

No. 15-1381 (and consolidated cases)

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

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**STATE OF NORTH DAKOTA, *et al.*,**

*Petitioners,*

v.

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, *et al.*,**

*Respondents.*

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On Petitions for Review of Final Agency Action  
of the United States Environmental Protection Agency  
80 Fed. Reg. 64,510 (Oct. 23, 2015) and 81 Fed. Reg. 27,442 (May 6, 2016)

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**INITIAL BRIEF OF INTERVENOR POWER COMPANIES  
IN SUPPORT OF RESPONDENTS**

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**December 21, 2016**

## CERTIFICATE AS TO PARTIES, RULINGS, AND RELATED CASES

Pursuant to Circuit Rule 28(a)(1), Intervenors Calpine Corporation, the City of Austin d/b/a Austin Energy, the City of Los Angeles, by and through its Department of Water and Power, The City of Seattle, by and through its City Light Department, National Grid Generation, LLC, New York Power Authority, Pacific Gas and Electric Company and Sacramento Municipal Utility District state as follows:

### **Parties and Amici**

Except for the following, all parties, intervenors, and *amici* appearing in this case are listed in the Brief for State Petitioners: Amicus Curiae for Respondent – Institute for Policy Integrity at New York University Law School; Amici Curiae for Respondent – Technology Innovation Experts Nicholas Ashford, M. Granger Morgan, Edward S. Rubin, and Margaret Taylor; Movant-Amici Curiae for Respondent – Carbon Capture and Storage Scientists Roger Aines, Sally Benson, S. Julio Friedmann, Jon Gibbins, Raghubir Gupta, Howard Herzog, Susan Hovorka, Meagan Mauter, Ah-Hyung (Alissa) Park, Gary Rochelle, and Jennifer Wilcox; Movant-Amicus Curiae for Respondent – Saskatchewan Power Corporation.

### **Rulings Under Review**

The final agency actions under review are: Standards of Performance for Greenhouse Gas Emissions From New, Modified, and

Reconstructed Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64,510 (October 23, 2015) and Reconsideration of Standards of Performance for Greenhouse Gas Emissions From New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units, 81 Fed. Reg. 27,442 (May 6, 2016).

### **Related Cases**

Intervenors adopt the statement of related cases set forth in Respondent EPA's Brief.

/s/ Kevin Poloncarz

Kevin Poloncarz

## CORPORATE DISCLOSURE STATEMENT

Pursuant to Rule 26.1 of the Federal Rules of Appellate Procedure and Circuit Rule 26.1, Intervenors Calpine Corporation, National Grid Generation, LLC and Pacific Gas and Electric Company state as follows:

Calpine Corporation (“Calpine”) states that it is a major U.S. power company which owns 82 primarily low-carbon, natural gas-fired and renewable geothermal power plants in operation or under construction that are capable of delivering nearly 27,000 megawatts of electricity to customers and communities in 20 U.S. states and Canada. Calpine’s fleet of combined-cycle and combined heat and power plants is the largest in the nation. Together with its retail arm, it serves customers in 24 U.S. states, Canada and Mexico. Calpine is a publicly traded corporation, organized and existing under the laws of the State of Delaware. Its stock trades on the New York Stock Exchange under the symbol CPN. Calpine has no parent company, and no publicly held company has a 10 percent or greater ownership interest in Calpine.

National Grid Generation, LLC (“National Grid Generation”) states that it is a limited liability company organized under the laws of

the State of New York that owns and operates 50 natural gas- and oil-fired electric generating units capable of delivering approximately 3,800 megawatts of electricity. All of the outstanding membership interests in National Grid Generation LLC are owned by KeySpan Corporation. All of the outstanding shares of common stock of KeySpan Corporation are owned by National Grid USA, a public utility holding company with regulated subsidiaries engaged in the generation of electricity and the transmission, distribution and sale of natural gas and electricity. All of the outstanding shares of common stock of National Grid USA are owned by National Grid North America Inc. All of the outstanding shares of common stock of National Grid North America Inc. are owned by National Grid (US) Partner 1 Limited. All of the outstanding ordinary shares of National Grid (US) Partner 1 Limited are owned by National Grid (US) Investments 4 Limited. All of the outstanding ordinary shares of National Grid (US) Investments 4 Limited are owned by National Grid (US) Holdings Limited. All of the outstanding ordinary shares of National Grid (US) Holdings Limited are owned by National Grid plc. National Grid plc is a public limited company organized under the laws of England and Wales, with ordinary shares

listed on the London Stock Exchange, and American Depositary Shares listed on the New York Stock Exchange.

Pacific Gas and Electric Company (“PG&E”) states that it is a corporation organized under the laws of the State of California, with its principal executive offices in San Francisco, California. PG&E is an operating public utility engaged principally in the business of providing electricity and natural gas distribution and transmission services throughout most of Northern and Central California. PG&E and its subsidiaries are subsidiaries of PG&E Corporation, an energy-based holding company organized under the laws of the State of California, with its principal executive offices in San Francisco, California. PG&E Corporation, PG&E’s parent corporation, is the only publicly held corporation owning ten percent or more of PG&E’s stock.

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## GLOSSARY

CAA	Clean Air Act
CCS	Carbon Capture and Storage
CO <sub>2</sub>	Carbon Dioxide
DOE	Department of Energy
EPA	United States Environmental Protection Agency
JA	Joint Appendix
MW	Megawatt
Rule	Standards of Performance for Greenhouse Gas Emissions From New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64,510 (October 23, 2015)

## STATUTES AND REGULATIONS

Applicable statutes and regulations are set forth in Respondent EPA's Brief.

## INTRODUCTION AND SUMMARY OF ARGUMENT

The undersigned Power Companies support the Environmental Protection Agency ("EPA") in its promulgation of the Standards of Performance for Greenhouse Gas Emissions from New, Modified and Reconstructed Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64,510 (Oct. 23, 2015) ("Rule"). By establishing the first-ever federal carbon emission standards for new, modified and reconstructed fossil fuel-fired generating sources, the Rule assures that decisions to modernize the nation's fossil fleet meet federal minimum standards, providing both a level playing-field across the country and a regulatory backstop in the event that prevailing market conditions favoring renewable and gas-fired generation should change.

Petitioners raise a series of claims that fail to acknowledge the dynamic changes already occurring in the electricity sector and the practical realities that utilities and developers of new power plants

face when making decisions to build new generation capacity or modernize their existing fleet.

1. Their claim that the Rule is unlawful because EPA rejected partial carbon capture and storage (“CCS”) for gas-fired units<sup>1</sup> fails to acknowledge the distinct role new gas plants will play, in comparison to new coal plants, in supporting the integration of intermittent renewable generation. Petitioners’ suggestion that this is a distinction without a difference rings hollow.

2. Their claim that the standard for modified coal-fired units is unachievable fails to acknowledge that the standard would only be triggered by a major, capital-intensive project that significantly increases the unit’s capacity and that such a project could be accompanied by readily available technological improvements that would ensure the modified unit’s annual emissions performance does not exceed its historical performance. Such a modest standard is perfectly consistent with the technology-forcing nature of section 111.

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<sup>1</sup> “Stationary combustion turbines,” as defined by the Rule, are sometimes referred to herein as gas-fired units or gas plants and “steam generating units” are sometimes referred to as coal-fired units or coal plants. *See* 40 C.F.R. § 60.5580.

3. Their claim that the standard for reconstructed coal-fired units is unachievable likewise ignores that it would only be triggered in rare circumstances where a company is making a major investment in rebuilding an existing source and only where it is economically and technologically feasible to achieve the standard. Applicability aside, the standard for reconstructed units is reasonably based on incorporation of efficient generation technology demonstrated in commercial operation for nearly six decades.

4. Their claim that the Rule is unlawful because geological sequestration capacity is not available in all areas ignores the many options available for siting new power plants, even in the few states lacking such capacity, and the fact that power plant developers must consider a large number of factors when deciding where to build new capacity, such as access to transmission and limitations imposed by other environmental laws. Access to geological sequestration capacity is just one more consideration that would need to be taken into account in siting decisions. The assumption that no such considerations can be imposed pursuant to the Clean Air Act is incorrect.

5. Their claim that EPA's consideration of cost was deficient because EPA compared the "levelized cost of electricity" of a new coal plant equipped with partial CCS to other forms of dispatchable base load power that could be built to assure fuel diversity ignores that such levelized cost comparisons are a common metric for comparing different generation technologies and making procurement decisions within the electricity sector.

## ARGUMENT

### **I. EPA Reasonably Determined that Combined-Cycle Technology Rather than Partial CCS Is the Best System for New Gas Plants Rather Than Partial CCS**

EPA reasonably rejected partial CCS as the best system of emission reduction for new base load gas-fired units in light of the distinct role such units are expected to play in serving load and integrating an increasing amount of intermittent renewable generating sources. 80 Fed. Reg. at 64,612-14. Rather than confront the merits of EPA's determination that new coal- and gas-fired power plants would play different roles in an interconnected grid, Petitioners argue that similarities between coal- and gas-fired units

require that the standards for both be based on the same best system. Non-State Br. at 48-55. Their argument has no merit.

Petitioners ignore critical distinctions in the reasons why a power company might decide to build a new coal- or gas-fired unit. In the event a new coal-fired unit is built, it would almost certainly serve base load power demand, as EPA found, and, consequently, would not routinely start-up, shut down, or ramp its capacity to follow variable load demand. 80 Fed. Reg. at 64,614.

Gas-fired units, on the other hand, are increasingly built for intermediate load and frequent cycling to support the integration of intermittent renewables. See California Air Resources Board Comments, 3, EPA-HQ-OAR-2013-0495-9771 (JA\_\_). As EPA found, “fast-start” combined-cycle gas-fired units are designed to start and stop multiple times in a single day and ramp to full load in less than an hour, in contrast to the multiple hours to start and relatively slower ramping for coal-fired units. 80 Fed. Reg. at 64,614. In light of this distinction, EPA appropriately concluded that partial CCS has not been adequately demonstrated for gas-fired units based on the

absence of data on its feasibility for units that frequently start-up, shutdown, and cycle. *Id.*

In attacking EPA's rationale for not applying the same best system to both coal- and gas-fired units, Petitioners imply that some coal plants cycle as often as gas plants. Non-State Br. at 51. However, Petitioners provide no support for this proposition and the evidence they introduced in comments only confirms that coal- and gas-fired units are, in fact, operated very differently. One Petitioner attempted to disprove the distinction between the operational profile of coal and gas plants by arguing that approximately 30 percent of its coal-fired fleet started more than 15 times per year and one unit started as many as 21 times in 2013. Southern Company Comments, 27-28, EPA-HQ-OAR-2013-0495-10095 (JA\_\_-\_\_).

In stark contrast, EPA found that the average gas-fired combined-cycle plant started 106 times per year, and several started more than 300 times per year. Achievability of NSPS for Fired Combustion Turbines Technical Support Document, 8, EPA-HQ-OAR-2013-0495-11812 (JA\_\_). Starting once or more per *day*—as EPA found new fast-start combined-cycle units are designed to do (80



Fed. Reg. at 64,614)—is dramatically different from starting once or twice per *month*. While there may be some coal-fired units that start and stop as frequently as some gas-fired units, the overwhelming weight of evidence in the record affirms a critical difference between the way in which new coal- and gas-fired units would be operated and the different roles they would play in the electricity sector, which EPA was entitled to consider in establishing the best system. *See Sierra Club v. Costle*, 657 F.2d 298, 318 (D.C. Cir. 1981) (“EPA is expressly authorized by section 111 to ‘distinguish among classes, types and sizes within categories of new sources for the purpose of establishing . . . standards.’”).

Petitioners also argue that EPA unreasonably discarded CCS for base load gas plants based on the “possibility of fast-start [natural gas combined-cycle] units,” saying fast-start “is still an emerging technology and it is unclear if any such units will be used to provide intermediate load rather than peaking power.” Non-State Br. at 50-51 n.19; *see also id.* at 51 (objecting “that even the possibility of frequent cycling for some unspecified number of baseload gas-fired units was reason to discard CCS as the best

system for such units.”). Petitioners’ information is out-of-date. Far from a mere “possibility,” fast-start combined-cycle units are available now for intermediate load and are already providing the operational flexibility needed to integrate intermittent renewables into the grid.<sup>2</sup> Given the special design of these fast-start combined-cycle units and the larger footprint and increased costs associated with their construction, operation and maintenance, it is highly unlikely that one would be built if its intended use were simply to

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<sup>2</sup> See California Air Resources Board Comments, 3-4, EPA-HQ-OAR-2013-0495-9771 (JA\_\_-\_\_) (newer flexible combined cycle units operated to integrate variable renewables have different emission profiles than units operated as either base load or peaker units); California Air Resources Board Comments, 2-5, 8, 14, EPA-HQ-OAR-2013-0603-0225 (JA\_\_-\_\_, \_\_, \_\_) (describing role of flexible generators, or “flex” units, in integrating renewable generation and anticipating that combined-cycle turbines will operate as both flexible and base load generation, but not as peaking units); Siemens Energy Comments, 3, EPA-HQ-OAR-2013-0495-10389 (JA\_\_) (noting availability of “smaller combined cycle facilities, designed with fast start capabilities like a traditional simple cycle power plant,” including the 275-MW Flex-Plant™ 10, “which is capable of achieving full gas turbine load in 12 minutes”, and the 618-MW Flex-Plant™ 30, which “has demonstrated the capability to achieve an average emission rate of less than 1,000 pounds of CO<sub>2</sub> per megawatt-hour (gross) with more than 1,400 starts per year.”).

provide peaking power that could more economically be provided by a simple-cycle unit.<sup>3</sup>

In sum, in arguing that EPA's rejection of partial CCS for new gas-fired combustion turbines renders the Rule unlawful, Petitioners fail to acknowledge the distinct role that flexible combined-cycle gas-fired units are expected to play in supporting the integration of intermittent renewables and EPA's technical determination that CCS was inadequately demonstrated for units expected to start-up, shutdown and cycle frequently. *See* 80 Fed. Reg. at 64,614.

## **II. EPA Reasonably Set the Standards for Modified Steam Units at Historical Performance Levels**

Petitioners' critique of the standard for modified steam units is misleading, obscuring the central premise of the standard and the best system of emission reduction upon which it is based. As

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<sup>3</sup> *See* Net-electric Sales Applicability Threshold for Combustion Turbines as Related to Integration of Intermittent Renewables Technical Support Document, 4, EPA-HQ-OAR-2013-0495-11811 (JA\_\_) (noting that simple cycle units sell approximately 3 percent of output, and that "cost models show that it would not be cost-effective to install a [natural gas combined-cycle] combustion turbine that would operate at a capacity factor near 10 percent."); *see also* Revised Regulatory Impact Analysis, 4-35, EPA-HQ-OAR-2013-0495-11877, (JA\_\_) ("utilizing a [simple cycle] CT for generation is less expensive than [a natural gas combined-cycle] unit only at capacity factors of less than 20 percent.").

proposed and subsequently finalized, EPA identified the best system for modified units as the unit's "best potential performance based on a combination of best operating practices and equipment upgrades." 79 Fed. Reg. 34,960, 34,964 (June 18, 2014); 80 Fed. Reg. at 64,512. EPA documented dozens of practices and upgrades that an owner of an existing coal-fired generating unit could implement to improve emission performance and heat rate. Greenhouse Gas Mitigation Measures Technical Support Document, 2-2, 2-10 to 2-15, EPA-HQ-OAR-2013-0495-11491 (JA\_\_, \_\_-\_\_).

Far from the rigid and overly stringent requirement Petitioners describe, the Rule's standard for modified steam units requires nothing more than that an affected unit meet an annual emission performance rate it has already sustained on an annual basis prior to the modification. And, because the standard applies only to large, capital-intensive modifications—those resulting in an increase in hourly CO<sub>2</sub> emissions of more than 10 percent, which would generally result from a significant increase in a unit's capacity or firing rate—any modification significant enough to trigger the standard can be accompanied by upgrades and improvements in heat

rate that make it possible to achieve an annual emission performance rate no more stringent than the unit has historically achieved. Response to Comments for Modified and Reconstructed EGUs—Chapter 6, 6.2-35, EPA-HQ-OAR-2013-0603-0307 (JA\_\_); U.S. DOE Information Relevant to Technical Basis for “Large Modification” Threshold, EPA-HQ-OAR-2013-0495-11789 (JA\_\_). This is a modest standard that ensures an owner already undertaking a large, capital-intensive project incorporates widely available technological improvements as part of that project.

Petitioners argue that calculating the numerical standard based on an emission performance rate achieved “under ideal conditions in the past” does not adequately account for the range of factors that will affect a source’s emission performance in the future, such as capacity factor and ambient temperature. Non-State Br., at 57. Yet this criticism of the standard obscures a core feature of how it is established: each modified source’s standard is derived from its best emission performance since 2002 averaged on an *annual*, calendar year basis, thus capturing a wide range of operating conditions and fluctuations in emission performance. 80 Fed. Reg. at

64,546; Response to Comments for Modified and Reconstructed EGUs—Chapter 6, 6.1-44, EPA-HQ-OAR-2013-0603-0307 (JA\_\_). EPA’s determination that units triggering the standard can meet such a standard is well-reasoned and supported by the significant heat rate improvement potential EPA identified for existing sources. Greenhouse Gas Mitigation Measures Technical Support Document—Chapter 2, EPA-HQ-OAR-2013-0495-11491 (JA\_\_) (analysis showing significant potential for heat rate improvement).

Petitioners point to EPA’s acknowledgement that emission performance may degrade over time, citing this as evidence that restoring and maintaining a unit’s best historical annual emission performance is not achievable. Non-State Brief, at 57. Yet the Rule does not require units to “replicate” past performance in a vacuum. *Id.* Instead, it identifies a particular class of existing units—those undertaking large, capital-intensive modifications that significantly increase their hourly firing rate—and requires them to meet a standard they have already demonstrated they can achieve by incorporating improved operating practices, equipment upgrades or

other alternatives such as gas co-firing. Response to Comments for Modified and Reconstructed EGUs—Chapter 6, 6.1-20, EPA-HQ-OAR-2013-0603-0307 (JA\_\_).

Given the technology-forcing nature of section 111, *Sierra Club*, 657 F.2d at 364, such a modest standard is reasonable and consistent with the best system of emission reduction for modified steam units.

### **III. EPA Reasonably Based the Standards for Reconstructed Steam Units on the Performance of a Well-Operated and Maintained Unit Using the Most Efficient Available Technology**

Petitioners' critique of the reconstructed source standards is also incomplete, failing to acknowledge core legal predicates unique to the reconstruction context. First, a source qualifies as "reconstructed" only when the cost of the new components exceeds 50 percent of the cost that would be required to construct a comparable entirely new facility. 40 C.F.R. § 60.15(b). Second, unlike other standards of performance promulgated under section 111, the reconstructed source standards are triggered only if they are technically and economically feasible for the reconstructed source to meet, pursuant to applicability criteria in place since 1975. *Id.* This "inherently requires case-by-case reconstruction determinations"

based on “considerations of economic and technological feasibility.” 80 Fed. Reg. at 64,601. If a reconstructed source standard promulgated by EPA is *not* economically or technically feasible for a given unit, after case-by-case review, then the source is not a reconstructed source subject to the standard. So even if Petitioners were correct that the standards cannot be met for a particular reconstruction, what follows is not that the standards are invalid, but that the source is not “reconstructed” under section 111 of the Clean Air Act.

Not only are Petitioners’ claims regarding achievability premature, they are also rebutted by the record. EPA reasonably based the standards for reconstructed steam units on the performance of a well-operated and maintained unit using the most efficient generation technology, which has been demonstrated in commercial settings for nearly 60 years. 79 Fed. Reg. at 34,983 (world’s first commercial supercritical pressure generating unit commenced operation in 1957). EPA reviewed a wide range of potential options in its process of identifying the best system for reconstructed steam units, before concluding that use of the most



efficient generation technology was appropriate. *Id.* at 34,981-85. Nevertheless, many of the options EPA also considered remain available to reconstructed sources to meet the standard, including converting to or co-firing with natural gas. Response to Comments for Modified and Reconstructed EGUs—Chapter 5, 5.1-2, EPA-HQ-OAR-2013-0603-0306 (JA\_\_-\_\_).

Petitioners' argument also ignores the 50 percent cost threshold needed to trigger a reconstruction event. *See* 40 C.F.R. § 60.15(b). This is an exceedingly high, rarely triggered threshold that presents owners with “fundamental decisions about what type of unit to rebuild.” 79 Fed. Reg. at 34,984 (citing previous “reconstruction” that followed an explosion which necessitated rebuilding both the boiler and the accompanying steam turbine). Should an owner choose to reconstruct a unit in the future, and in the context of the significant investment this would entail, an owner can reasonably achieve emission performance consistent with widely available generation technology. EPA's decision to require sources to meet a standard consistent with the same, if economically and technologically feasible on a case-by-case basis, is amply supported

and, by definition, feasible. This is not a mandate “akin to requiring the conversion of the family station wagon into a Formula One race car” as posited by Petitioners. *Non-State Br.*, at 59. It is more like requiring someone who tears down an old vehicle to its chassis and rebuilds it using new parts, instead of purchasing a new vehicle meeting today’s fuel economy and emission standards, to at least attain the emission performance achievable by technology available in any new sedan. The requirement is not to convert to a Tesla or even a Prius; it is to rebuild as a 2016 Camry.

#### **IV. The Absence of Identified Deep Saline Formations in All Areas of the Country Does Not Render the Standards for New Steam Units Unlawful**

Petitioners argue that EPA’s best system of emission reduction for steam units is not adequately demonstrated because some geographic areas lack identified deep saline formations to support geologic sequestration. *Non-State Br.* at 27-30. They also argue that the lack of such formations in some parts of the country puts some states at a “competitive disadvantage in attracting new development” and that this “renders the Agency’s system of emission reduction unfit to serve as the basis for a nationally applicable minimum

standard.” Non-State Br. at 27. But this argument fails to acknowledge the many options available for building new fossil generation capacity that can achieve the standard even in those eleven states without identified geological storage capacity, eight of which support the Rule. State Respondent-Interv. Br. at 18-19. *See also* Respondent EPA Br. at 33-34 (identifying numerous alternatives available to affected sources, including utilization of CO<sub>2</sub> pipelines); *Amici Curiae* CCS Scientists Br. at 9, 17-19 (“Operators have decades of experience in CO<sub>2</sub> pipeline transport, and there are now thousands of miles of CO<sub>2</sub> pipelines in the U.S.”).

Petitioners’ argument also ignores the practical realities developers face in determining where to site new power plants. It is simply not the case that utilities and power plant developers have an unfettered “right” to build new generation capacity wherever they want. Rather, developers of new generation facilities—whether fossil or renewable—must take into account many factors, including proximity to transmission, access to cooling water, land use restrictions, the presence of endangered species and migratory birds, as well as limitations imposed by other Clean Air Act programs, such

as compliance with National Ambient Air Quality Standards and availability of offsets and/or prevention of significant deterioration increment. *See, e.g.*, El Paso Electric Company Comments, Attach. 4, EPA Response to Comments – Montana Power Station PSD Permit Application, 5, EPA-HQ-OAR-2013-0495-10390 (JA\_\_) (noting various siting considerations, including ownership of land, proximity to gas infrastructure, proximity to transmission tie-ins, and other limiting factors). The availability of deep saline formations is just another variable that will need to be considered by power plant developers and utilities in deciding where to build new generation capacity and what technology to use.

Because neither the Clean Air Act nor any other statute guarantees that utilities can build new fossil fuel-fired power plants wherever they want, and because there are several options available for building new fossil generation capacity that can meet the standard even in those few states without deep saline formations, the absence of identified formations in all locations does not render the Rule unlawful.

## V. EPA's "Levelized Cost of Electricity" Analysis Is a Reasonable Way to Consider Cost

Petitioners argue that it was "unfair and misleading" for EPA to compare the cost of new coal-fired generation meeting the standard through partial CCS with the cost of other forms of dispatchable base load power generation, in particular, nuclear. Non-State Br. at 37-38. But EPA has wide discretion in determining how to assess costs under section 111. *See, e.g., Lignite Energy Council v. EPA*, 198 F.3d 930, 933 (D.C. Cir. 1999); *see also Portland Cement Assoc. v. Ruckelshaus*, 486 F.2d 375, 387-88 (D.C. Cir. 1973) (finding that EPA's consideration of cost was lawful under section 111 where the agency compared the impact of compliance upon prices of a regulated source category's product versus competitive products). Its use of the "levelized cost of electricity" as but one of the ways it considered cost is not only reasonable, but consistent with how procurement decisions are commonly made within the electric sector.

As EPA found, "[t]he utility industry and electricity sector regulators often use levelized costs as a summary measure for comparing the cost of different potential generating sources." 80 Fed. Reg. at 64,561. Given prevailing market conditions, which favor

natural gas over coal for new base load capacity even in the absence of the Rule,<sup>4</sup> EPA compared the levelized costs of a new coal unit equipped with partial CCS to the costs of other non-gas alternatives that could be built in the interest of maintaining fuel diversity. *See id.* at 64,562-63. EPA found the levelized costs of a new coal unit with partial CCS to be within the range of the levelized cost for other dispatchable base load generation sources, including both nuclear and biomass. *See id.* at 64,561, 64,562, Table 8.

In light of the broad discretion afforded by section 111 for EPA to consider “cost” in establishing the best system of emission reduction and the fact that the electric sector itself uses this metric in choosing among available generation technologies to serve load, it was perfectly reasonable for EPA to consider the levelized cost of electricity as part of its overall assessment of the costs associated with the Rule’s requirements for new coal-fired units.

## CONCLUSION

The petitions for review should be denied.

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<sup>4</sup> *See* 80 Fed. Reg. at 64,612 (observing that natural gas combined-cycle units are the lowest-cost, most efficient and most common type of new fossil fuel-fired unit currently being planned and built for base load power).

Dated: December 21, 2016

Respectfully submitted,

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## CERTIFICATE OF COMPLIANCE

Pursuant to Rule 32 of the Federal Rules of Appellate Procedure and the Circuit Rules of this Court, I hereby certify that the foregoing Brief of Intervenors Calpine Corporation, the City of Austin d/b/a Austin Energy, the City of Los Angeles, by and through its Department of Water and Power, The City of Seattle, by and through its City Light Department, National Grid Generation, LLC, New York Power Authority, Pacific Gas and Electric Company and Sacramento Municipal Utility District contains 3,700 words as counted by the word-processing system used to prepare this brief. I further certify that the combined words of this brief and those filed by State Intervenors and Environmental Intervenors do not exceed the 13,300 word limit set by the Court in its August 30, 2016 Order (Document #1632712).

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**CERTIFICATE OF SERVICE**

I hereby certify that on this 21st day of December, 2016, I electronically filed the foregoing with the Clerk of the Court using the CM/ECF System, which will send notice of such filing to all registered CM/ECF users. I also caused the foregoing to be served via U.S. Mail on counsel for the following parties at the following addresses:

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