirement.[36]

16. A third reason for the trend away from coal is the overall slowed growth in electricity demand. There has been a strong trend toward increasing demand-side energy efficiency. On the federal level, two statutes—the Energy Policy Act of 2005 and Energy Independence and Security Act of 2007—created new energy efficiency standards (including for household appliances like dishwashers, refrigerators, and freezers), required improvement of lighting efficiency by more than 70% by 2020, and required strict energy efficiency measures for federal buildings (including for public and assisted housing). In addition, the 2009 federal economic stimulus bill (*i.e.*, the

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[35] This is the average age at retirement of the approximately 28 GW of coal steam capacity that reported retirement to U.S. Energy Information Administration during this period. U.S. Energy Info. Admin., Form 860, 2014 Early Release, Table 3-1 (Generator, Operable, Retired and Cancelled), *available at* http://www.eia.gov/electricity/data/eia860/ (last accessed Nov. 25, 2015); U.S. Energy Info. Admin., *Electric Power Monthly,* Table 6.4, (June 2015), *available at* http://www.eia.gov/electricity/monthly/current_year/june2015.pdf (last accessed Nov. 25, 2015).

[36] Mark Chediak, *Why Coal Burners Don't Totally Hate Obama's Climate Plan*, BLOOMBERG BUSINESS (Nov. 14, 2015), *available at* http://www.bloomberg.com/news/articles/2015-11-13/why-coal-burners-don-t-totally-hate-obama-s-climate-plan (last accessed Nov. 25, 2015).

American Recovery and Reinvestment Act) provided funding for state energy efficiency programs. As a result of U.S. Department of Energy rulemakings, federal legislation, and consensus standards, more than 50 types of commercial and residential equipment have become subject to minimum energy efficiency standards.[37]

17. States have also heavily promoted demand-side energy efficiency. Twenty-four states have fully-funded specific energy savings targets.[38] Fifteen states (and the District of Columbia) have established appliance efficiency standards stricter than federal requirements,[39] which further drive advances in the national and global appliance industries. Budgets for electric efficiency programs totaled $5.9 billion in 2012, following rapid growth in funding for energy efficiency programs.[40]

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[37] U.S. Energy Info. Admin., *Consensus Process Provides Alternate Approach to Energy Efficiency Standard Development*, TODAY IN ENERGY (July 21, 2015), http://www.eia.gov/todayinenergy/detail.cfm?id=22152 (last accessed Nov. 25, 2015).

[38] American Council for an Energy-Efficient Economy, *State Energy Efficiency Resource Standards* (April 2015), *available at* http://aceee.org/sites/default/files/eers-04072015.pdf (last accessed Nov. 25, 2015). The count of 24 includes 22 with a stand-alone policy and two that count energy efficiency toward their renewable energy standards; it does not include Ohio or Indiana, which have eliminated their policies.

[39] Center for Climate and Energy Solutions, *Appliance Efficiency Standards*, *available at* http://www.c2es.org/us-states-regions/policy-maps/appliance-energy-efficiency (last accessed Nov. 25, 2015).

[40] 80 FR 64694-96, citing Annie Downs *et al.,* American Council for an Energy Efficient Economy, *The 2013 State Energy Efficiency Scorecard* (Nov. 2013), *available at* http://aceee.org/sites/default/files/publications/researchreports/e13k.pdf (last accessed Nov. 30, 2015).

18. The combination of federal, state, and local programs and market forces have resulted in real-world advances in energy efficiency that have driven down demand for electricity. For example, U.S. homes built in since 2000 use only 2% more energy than older homes, despite being an average of 30% larger.[41] From 1980 to 2009, energy use decreased by about 50% for new central air conditioners, by about 65% for new refrigerators, and by about 70% for new washing machines.[42] Over the same period, in the industrial sector, the amount of energy necessary to produce the same value of an average product dropped almost 40%.[43] Although U.S. electricity demand continues to increase, it is currently growing at its slowest rate in decades—in large part due to policies improving energy efficiency in homes, businesses, and technological devices.[44]

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[41] U.S. Energy Info. Admin., *Newer U.S. homes are 30% larger but consume about as much energy as older homes*, TODAY IN ENERGY (Feb. 12, 2013), http://www.eia.gov/todayinenergy/detail.cfm?id=9951 (last accessed Nov. 25, 2015).

[42] Steven Nadel, Neal Elliott, and Therese Langer, American Council for an Energy-Efficient Economy, *Energy Efficiency in the United States: 35 Years and Counting* (June 2015), p. 7, available at http://aceee.org/sites/default/files/publications/researchreports/e1502.pdf (last accessed Nov. 25, 2015).

[43] Steven Nadel, Neal Elliott, and Therese Langer, American Council for an Energy-Efficient Economy, *Energy Efficiency in the United States: 35 Years and Counting* (June 2015), p. vi, available at http://aceee.org/sites/default/files/publications/researchreports/e1502.pdf (last accessed Nov. 25, 2015).

[44] Dep't of Energy, QUADRENNIAL TECHNOLOGY REVIEW (Sept. 2015), p. 17, available at http://energy.gov/sites/prod/files/2015/09/f26/QTR2015-01-Challenges.pdf (last accessed Nov. 25, 2015).

19. All of these observed trends are projected to continue. With or without the Rule, natural gas and renewable energy generation is projected to increase, while coal-fired generation is projected to continue its decline.[45]

III. EPA's Regulatory Impact Analysis Projects That the Rule Will Modestly Impact Coal-Fired Generation Rates

20. The Rule is consistent with the long-term trends in the electricity sector discussed above, which have been in place for many years and are expected to continue—*i.e.*, reduced generation from coal-fired power plants and increased generation from gas-fired and renewable facilities. Part of the CO_2 reductions that the Rule is projected to achieve would have been achieved anyway due to those trends.

21. EPA prepared a Regulatory Impact Analysis to estimate potential impacts of illustrative approaches that states may implement to comply with the Rule. As indicated in the Regulatory Impact Analysis, EPA "expect[s] that the main impact of [the] rule on the nation's mix of generation will be to reduce coal-fired generation, but in an amount and by a rate that is consistent with recent historical declines in coal-fired generation. Specifically, from approximately 2005 to 2014, coal-fired generation declined at a rate that was greater than the rate of reduced coal-fired generation that we expect to result from this rulemaking [by] 2030. In addition, under this rule, the trends for all other types of generation, including natural gas-fired generation, nuclear

[45] 80 Fed. Reg. 64695/1-2.

generation, and renewable generation, will remain generally consistent with what their trends would be in the absence of this rule. In addition, this rule is expected to result in increases in demand-side [energy efficiency]."[46]

22. EPA projects that with the Rule, in 2030 coal-fired generation will represent 27.4% of total generation—only 5.4% less than projected without the Rule.[47] As noted in the preamble, by the time the Rule is fully implemented, those reductions are projected to be less than (and to have occurred more gradually than) the reductions that already occurred between 2002 and 2012.[48]

23. A large amount of the retirements projected to occur by 2030 are merely because the coal fleet is aging. By 2030, the average coal-fired power plant will be approximately 60 years old—five years older than the average age that coal-fired power plants have been retiring in recent years.

24. Similarly, significant renewable energy capacity is projected to be built by 2030 with or without the Rule. Although the Regulatory Impact Analysis projects that there will be an additional 90.3 GW of renewable capacity with the Rule in place, a full 74.1 GW of that total is expected to occur without the Rule, under business as usual.

December 3, 2015 Kevin P. Culligan

Kevin P. Culligan

[46] 80 Fed. Reg. 64,785.
[47] RIA 3-27, Table 3-11.
[48] RIA 2-5.

APPENDIX TO DECLARATION OF KEVIN CULLIGAN

Figure A-1[49]

U.S. Electricity Generating Capacity by Source

	Coal	Petroleum	Natural Gas	Other Gases	Nuclear	Renewables[1]	Other	Total Capacity (MW)
2004	32.5%	6.3%	41.0%	0.2%	10.2%	9.6%	0.1%	1,030,025
2005	32.1%	6.2%	41.7%	0.2%	10.1%	9.7%	0.1%	1,047,655
2006	31.8%	6.1%	41.9%	0.2%	10.0%	9.9%	0.1%	1,056,216
2007	31.5%	5.8%	42.1%	0.2%	9.9%	10.3%	0.1%	1,066,842
2008	30.5%	5.6%	41.4%	0.2%	9.6%	11.1%	0.1%	1,082,975
2009	30.7%	5.7%	41.7%	0.2%	9.7%	11.9%	0.1%	1,101,987
2010	30.6%	5.6%	41.7%	0.3%	9.5%	12.2%	0.1%	1,119,603
2011	30.3%	5.1%	42.1%	0.2%	9.4%	12.8%	0.1%	1,134,997
2012	29.2%	4.7%	42.3%	0.2%	9.4%	14.1%	0.1%	1,150,110
2013	28.8%	4.5%	42.6%	0.3%	9.0%	14.6%	0.1%	1,152,303
2014	28.1%	4.2%	42.8%	0.3%	9.0%	15.5%	0.1%	1,158,416

Sources: EIA, SEIA/GTM

Other includes pumped storage, batteries, chemicals, hydrogen, pitch, purchased steam, sulfur, tire-derived fuels, and miscellaneous technologies.

Reported values may vary from those included in previous versions of the Data Book due to retroactive changes in source data.

[1] Grid-connected PV only. A de-rate factor of 77% has been applied to convert PV installed Nameplate Capacity from MWdc to MWac.

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[49] U.S. Dep't of Energy, National Renewable Energy Laboratory, *2014 Renewable Energy Data Book* (Nov. 2015), p. 11, *available at* http://www.nrel.gov/docs/fy16osti/64720.pdf (last accessed Nov. 25, 2015) (hereinafter "NREL Renewable Energy Data Book").

Figure A-2[50]

U.S. Electricity Generation by Source

	Coal	Petroleum Liquids	Petroleum Coke	Natural Gas	Other Gases	Nuclear	Renewables[1]	Other	Total Generation (GWh)
2004	49.7%	2.5%	0.5%	17.8%	0.4%	19.8%	8.8%	0.4%	3,979,032
2005	49.5%	2.5%	0.6%	18.7%	0.3%	19.2%	8.8%	0.3%	4,062,583
2006	48.9%	1.1%	0.5%	20.0%	0.3%	19.3%	9.5%	0.3%	4,072,073
2007	48.4%	1.2%	0.4%	21.5%	0.3%	19.4%	8.5%	0.3%	4,164,743
2008	48.1%	0.8%	0.3%	21.4%	0.3%	19.5%	9.3%	0.3%	4,126,995
2009	44.4%	0.7%	0.3%	23.3%	0.3%	20.2%	10.6%	0.3%	3,956,877
2010	44.7%	0.6%	0.3%	23.9%	0.3%	19.5%	10.4%	0.3%	4,133,671
2011	42.2%	0.4%	0.3%	24.7%	0.3%	19.2%	12.6%	0.3%	4,112,099
2012	37.3%	0.3%	0.2%	30.2%	0.3%	18.9%	12.4%	0.3%	4,061,056
2013	38.7%	0.3%	0.3%	27.6%	0.3%	19.3%	13.1%	0.3%	4,082,706
2014	38.5%	0.5%	0.3%	27.3%	0.3%	19.4%	13.5%	0.3%	4,113,375

Sources: EIA, SEIA/GTM

Other includes pumped storage, batteries, chemicals, hydrogen, pitch, purchased steam, sulfur, tire-derived fuels, and miscellaneous technologies.

Reported values may vary from those included in previous versions of the Data Book due to retroactive changes in source data.

[1] Includes generation from CSP and grid-connected PV; assumes a 25% capacity factor for CSP and an 18% capacity factor for PV.

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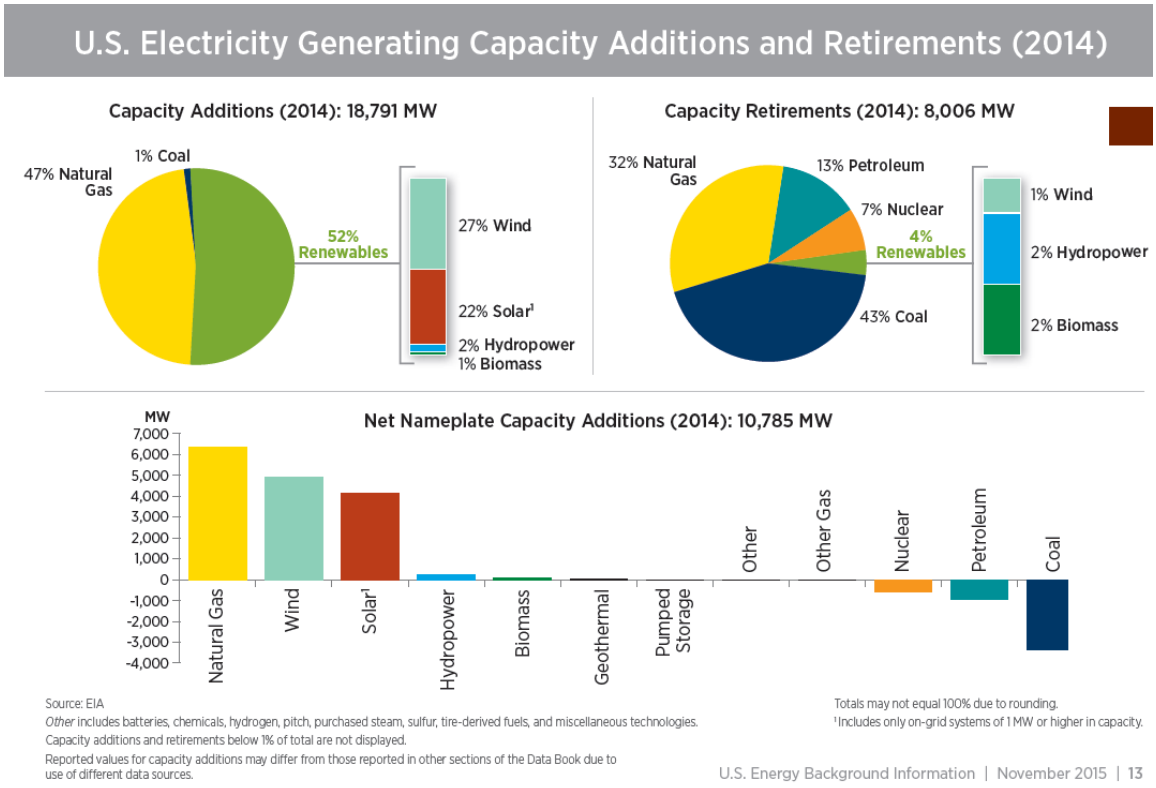
[50] NREL Renewable Energy Data Book, p. 12.

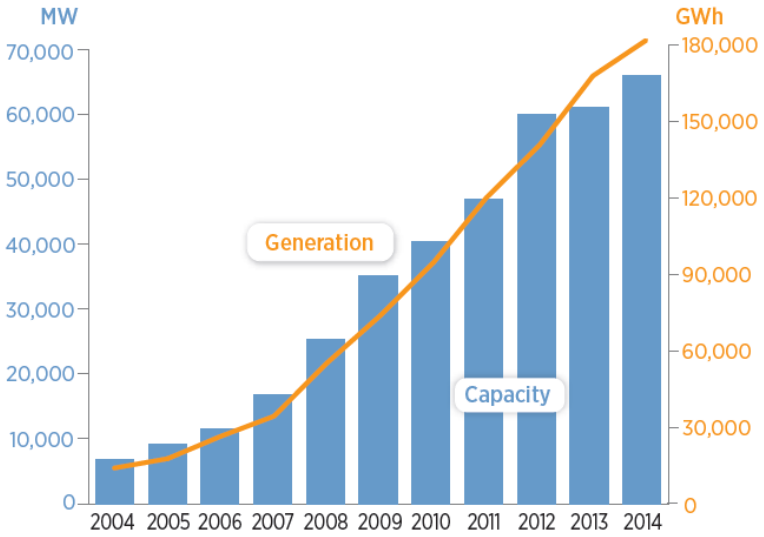
Figure A-3[51]



[51] NREL Renewable Energy Data Book, p. 13.

Figure A-4[52]

U.S. Total Installed Wind Electricity Capacity and Generation



	U.S. Wind Electricity Generation (GWh)	U.S. Wind Electricity Capacity and Percent Increase from Previous Year	
		Total (MW)	% Increase
2000	5,593	2,578	2.6%
2001	6,737	4,275	65.8%
2002	10,354	4,686	9.6%
2003	11,187	6,353	35.6%
2004	14,144	6,725	5.9%
2005	17,811	9,121	35.6%
2006	26,589	11,575	26.9%
2007	34,450	16,812	45.2%
2008	55,363	25,237	50.1%
2009	73,886	35,155	39.3%
2010	94,652	40,267	14.5%
2011	120,177	46,916	16.5%
2012	140,882	60,005	27.9%
2013	167,840	61,107	1.8%
2014	181,791	65,879	7.8%

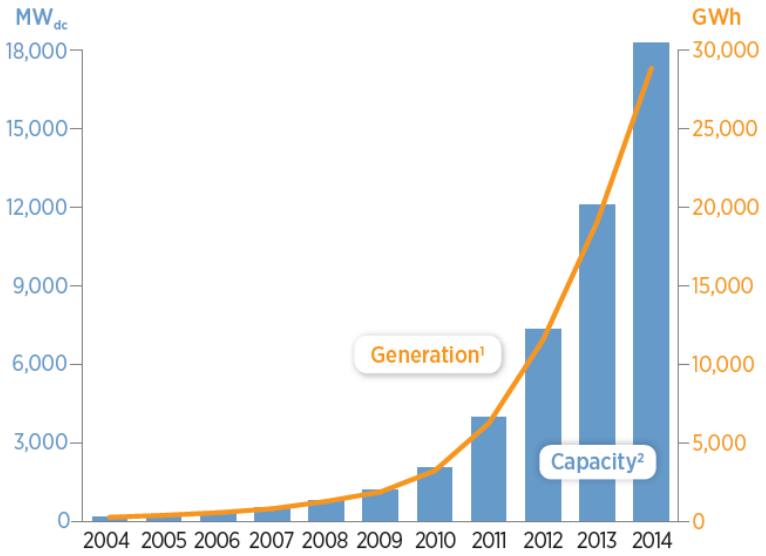
Sources: LBNL, EIA
Reported values may vary from those included in previous versions of the Data Book due to retroactive changes in source data.

Wind | November 2015

[52] NREL Renewable Energy Data Book, p. 54.

Figure A-5[53]

U.S. PV Electricity Installed Capacity and Generation



	U.S. PV Generation¹ (GWh)	U.S. PV Capacity² (MW_{dc}) and % Increase from Previous Year	
		PV¹	Increase
2000	38	24	—
2001	55	35	46%
2002	92	58	66%
2003	162	103	78%
2004	254	161	56%
2005	378	240	49%
2006	544	345	44%
2007	796	505	46%
2008	1,266	803	59%
2009	1,869	1,185	48%
2010	3,212	2,037	72%
2011	6,243	3,959	94%
2012	11,555	7,328	85%
2013	19,086	12,104	65%
2014	28,863	18,305	51%

Source: SEIA/GTM
Generation calculated from installed capacity using an 18% capacity factor for PV.
Values may differ from those reported in previous versions of the Data Book due to a source change from Larry Sherwood/IREC to SEIA/GTM for all years included.
[1] Generation numbers calculated from installed capacity using an 18% capacity factor for PV.
[2] Grid-connected only. Capacity is reported in MWdc.

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[53] NREL Renewable Energy Data Book, p. 63.

Exhibit 4

IN THE UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT

STATE OF WEST VIRGINIA, ET AL., Petitioners, v. UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, ET AL., Respondents.	No. 15-1363 (and consolidated cases)

DECLARATION OF TERESA MARKS, FORMER DIRECTOR, ARKANSAS DEPARTMENT OF ENVIRONMENTAL QUALITY

1. I, Teresa Marks, declare under penalty of perjury under the laws of the United States of America that the following statements are true and correct to the best of my knowledge and belief and that they are based upon my personal knowledge, or on information contained in the records of the United States Environmental Protection Agency (EPA), or on information supplied to me by EPA employees.

2. I served as Director of the Arkansas Department of Environmental Quality (ADEQ), the state's largest environmental policy and regulatory agency, from 2007 – 2014, and as President of the Environmental Council of the States, the national non-partisan association of state and territorial environmental agency leaders, from 2012 – 2013. Before my appointment as Director, I worked in the Arkansas Office of

Attorney General for 12 years, most recently as Deputy Attorney General for the Public Protection Department, where I represented the interests of consumers and state agencies in consumer protection, antitrust, utilities and environmental matters. Currently, I am the Principal Advisor to the EPA Administrator for Unconventional Oil and Gas.

3. As Director of ADEQ, I oversaw the work of approximately 400 employees charged with protecting, enhancing and restoring the environment for Arkansans. In that role, I worked closely with Colette D. Honorable, then Chair of the Arkansas Public Service Commission and now Commissioner of the Federal Energy Regulatory Commission. Together, on June 25, 2014, we held the first of many stakeholders' meetings on the Clean Power Plan in an effort to develop recommendations for Arkansas' 111(d) State Plan.

4. ADEQ's Air Division implements the federal Clean Air Act in the state and has received all delegable air programs, including Title V permitting, New Source Performance Standards, National Emission Standards for Hazards Air Pollutants, Prevention of Significant Deterioration, and National Ambient Air Quality Standards implementation.

5. Based on my experience, I believe Arkansas is well-positioned to prepare and submit a satisfactory 111(d) State Plan to implement the Clean Power Plan within the time frame allowed under the Rule.

6. During my time as Director of ADEQ, the Air Division successfully prepared and submitted several state plans implementing EPA air programs. Many of these state plans were the result of extensive public outreach and required close coordination with interested parties, including from the regulated community, other state agencies and local jurisdictions, the EPA, and every day Arkansans. Some plans required complex modeling and source inventory analyses covering numerous diverse stationary and mobile sources. One plan required the development of a state emissions budget and implementation of a trading program. See Appendix A. Put simply, the Air Division is well versed in handling complex regulatory undertakings required by the Clean Air Act.

7. As ADEQ's Declarant states, "The usual timeline to develop a [state implementation plan] averages 18 months," and, as he also notes, this process is similar to what would be required for developing a 111(d) State Plan. See Spencer Decl. ¶ 4. The Clean Power Plan, however, allows up to 36 months to prepare and submit a State Plan.[1] If Arkansas chooses not to submit a State Plan, EPA will

[1] On October 22, 2015, EPA issued a memorandum to assist states in preparing extension requests by September 6, 2016. See Memorandum from Stephen D. Page, Director, EPA Office of Air Quality Planning and Standards, *Initial Clean Power Plan Submittals under Section 111(d) of the Clean Air Act* (Oct. 22, 2015), available at http://www3.epa.gov/airquality/cpptoolbox/cpp-initial-subm-memo.pdf. According to ADEQ's Declarant, Arkansas appears to have already taken a number of steps satisfying the elements of the initial submittal. See Spencer Decl. ¶ 4.ii. Thus, I believe the State can easily prepare an extension request for submitting a State Plan by September 6, 2018.

implement a federal plan, which can be replaced by an approved State Plan at any time. This means that Arkansas is not required to expend *any* resources to comply with the Clean Power Plan and may focus instead on other sovereign priorities. However, should the state choose to develop its own plan, I believe Arkansas has the experience to develop an approvable State Plan and can do so within the EPA's timeline.

8. Unlike the various state plans identified in Appendix A, which addressed a broader range of sources and were prepared in comparable time frames, Arkansas' 111(d) State Plan need only target a small number of sources. For example, EPA's 2012 Unit-Level Data File identified only seven coal-fired steam units at five coal-fired plants in Arkansas. See 2012 Unit-Level Data Using the eGRID Methodology (EPA-HQ-OAR2013-0602-0254) (1 unit at John W. Turk Jr. Power Plant; 2 units at White Bluff Generating Plant; 1 unit at Flint Creek Power Plant; 2 units at Independence Steam Station; and 1 unit at Plum Point Energy Station). Furthermore, many of these sources are subject to the state's other regulatory programs, including the state's various implementation plans, and are represented by stakeholders who have been involved in developing recommendations for Arkansas' statewide 111(d) plan since at least June 25, 2014. Thus, ADEQ employees are already highly familiar with the specific units and stakeholders that would be subject to a 111(d) State Plan. Given the Air Division's experience in preparing and implementing other complex

plans under the Clean Air Act, I believe the Division is entirely capable of preparing the State's 111(d) plan within the time frame provided by the Rule.

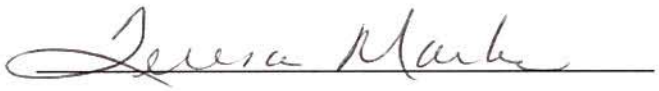
9. Designing an approvable 111(d) State Plan is within the core competence of the Air Division and does not intrude on the "division of authority over electricity markets under the Federal Power Act," as claimed by Declarant from the Arkansas' Public Service Commission. See Thomas Decl. ¶ 6. As noted above, many of the sources that would be regulated under Arkansas' 111(d) State Plan are subject to other air regulatory programs. While these other programs inevitably influence the cost of producing electricity, and thus may affect the balance of generation, those ADEQ programs do not intrude on the authority of the Arkansas Public Service Commission and do not disrupt the division of authority within the state over electricity markets. The same is true with the Clean Power Plan. In fact, ADEQ and the Arkansas Public Service Commission "have consulted and their unified position is that there is a way to craft a state strategy that accounts for utility planning and decisions already underway and results in real and quantifiable reductions in carbon dioxide ('CO_2') emissions, all while preserving the 'remaining useful life' of the State's power plants and limiting . . . opportunities for overreach and encroachment upon the State's rights . . . ." ADEQ, *Arkansas's State Strategy re: EPA's "Clean Power Plan"* (Oct. 9, 2015), available at https://www.adeq.state.ar.us/air/planning/cpp/pdfs/meeting_handouts_no_blank_pages_20151009.pdf.

10. Compared to many other air programs, the Clean Power Plan affords states greater flexibility in designing approvable state plans to achieve the emission standards reflected in the emission guidelines. For example, Arkansas can simply establish emission limits for individual units within its jurisdiction. Alternatively, it could develop a trading program that allows sources to meet their emission allowances in whatever way they deem appropriate. As the State's Declarant states, "At this point in time, all options are on the table and under consideration". See Spencer Decl. ¶ 4(ii). Thus, Arkansas has before it every avenue to pursue a 111(d) State Plan that is customized to its unique circumstances and also ensures the protection, enhancement and restoration of the environment for current and future Arkansans.

11. Furthermore, contrary to one Declarant's assertions, the Clean Power Plan does not require "the reduction in overall energy consumption by every single current and future consumer of electric power" and is not based on "end-use energy efficiency". See Thomas Decl. ¶¶ 2 & 12. Indeed, these claims appear to be based on the inclusion of "building block 4," which relied on reductions in demand in electricity from whatever source, in EPA's Proposed Rule. The Final Rule, however, is not based on demand-side reduction. As EPA plainly states "neither the final guidelines' [best system of emission reduction] determination nor the emission performance rates for the two subcategories of affected EGUs take into account demand-side [energy efficiency]." 80 Fed. Reg. at 64,673. Accordingly, many of the

"requirements" Arkansas Declarant alleges are unprecedented or would "require legislative and constitutional changes on the state level" are not required by the Clean Power Plan.

December 3, 2015



Teresa Marks

Appendix A.

Arkansas SIP Revisions submitted 2005-2015[2]

Crittenden County Economic Development Zone (EDZ) Petition (submitted 9/23/2005, EPA approval 2/13/2006)

- Extensive air quality modeling, analysis of demographics/air quality control measures being implemented, coordination with Memphis area agencies and jurisdictions.

Regulation 19 Revision & New Regulation 31 (submitted 7/3/2006, EPA approval 4/12/2007)

- SIP revisions to capture EDZ conditions/language and address EPA revisions to Federal New Source Review (NSR) regulations.

Clean Air Interstate Rule SIP (submitted 8/10/2007, 9/16/2009)

- Extensive interaction/coordination with industry, environmental groups and EPA to devise the state budget.

Regional Haze SIP (submitted 7/29/2008)

- ADEQ analysis of modeling and BART limits developed by affected industry. FIP proposed March 2015, consent decree for EPA final action by 8/31/2016. ADEQ will be developing Regional Haze SIP to replace FIP.

Crittenden County 1997 Ozone NAAQS Redesignation Request/Maintenance Plan (submitted 2/24/2009, EPA approval 3/24/2010)

- Coordination with Memphis area agencies and jurisdictions, demonstration of continued maintenance through 2021 via NOx/VOC control & contingency measures.

Arkansas PM2.5 PSD Revisions (submitted 7/26/2010, 11/6/2012, 12/1/2014, EPA approval 3/4/2015)

- Significant revisions to PSD regulations (Regulation 19) to allow for the regulation and permitting of PM2.5; required extensive interaction with industry groups.

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[2] This list is simply illustrative and is not intended for any purpose other than in support of Teresa Marks' declaration.

Minor NSR Threshold SIP, Title V Program Revision (submitted 7/26/2010, 11/6/2012)

- Revisions to raise NSR permitting thresholds, technical demonstration/justification (2010 submittal) and subsequent information/analysis (2012 submittal) in response to EPA review of submittal.

GHG Tailoring Rule revision (submitted 8/7/2012, 1/7/2014, EPA approval 7/7/2015)

- Revisions to PSD permitting program incorporate federal plantwide applicability limit (PAL) permitting provisions, allowing State to issue PSD PALs to GHG sources.

Regional Haze Progress Report SIP (submitted 6/2/2015)

- ADEQ developed submittal to demonstrate improvements in monitoring data and visibility achieved since 2008 (RH SIP submittal).

Exhibit 5

IN THE UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT

State of West Virginia, et al., Petitioners, v. United States Environmental Protection Agency, et al., Respondents.	No. 15-1363 (and consolidated cases)

DECLARATION OF CHRISTOPHER B. FIELD

1. I, DR. CHRISTOPHER FIELD, pursuant to 28 U.S.C. § 1746, declare, under penalty of perjury, that the following statements are true and correct based upon my personal knowledge of the scientific literature or upon information that I reviewed that was developed as part of definitive international and national assessments, as cited below.[i]

2. I am a climate scientist with more than 25 years of experience researching climate-change impacts. Professionally, I am the founding director of the Carnegie Institution for Science's Department of Global Ecology and the Melvin and Joan Lane Professor for Interdisciplinary Environmental Studies at Stanford University. My research, reflected in more than 250 scientific papers cited more than 50,000 times, ranges from studies on natural ecosystems, agriculture, and the global carbon

cycle to techniques for improving climate models and prospects for renewable energy systems.

3. I was, from 2008 to 2015, co-chair of Working Group II of the Intergovernmental Panel on Climate Change (IPCC) where I led the effort on the IPCC Special Report on "Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation" (2012) (*1*) and the Working Group II contribution to the IPCC Fifth Assessment Report (2014) (*2, 3*) on Impacts, Adaptation, and Vulnerability. My scientific accomplishments have earned many recognitions, including election to the US National Academy of Sciences, the American Academy of Arts and Sciences, the Max Planck Research Award, the BBVA Frontiers of Knowledge Award, and the Roger Revelle Medal.

4. My bachelor's degree is from Harvard in biology in 1975. My PhD in biological sciences is from Stanford University, in 1981.

5. With continuing climate change, the world faces increasing risks of impacts. The risk of severe, widespread, and irreversible impacts rises quickly with the amount of warming. Because CO_2 emissions are extremely long-lived, the problem is cumulative: emissions contribute to the total concentration of CO_2 in the atmosphere and so, as a consequence, to risks and impacts identified in this declaration. Accordingly, any delay in reducing emissions, even by a few years, puts the world in the crosshairs for risks that are systematically more grave, more complicated, and more diverse.

6. Many impacts of climate change are already being felt, and risks of impacts will be exacerbated if we do not reduce our emissions in the near term. Other devastating impacts that could unfold over centuries may be irrevocably triggered without emissions reductions in the near-term. While many of the potential impacts can only be expressed as risks, it is important not to discount the possible impacts of climate change even when the impacts are not certain. Although the likelihood of some impacts may be relatively small, their consequences would be so enormous or grave that we must give ample consideration to even small chances of such outcomes. Many climate-change risks rise quickly with the amount of warming and thus with the amount of carbon dioxide emitted.

7. This declaration briefly summarizes current knowledge about three categories of risk where near-term action is critical and where any delay in emissions reductions leads to increased risk. The first category involves risks of extreme events that have already increased as a consequence of climate changes to date. For these risks, every increment of emissions has the potential to further shift the odds of potentially devastating extremes. A second category concerns the challenge of limiting cumulative emissions of carbon dioxide. If the world is to limit the likelihood of exceeding 2°C over pre-industrial temperatures, the window for cost-effective action is narrow and rapidly closing. A delay of only a few years will increase the likelihood of missing the target as well as the cost and complexity of reaching it. A third category involves major global-scale tipping points, thresholds beyond which the

earth is irreversibly committed to very large changes. Some of the tipping-point changes are massive impacts. Others are vicious-cycle processes that amplify warming. Evidence for the risk of tipping points is strong, but confidence about the precise level of warming sufficient to trigger each is low. For the three tipping points discussed here, the threshold may be near, and any delay in reducing emissions increases the risk of large, irreversible changes.

8. Actions taken by the United States have the potential to meaningfully reduce or exacerbate these risks because US actions are important on the global scale. By any measure, US emissions from fossil fuel combustion and cement production are a significant fraction of the global total (*4, 5*). For example, 2014 CO_2 emissions from the United States from fossil fuel combustion and cement production were 5.2 billion tons of CO_2. This constitutes 14% of total global emissions of CO_2 from fossil fuel and cement. Globally, the US is the country with the second largest annual emissions, behind only China. On a per capita basis or a cumulative basis, US emissions are the highest of any major country.

Risks Associated with Extreme Weather Events

9. Impacts of climate changes that have already occurred are widespread and consequential. Many of the most challenging impacts take the form of more frequent or more powerful extreme events, for example heat waves, heavy rain, regional drought, or coastal flooding. For extreme events with a link to climate change, each

increment of emissions has the potential to increase risks from climate changes already underway. The risk of extremes is already increasing. For example:

10. **Heat waves:** Most parts of the world have already experienced an increase in the frequency of high-temperature extremes. Across all land areas and in most individual areas, extremely warm summer temperatures and winter temperatures both occurred with increasing frequency from 1950 to 2000 (*6*). In the US, especially in the West, heat waves have become more frequent and intense (*7*). Recent advances in climate analysis make it possible to determine, often with a high degree of confidence, whether human-caused warming altered the odds of a particular extreme event. Across recent extreme heat events examined to date, human-caused warming has been implicated in increasing the odds in about 95% (*8*). For example, human-caused warming at least doubled the risk of the 2003 European heat wave, an event that led to an estimated 14,000 premature deaths in France and many more across Europe (*9*).

11. **Heavy precipitation:** The number of heavy precipitation events has likely increased in many land regions, especially North America (*1*). Across the continental US, once-in-five-year events from 2001 to 2012 occurred with a frequency about 40% greater than the average from 1901 to 1960. For the US, the fraction of rainfall occurring in the heaviest 1% of all rain events increased from 1958 to 2012 by 71% in the Northeast, 37% in the Midwest, and 27% in the Southeast (*10*). Of the recent extreme precipitation events carefully studied, human-caused climate change has

increased the odds in about 40% (*8*), including extensive floods in England and Wales in 2000 (*11*) and the deadly Himalayan snowstorm of 2014 (*12*).

12. **Severe drought in California:** California has been in the grip of a drought for the last four years. It is almost certainly the most severe drought in more than 500 years. In California, drought risk spikes when conditions are both dry and warm. The frequency of dry years in California has been relatively stable over the last century, but the number of unusually warm years has increased dramatically. As a consequence, it is now much more likely that, when conditions are dry, they are also warm, setting the stage for drought (*13*).

13. **Sea level rise and coastal flooding:** Across 55 US cities, sea level rise that has already occurred plus that expected through 2030 at least doubles the risk of a once-in-a-century-scale flood. For over half the cities, sea level rise more than triples the risk (*14*). Hurricane Sandy was a very unusual event, but the probability of water reaching the height of the Hurricane Sandy surge has increased one-third to two-thirds as a result of the sea level rise since 1950 (where the relative sea level rise in New York includes some subsidence of the land) (*15*). Since the mid-19th century in New York City, the highest-in-10-year storm tide has increased by 0.28m, and sea-level rise is 0.44m. Together, these effects increase the annual probability of a storm event overtopping a typical Manhattan seawall from less than 1% historically to 20-25% currently (*16*).

14. **Catastrophic western wildfires:** Over the past several decades, wildfires in the Western US have become an increasingly serious problem, with increases in the number of large fires and in the area burned. Earlier Spring snowmelt, one of the most consistent features of a warming climate, dramatically increases wildfire risk (*17*). The relationship between warming and fire across the West is so sensitive that, over the period 1950 to 2003, conditions only 1°C above average led to an increase in the area burned of over 200% across most of the region and more than 400% over parts of Arizona, Colorado, Idaho, Montana, Oregon, Utah, and Wyoming (*18*).

15. **Strong hurricanes:** Since 1970 in the North Atlantic, the overall frequency of hurricanes has increased, as well as the frequency and intensity of the strongest storms (*19*). Globally, maximum wind speeds in the strongest hurricanes are increasing (*20*), and hurricanes are reaching maximum intensity farther from the equator (*21*). The trend is noteworthy, because hurricanes are among the costliest of climate-related disasters (*1*).

16. These trends in extreme events are already occurring, with many clear links to climate change. Continued high emissions increase the risk of extremes with large consequences for people, businesses, nature, and society. Any delay in reducing emissions, even by a few years, has the potential to increase the odds of devastating extreme weather events.

Risks Associated with Warming Above Two Degrees Celsius

17. Cumulative emissions of greenhouse gases are approaching a level that commits Earth to sustained warming greater than 2°C (3.6°F) above pre-industrial levels. There is a rapidly closing window of opportunity for affordable emissions reductions that avoid unacceptable climate-change risks.

18. The goal of the UN Framework Convention on Climate Change is "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system." There is no such thing as a guardrail temperature below which safety for all is assured, and impacts of climate changes to date have caused real harm. However, there has been a very active international and national discussion on a warming threshold that is broadly protective, while also economically and technically feasible. In 2010, parties to the UN Framework Convention on Climate Change recognized the need for urgent action to hold total warming below a warming threshold of 2°C above pre-industrial temperatures. Many lines of evidence document that 2°C above pre-industrial temperatures is a broadly protective upper limit (*22*). A wide range of risks increase as warming approaches or passes 2°C.

19. In its 2014 report, the IPCC assessed more than 100 key risks that cause reasons for concern in a changing climate, concluding that risk levels rise rapidly with warming, that we are already seeing increased risk from the nearly 1°C of warming through today, and that many risks become widespread and severe as warming approaches or rises past 2°C above preindustrial. Above 2°C warmer than

preindustrial, many risks become not only widespread and severe but also potentially irreversible, even with ambitious adaptive measures (*23*).

20. Risks of dangerous climate-change impacts vary across regions of the world and sectors of the economy (*2, 3*). Many involve threats to health and safety. These include risks from heat stress, food insecurity, and severe storms. Others involve threats to the economy from, for example, disrupted supply chains, decreased labor productivity, crop failures, and damage to infrastructure. Still others entail threats to the natural world, including species extinctions, biological invasions, and increased wildfire. Many climate-change risks are amplified by interactions with other stresses, for example crowding in urban areas, overallocation of freshwater supplies, or large numbers of people marginalized through conflict or poverty or displaced by persistent drought or a rising sea.

21. We are rapidly exhausting the remaining carbon budget necessary to manage these risks. A two-in-three probability of limiting warming from all greenhouse gases to less than 2°C above pre-industrial temperatures requires limiting future CO_2 emissions to less than 900 billion tons of CO_2 (*22*). Because warming from CO_2 persists for many centuries, the remaining budget is all we have, for the entire next millennium. Since the beginning of the industrial revolution, cumulative CO_2 emissions have been approximately 2000 billion tons, well over half of the total budget of 2900 billion tons of CO_2 for a two in three probability of limiting warming to 2°C or less. We emitted the first 2000 billion tons over more than 250 years, but at

2014 emission rates, we burn through the remaining budget of 900 billion tons of CO_2 in only 24 years. In every passing year without action, CO_2 emissions consume about 4% of the total remaining budget. Against this background, it is apparent why delaying emission reductions by even a few years can make a big difference for our prospects for staying within this budget and limiting the risks of severe consequences.

22. At the same time, the costs of holding warming to less than 2°C increase rapidly with delays. For any warming limit, a delay in implementing emissions reductions will require reductions that are more rapid, once they are started. Such accelerated emissions reductions will involve more drastic steps that tend to increase costs, add complexity, and broaden the scope for errors.

Risks Associated with Tipping Points

23. The world is approaching dangerous but poorly known emissions thresholds, beyond which massive changes could become unstoppable. For each of these thresholds, very large potential consequences create high risk, even when probabilities of worst-case outcomes are low or difficult to quantify. Examples of these dangerous tipping points include:

24. **Commitment to loss of a major ice sheet:** Two gigantic ice sheets on land, the Greenland Ice Sheet and the West Antarctic Ice Sheet, are at risk of crossing a tipping point leading to irreversible melting. This tipping point may occur at temperatures near present conditions. The Greenland Ice Sheet contains enough water to raise global sea level by about 7m (24 ft). Potential sea level rise for the West

Antarctic Ice Sheet is about 3m (10 ft). During the period from 129,000 to 116,000 years ago, when Earth's temperature was approximately 2°C warmer than present, sea level was at least 5m higher, with major contributions from both ice sheets (*24*). The best available calculations indicate that Greenland will pass a threshold of commitment to loss of the entire ice sheet at temperatures in the range of 1 to 4°C above pre-industrial, with many simulations initiating melting very near current conditions. Once melting passes the tipping point, it is effectively irreversible, because melting lowers the surface elevation, moving the ice surface into progressively warmer elevation zones. The threshold for irreversible melting of the West Antarctic Ice Sheet is estimated to be in the same range as that for Greenland, with recent papers suggesting that the threshold is very near or perhaps already transgressed (*25*). Melting of either ice sheet would proceed over several centuries, but with consequences that would fundamentally reshape the world's coastlines and eliminate low-lying islands. With complete loss of either the Greenland or West Antarctic ice sheet, large areas of land would disappear, including substantial parts of Alaska, Florida, Louisiana, Maryland, North Carolina, and Texas.

25. **Commitment to a mass extinction:** Plant and animal species everywhere face a host of challenges. Additional risks from a changing climate and an acidifying ocean interact with and often amplify pressures on species from land use, invasive species, air and water pollution, and hunting and fishing. A large fraction of land plants and animals cannot shift locations quickly enough to track suitable climates

(*23*). Some kinds of environments, for example warm-water coral reefs and sea ice habitats, may disappear completely. Based on species already extinct, rare, or endangered, some studies conclude that we are already in the early stages of a mass extinction event (*26*), something that could shape Earth's biological prospects for many millions of years.

26. **Initiation of major "vicious-cycle" warming:** Since the beginning of the industrial revolution, some of the human emissions of carbon dioxide have been removed from the atmosphere, with about half of the CO_2 from fossil fuels dissolving in the oceans or taken up through growth of plants (*27*). There is a risk that, at some level of warming, these natural processes will shift their direction and change from storing carbon to releasing it. This would cause a vicious cycle, where warming triggers release of carbon dioxide or methane to the atmosphere, which further increases warming.

27. Two kinds of environments are potentially vulnerable to vicious-cycle behavior. One is high-latitude ecosystems on permanently frozen soils or permafrost. The quantity of carbon in permafrost is huge, with more than twice as much as the total in the atmosphere. When permafrost soils thaw, the carbon is quickly converted to carbon dioxide and methane, which is an even more powerful greenhouse gas. One recent estimate is that, even with ambitious mitigation, permafrost releases of carbon dioxide and methane during the 21st century could produce warming equal to 20-30% of the remaining CO_2 budget for limiting warming to 2°C or less (*28*). With

continued high emissions, thawing permafrost could release sufficient carbon dioxide and methane to account for 60 to 100% of the budget for limiting warming to 2°C.

28. The other vulnerable carbon pool is in tropical forests. Warming can lead to drying that makes forests susceptible to drought and large, destructive wildfires that can convert large amounts of forest biomass into atmospheric carbon dioxide (*29, 30*). While the total quantity of carbon in tropical forests is not as large as that in permafrost, some areas are already near tipping points, with recent droughts decreasing the amount of carbon these forests are absorbing (*30*).

29. Because the warming levels sufficient to trip the triggers for these catastrophic events are not known with precision, but may be near, any delay in the near term in reducing emissions increases the risk of these severe and irreversible consequences.

December 3, 2015

Christopher Field

DR. CHRISTOPHER FIELD

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1. IPCC, *Managing the risks of extreme events and disasters to advance climate change adaptation*. C. B. Field, V. Barros, T. F. Stocker, D. Qin, D. Dokken, K. Ebi, M. Mastrandrea, K. Mach, G. Plattner, S. Allen, Eds., A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change (Cambridge University Press, Cambridge, UK, and New York, NY, USA, 2012), pp. 592.
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Exhibit 6

IN THE UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT

STATE OF WEST VIRGINIA, ET AL. Petitioners, v. UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, ET AL. Respondents.	No. 15-1363 (and consolidated cases)

DECLARATION OF TODD STERN

1. I, Todd Stern, pursuant to 28 U.S.C. § 1746, declare, under penalty of perjury, that the following statements are true and correct to the best of my knowledge and belief and that they are based upon my personal knowledge, or on information contained in the records of the United States Department of State (DOS), or on information supplied to me by employees under my supervision and employees in other DOS offices.

2. I am the Special Envoy for Climate Change at the State Department, a position I have held since January 26, 2009. In my role as Special Envoy for Climate Change I have played a central role in developing the U.S. international policy on climate change and have served as President Obama's chief climate change negotiator,

representing the U.S. internationally at the ministerial level in all bilateral and multilateral negotiations regarding climate change.

3. In my role as Special Envoy, I also oversee or supervise DOS employees who work on international climate change policy and international climate change negotiations, and I regularly meet with other U.S. government officials and managers to coordinate the work of my office with the work of other offices and agencies, including the U.S. Department of Treasury, the U.S. Department of Agriculture, the U.S. Department of Energy, and the U.S. Environmental Protection Agency.

4. My staff and I meet regularly with heads of state, lead climate negotiators, and other senior government officials from other countries and regional organizations, including the European Union, China, India, Canada, Brazil, and Mexico, to better understand each country's plans and actions to control Greenhouse Gas (GHG) emissions, to encourage them to take strong action, and to find areas of common ground in the negotiations under the U.N. Framework Convention on Climate Change (UNFCCC) and in other international fora. Such meetings have provided me an understanding of other countries' circumstances and of the influence of U.S. actions on their decisions. In particular, my role as co-chair of the U.S.-China Climate Change Working Group, including the Enhanced Policy Dialogue on climate change and the Domestic Policy Dialogue, during 2013-2015, provided

insight into the dynamics affecting China's decisions on climate change policy and the influence of U.S. actions and leadership on those decisions.

5. I have 18 years of experience working on climate change in a variety of roles, and have personal knowledge of the international negotiations on climate change. At the U.S. Department of the Treasury from 1999 to 2001, I advised the Secretary on the policy and politics of a broad range of economic and financial issues. I served in the White House from 1993 to 1999, where I played a central role in preparing key issues of domestic, economic and national security policy for the President's decision. From 1997 to 1999 I coordinated the Administration's initiative on global climate change and acted as the senior White House negotiator in climate negotiations. I have also been an Adjunct Lecturer at Harvard's Kennedy School of Government and a Resident Fellow at the German Marshall Fund of the United States, and I am a member of the Council on Foreign Relations.

6. The Climate Action Plan announced by President Obama in June 2013 contains a number of policies and programs that are intended to cut pollution that causes climate change and affects public health, including carbon dioxide (CO_2) and other Greenhouse Gases (GHGs).

7. When he announced the Climate Action Plan, President Obama stated that:

> "The actions I've announced today should send a strong signal to the world that America intends to take bold action to reduce carbon pollution. We will continue to lead by the power of our example, because that's what the United States of America has always done."

President Obama, Georgetown University, June 25, 2013.

8. The Climate Action Plan includes practical and cost-effective actions to reduce carbon pollution, including modernizing and strengthening the electricity supply grid, accelerating the supply of renewable energy, improving vehicle fuel economy standards, improving efficiency standards for appliances and government buildings, curbing emissions of hydrofluorocarbons, and other actions. The Clean Power Plan is a central part of implementing the U.S. Climate Action Plan, addressing the largest source of U.S. carbon dioxide (CO_2) emissions, the GHG that has consistently been shown to be the primary driver of recent anthropogenic climate change.

9. In my experience, the Clean Power Plan and other U.S. actions in the U.S. Climate Action Plan put us in a stronger, more credible position in the international effort against climate change. Other countries see what we are doing and are taking note of our actions. U.S. action to control GHG emissions complements and encourages increasingly ambitious actions by other countries. As the biggest economy and second largest emitter of GHGs, U.S. commitment and leadership are indispensable to effective international action.

10. The Clean Power Plan, finalized in August 2015, demonstrated U.S. resolve to address climate change and cemented the U.S. commitment to action. This and other U.S. climate pollution mitigation efforts helped encourage other countries to submit Intended Nationally Determined Contributions (INDCs), which have flooded in to the United Nations this year ahead of the December climate negotiations in Paris and are projected to bend the GHG emissions curve more than any other global action in history.

11. A stay of the Clean Power Plan might prompt other countries to scale back or renege on their own domestic mitigation efforts.

12. This is a critical time for action to address climate change. The science tells us that although we still have a window of time to prevent the worst impacts of climate change, that window is closing quickly. The Intergovernmental Panel on Climate Change (IPCC), which the U.S. and other countries involved in the climate negotiations rely upon as the most recent, carefully vetted science on climate change, has reviewed significant quantities of scientific evidence and concluded that:

- Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia.
- Human influence on the climate system is clear. Human influence has been detected in warming of the atmosphere and the ocean, in changes in the global water cycle, in reductions in snow and ice, in global mean sea level rise, and in changes in some climate extremes. It is extremely likely that

human influence has been the dominant cause of the observed warming since the mid-20th century.

- Continued emissions of greenhouse gases will cause further warming and changes in all components of the climate system.

- Limiting climate change will require substantial and sustained reductions of greenhouse gas emissions.

- Increasing magnitudes of warming increase the likelihood of severe, pervasive, and irreversible impacts.

- The overall risks of climate change impacts can be reduced by limiting the rate and magnitude of climate change.

- the longer the world delays addressing climate change, the more our options narrow and the more expensive it will become to address it.

- Effective mitigation will not be achieved if individual agents advance their own interests independently.

IPCC 5th Assessment Report, 2013, 2014.

13. The 21st Conference of the Parties (COP 21) of the UNFCCC is being held in Paris from November 30, 2015 to December 11, 2015. COP 21 is expected to adopt an ambitious, durable, and effective climate change agreement for the post-2020 period. UNFCCC Parties have decided to negotiate a global agreement at COP 21 that applies to all countries, both developed and developing.

14. The 194 countries participating in this negotiation have recognized that climate change is a global problem and that addressing it will require action on the part of emitters across the world. This need for action is particularly acute from those

large economies that account for the bulk of emissions of the pollutants that cause climate change, including the United States, the European Union, Brazil, China, and India.

15. The current negotiation departs from the approach taken in the Kyoto Protocol, in which developed countries each undertook a target that was internationally negotiated and binding as a matter of international law, while developing countries did not have targets. In contrast, the regime that is being developed calls upon each country, including the United States, to devise its own nationally determined post-2020 target or goal. This approach is designed to encourage ambition and broad participation in the agreement, including by developing countries, which effectively did not have any commitments, targets or otherwise, in the Kyoto Protocol, and which would be unlikely to accept negotiated targets. UNFCCC Parties also decided that prior to COP 21, Parties should submit Intended Nationally Determined Contributions (INDCs) to meet the goal of stabilizing emissions.

16. It is hoped that the COP 21 negotiation will result in ambitious climate action by all Parties, coupled with a robust transparency system for the reporting and review of each Party's actions. Realizing this goal requires the development of mutual trust and confidence among the UNFCCC Parties, and in particular the major

greenhouse gas emitters, such as China, India, the European Union, and the United States.

17. UNFCCC Parties have previously noted the need for urgent action to hold the increase in the global average temperatures below 2 degrees Celsius above pre-industrial levels, in order to lessen the impacts of climate change. This means that all countries with major economies, including the United States, will need to take significant action to control emissions, and that they will need to make substantial progress on controlling emissions in the near term. The successful implementation of the Clean Power Plan will enable our nation to continue leading by example.

18. The negotiations in Paris that are expected to conclude with the adoption of an agreement represent a key point in the effort to tackle the causes of climate change, but they do not represent an end point. Parties will still need to decide whether to join the agreement, which will not take effect until 2020. Parties will also be working to implement their contributions, and will be expected to come back to the table regularly to assess collective progress, and to table new nationally determined mitigation contributions. The successful implementation of the Clean Power Plan will enable the United States to continue leading by example as other major countries are poised to take significant action to address climate change.

19. U.S. leadership on climate change has positively influenced the climate change policies of major emitters around the world, including developing countries with significant emissions such as China, India, Brazil, and Mexico.

20. Based on my experience as the lead U.S. climate negotiator, I believe that the ambition and implementation of many other countries' current and future emission control actions depends significantly on the understanding by their leaders of the seriousness of the U.S. commitment to address emissions. For many countries, willingness to take action depends on collective trust that the major emitters are taking action. If a stay of the Clean Power Plan is granted, there is a real threat that some other countries, including major emitters, might reduce the intensity or pace of their actions or even fail to achieve their commitments.

21. China's recent efforts to control emissions bear special mention. There can be no solution to the problem of climate change without strong action by both the U.S. and China, the largest two emitters, simply due to the unforgiving math of emissions.

22. In the November 2014 U.S.-China Joint Announcement on Climate Change (Joint Statement), China and the U.S. announced their respective post-2020 actions on climate change. China announced that it intends to achieve the peaking of CO2

emissions around 2030 and to make best efforts to peak early, and that it intends to increase the share of non-fossil fuels in primary energy consumption to around 20% by 2030. In June 2015, China formally submitted its INDC to the United Nations climate negotiation process, which included both of these targets. In addition, China included in its INDC a commitment to reduce carbon emissions per unit of GDP by 60 to 65 percent, and a commitment to increase forest stock by around 4.5 billion cubic meters, from 2005 levels by 2030. For China to achieve their targets for non-fossil fuels and emissions peak requires a substantial increase in effort beyond business-as-usual. China will need to build an estimated 900 Gigawatts of new non-fossil capacity in order to achieve its non-fossil fuel target.

23. China outlined additional actions it plans to take to achieve its targets in a September 25, 2015 U.S.-China Joint Presidential Statement on Climate Change. In that statement, President Obama and China's President Xi Jinping reaffirmed their shared conviction that climate change is one of the greatest threats facing humanity and that the U.S. and China have a critical role to play in addressing it. China further affirmed that it would take significant new actions to achieve its targets, including the use of a "green dispatch" system that prioritizes power generation from renewable sources; the launch in 2017 of a national emissions trading system covering CO_2 emissions from power generators and other key

sectors; and the commitment of $3.1 billion to help developing countries combat climate change.

24. The actions outlined in the two joint statements supplement a significant set of actions already underway in China to reduce emissions. China is rapidly increasing wind and solar capacity, as well as the share of natural gas in its energy supply. Between 2005 and 2013, China tripled its installed renewable energy capacity in the power sector. China ranked first in the world in installed wind power in 2014. China ranked second in the world in installed solar power capacity in 2014. China accounted for nearly a third of global renewable energy investment in 2014, ranking first in renewable energy investment.

25. While China is still building new electric power plants that use fossil fuels (coal, and increasingly, natural gas), the new plants are far more efficient than older plants, many of which China is shutting down. An increasing proportion of new fossil-fuel power plants are highly efficient natural gas plants, which emit far less CO_2 than coal-fired power plants. The new coal plants use far less coal per unit of electricity produced than the older power plants that they displace. By producing electricity from coal more efficiently, these power plants lead to lower emissions per unit of electricity produced.

26. China and the United States are not the only countries taking action. To date, more than 180 countries have submitted their plans for addressing climate change, representing 98% of all global greenhouse gas emissions. This includes all of the world's largest emitters - among them India, Russia, Japan, South Korea, Canada, Indonesia, Mexico, Brazil, Australia, and South Africa. This process of setting national targets or goals and developing plans to meet them builds momentum for concrete climate action.

27. The steps being taken by other countries are striking. For example, Germany already generates 27 percent of its electricity from non-hydro renewable sources, while Denmark generates more than 40 percent from such sources. The United Kingdom announced plans to shut down all of its coal-fired power plants by 2023, except those that convert to alternate fuels or install carbon capture and storage equipment. In March 2015, the European Union (E.U.) submitted its INDC to the UNFCCC. The E.U. INDC commits to at least 40 percent GHG reductions below 1990 levels by 2030.

28. India submitted its INDC in September, 2015, pledging to raise the share of zero-carbon electricity generating capacity to 40% of the total by 2030, a massive increase from about 15% today, and to reduce the emissions intensity of the economy - the amount of greenhouse gases emitted per unit of Gross Domestic Product (GDP) - by 33-35% by 2030, compared to 2005 levels. Since the

population and economy of India are still growing rapidly, with hundreds of millions of people still living in poverty with little or no access to electricity, India framed one target in its INDC in terms of emissions intensity. This includes plans for generating 175 GW of renewable energy by 2022. Although more than 300 million people in India currently lack access to electricity, Prime Minister Modi has announced plans to produce enough solar electricity to power a light bulb in every home by 2019.

29. In September, 2015 Brazil announced at the U.N. its pledge to cut carbon emissions by 37 percent by 2025 (from 2005 levels). This is a reduction in absolute emissions, not in emissions intensity. Brazil also committed to end illegal deforestation, and restore millions of acres of degraded forest. Limiting deforestation and restoring degraded forests helps to store CO_2 that would otherwise be emitted to the atmosphere.

30. In March, 2015 Mexico submitted its INDC, committing to reduce its emissions of GHGs 22 percent below business-as-usual by 2030. In April 2012 Mexico adopted the General Law on Climate Change, one of the first climate laws in a developing country. Under this law, Mexico aims to reduce its emissions by 50% from 2000 levels by 2050. Mexico is working to develop additional actions to achieve this objective.

31. The U.S.' willingness to make significant reductions -- including from power plants, our single largest source of climate pollution -- has helped establish U.S. leadership with respect to climate change internationally. The Clean Power Plan and other U.S. climate pollution mitigation efforts have had a very positive impact on efforts by other countries to control their emissions. The successful implementation of the Clean Power Plan will enable the United States to continue leading by example and support the building global momentum, garnered over the past several years in no small part by U.S. action and leadership, to take concrete actions to control GHG emissions and meaningfully address climate change.

December 3, 2015

Todd Stern