ORAL ARGUMENT NOT YET SCHEDULED

No. 15-1381 (and consolidated cases)

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

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

v.

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

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)

OPENING BRIEF OF PETITIONER-INTERVENORS

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ATTORNEYS FOR THE LIGNITE ENERGY COUNCIL AND
THE GULF COAST LIGNITE COALITION

DATED: October 24, 2016

CERTIFICATE AS TO PARTIES, RULINGS, AND RELATED CASES

Pursuant to Circuit Rule 28(a)(1), Non-State Petitioner-Intervenors state as follows:

A. Parties, Intervenors, and *Amici Curiae*

These cases involve the following parties:

Petitioners:

No. 15-1381: State of North Dakota.

No. 15-1396: Murray Energy Corporation.

No. 15-1397: Energy & Environment Legal Institute.

No. 15-1399: State of West Virginia; State of Alabama; State of Arizona Corporation Commission; State of Arkansas; State of Florida; State of Georgia; State of Indiana; State of Kansas; Commonwealth of Kentucky; State of Louisiana; State of Louisiana Department of Environmental Quality; Attorney General Bill Schuette, People of Michigan; State of Missouri; State of Montana; State of Nebraska; The North Carolina Department of Environmental Quality; State of Ohio; State of Oklahoma; State of South Carolina; State of South Dakota; State of Texas; State of Utah; State of Wisconsin; and State of Wyoming.

No. 15-1434: International Brotherhood of Boilermakers, Iron Ship Builders, Blacksmiths, Forgers & Helpers, AFL-CIO.

No. 15-1438: Peabody Energy Corporation.

No. 15-1448: Utility Air Regulatory Group and American Public Power Association.

No. 15-1456: National Mining Association.

No. 15-1458: Indiana Utility Group.

No. 15-1463: United Mine Workers of America, AFL-CIO.

No. 15-1468: Alabama Power Company; Georgia Power Company; Gulf Power Company; Mississippi Power Company; and Southern Power Company.

No. 15-1469: 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; National Lime Association; National Oilseed Processors Association; and Portland Cement Association.

No. 15-1481: American Coalition for Clean Coal Electricity.

No. 15-1482: 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. 15-1484: National Rural Electric Cooperative Association; Basin Electric Power Cooperative; East Kentucky Power Cooperative, Inc.; Hoosier Energy Rural Electric Cooperative, Inc.; Minnkota Power Cooperative, Inc.; Sunflower Electric Power Corporation; and Tri-State Generation and Transmission Association, Inc.

No. 16-1218: Murray Energy Corporation.

No. 16-1220: State of West Virginia; State of Alabama; State of Arizona Corporation Commission; State of Arkansas; State of Florida; State of Georgia; State of Indiana; State of Kansas; Commonwealth of Kentucky; State of Louisiana; State of Louisiana Department of Environmental Quality; Attorney General Bill Schuette, People of Michigan; State of Missouri; State of Montana; State of Nebraska; The North Carolina Department of Environmental Quality; State of Ohio; State of Oklahoma; State of South Carolina; State of South Dakota; State of Texas; State of Utah; State of Wisconsin; and State of Wyoming.

No. 16-1221: Utility Air Regulatory Group and American Public Power Association.

No. 16-1227: Energy & Environment Legal Institute.

Respondents:

Respondents are the United States Environmental Protection Agency (in Nos. 15-1381, 15-1397, 15-1434, 15-1448, 15-1456, 15-1463, 15-1481, 15-1484, 16-1221, 16-1227) and the United States Environmental Protection Agency and Gina

McCarthy, Administrator (in Nos. 15-1396, 15-1399, 15-1438, 15-1458, 15-1468, 15-1469, 15-1480, 15-1482, 16-1218, 16-1220).

Intervenors and *Amici Curiae*:

Lignite Energy Council and Gulf Coast Lignite Coalition are Petitioner-Intervenors.

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; Sierra Club; State of California by and through Governor Edmund G. Brown, Jr., and the California Air Resources Board, and Attorney General Kamala D. Harris; State of Connecticut; State of Delaware; State of Hawaii; State of Illinois; State of Iowa; State of Maine; State of Maryland; State of Minnesota by and through the Minnesota Pollution Control Agency; State of New Hampshire; State of New Mexico; State of New York; State of Oregon; State of Rhode Island; State of Vermont; State of Washington; Commonwealth of Massachusetts; Commonwealth of Virginia; District of Columbia; City of New York; Golden Spread Electric Cooperative, Inc.; NextEra Energy, Inc.; 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; Sacramento Municipal Utility

District; Tri-State Generation and Transmission Association, Inc. are Respondent-Intervenors.

There are no *amici curiae* in these consolidated cases.

B. Rulings Under Review

These consolidated cases involve final agency action of the United States Environmental Protection Agency entitled, "Standards of Performance for Greenhouse Gas Emissions From New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units," published on October 23, 2015, at 80 Fed. Reg. 64,510, and "Reconsideration of Standards of Performance for Greenhouse Gas Emissions From New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units," published on May 6, 2016, at 81 Fed. Reg. 27,442.

C. Related Cases

These consolidated cases have not previously been before this Court or any other court.

Per the Court's order of March 24, 2016, the following case was severed and is being held in abeyance pending potential administrative resolution of biogenic carbon dioxide emissions issues in the Final Rule: *Biogenic CO_2 Coalition v. EPA*, No. 15-1480.

CORPORATE DISCLOSURE STATEMENTS

Petitioner-Intervenors submit the following statements pursuant to Rule 26.1 of the Federal Rules of Appellate Procedure and Circuit Rule 26.1:

Petitioner-Intervenor the Lignite Energy Council ("LEC") is a regional, non-profit organization whose primary mission is to promote the continued development and use of lignite coal as an energy resource. LEC's membership includes: (1) producers of lignite coal who have an ownership interest in and who mine lignite; (2) users of lignite who operate lignite-fueled electric generating plants and the nation's only commercial scale "synfuels" plant that converts lignite into pipeline-quality natural gas; and (3) suppliers of goods and services to the lignite-coal industry. LEC has no outstanding shares or debt securities in the hands of the public and has no parent company. No publicly held company has a 10% or greater ownership interest in LEC.

Petitioner-Intervenor Gulf Coast Lignite Coalition ("GCLC") is a non-profit corporation organized under the laws of the State of Texas and comprised of individual electric generating and mining companies. GCLC participates on behalf of its members collectively in proceedings brought under United States environmental regulations, and in litigation arising from those proceedings, which affect electric generators and mines. GCLC has no outstanding shares or debt securities in the hands of the public and has no parent company. No publicly held company has a 10% or greater ownership interest in GCLC.

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GLOSSARY OF TERMS

BSER	Best System of Emission Reduction
BTU	British Thermal Unit
CAA (or Act)	Clean Air Act
CCS	Carbon Capture and Sequestration
CO_2/MWh	Carbon Dioxide per Megawatt hour
DOE	United States Department of Energy
EGU	Electric Generating Unit
EPA	United States Environmental Protection Agency
GCLC	Gulf Coast Lignite Coalition
GNPD	Great Northern Project Development
JA	Joint Appendix
LEC	Lignite Energy Council
MATS Rule	National Emission Standards for Hazardous Air Pollutants From Coal and Oil-Fired Electric Utility Steam Generating Units and Standards of Performance for Fossil-Fuel-Fired Electric Utility, Industrial-Commercial-Institutional, and Small Industrial-Commercial-Institutional Steam Generating Units, 77 Fed. Reg. 9304 (Feb. 16, 2012)
MW	Megawatt
NETL	National Energy Technology Laboratory
SCPC	Supercritical Pulverized Coal

JURISDICTIONAL STATEMENT

These consolidated cases challenge final actions of the U.S. Environmental Protection Agency ("EPA") under Section 111(b) the Clean Air Act ("CAA"), published at 80 Fed. Reg. 64,510 (Oct. 23, 2015) ("Rule" or "111(b) Rule"), Joint Appendix ("JA") ____-____, and the denial of petitions for reconsideration of the Rule published at 81 Fed. Reg. 27,442 (May 6, 2016)("Reconsideration Denial"), JA____-____. Petitions for Review of the Rule and the Reconsideration Denial were timely filed in this Court under CAA § 307(b)(1), 42 U.S.C. § 7607(b)(1). Therefore, this Court has jurisdiction under CAA § 307(b)(1).

STATEMENT OF ISSUES

1. Whether the Rule violates CAA § 111(b), 42 U.S.C. § 7411(b), because EPA failed to establish that partial Carbon Capture and Storage ("CCS") is "adequately demonstrated" for lignite-fueled electric generating units ("EGUs"). Among other things, EPA should have concluded, on this record, that partial CCS would be unreasonably expensive for lignite-fueled EGUs.

2. Whether the Rule violates CAA § 111(b) because EPA failed to demonstrate that a standard of performance of 1400 lbs CO_2/MWh is achievable for lignite-fueled EGUs.

3. Whether EPA's application of the "best system of emissions reduction" ("BSER") and "achievability" requirements in Rule 111(b) raise constitutional takings

and due process issues that could be avoided by adhering to EPA's prior understanding and application of these requirements.

STATUTES AND REGULATIONS

This case concerns a rule promulgated pursuant to a claim of authority under CAA § 111(b), 42 U.S.C. § 7411(b). The rule is codified in 40 C.F.R. Part 60, Subpart TTTT and Parts 70, 71, and 98. *See* 80 Fed. Reg. at 64,648, JA____. The addendum reproduces the pertinent regulations and statutory provisions.

STATEMENT OF THE CASE

Petitioner-Intervenors adopt and incorporate the "Introduction" and "Statement of the Case" in (1) the Opening Brief of Non-State Petitioners; (2) the State Petitioners' Opening Brief; and (3) the State of North Dakota's Opening Brief.

SUMMARY OF ARGUMENT

The 111(b) Rule establishes a "standard of performance" for new coal-fueled EGUs of 1400 lbs CO_2/MWh. EPA claims this standard can be met through its chosen BSER, which would require a utility building a new coal-fueled EGU to construct a highly efficient supercritical pulverized coal-fired boiler with post-combustion CCS and then store the captured CO_2 in "deep saline formations."

In developing this standard, EPA did not consider different types or "ranks" of coal individually. Instead, it is clear from the record that EPA first established the 1,400 lbs CO_2/MWh limit for bituminous coal and then worked backwards to try to

bring subbituminous coal under this standard, and then worked even further backwards to try to address lignite, the lowest rank of coal.

But the generation of electricity from lignite is technologically, chemically, physically, and functionally distinct from generation using other, higher ranks of coal. These distinctions are recognized by industry, regulators, and, previously, by EPA itself. For example, in the Mercury and Air Toxics Standards ("MATS") Rule, EPA created a separate lignite subcategory (distinct from all other ranks of coal).

For the 111(b) Rule, however, EPA did not establish a lignite subcategory. Instead, it lumped lignite together with subbituminous coal as "low rank" coal, and then purported to justify its standard of performance for this "low rank" coal based on data related solely to subbituminous coal.

In addition to the problems identified in Petitioners' Opening Briefs, the 111(b) Rule must be set aside as to lignite-fueled EGUs because the CCS system it used as BSER is not adequately demonstrated—among other things, on this record, it would be unreasonably expensive.

In addition, EPA failed to demonstrate that its standard of performance is achievable by lignite-fueled EGUs. By improperly treating lignite as substantially equivalent to subbituminous coal, EPA established a false baseline (the rate of emissions without CCS) for lignite, and this false baseline cannot be used to establish a standard of performance for lignite-fueled EGUs. Additionally, EPA failed to

adequately consider the technological and physical limitations that are unique to lignite-fueled generation.

STANDING AND AN INTRODUCTION TO LIGNITE

As discussed in Petitioner-Intervenors' Motion to Intervene, which was granted on January 12, 2016 (ECF 1592984), LEC and GCLC exist to promote the interests of lignite owners, lignite users, and those who sell goods and services to the lignite industry, and to help maintain a viable lignite-coal industry. This specificity of interest is relevant both to Petitioner-Intervenors' standing and, as background, to the arguments asserted in their Opening Brief.

Lignite is a type or "rank" of coal distinct from other ranks such as sub-bituminous, bituminous, and anthracite. Due to physical and other characteristics of lignite, its principle use is as fuel for EGUs. Lignite is the lowest rank of coal because it has the lowest heat content and the highest moisture content relative to other types of coal. *See* EPA-HQ-OAR-2013-0495-10556 (GCLC's comments on the proposed 111(b) Rule for new sources) ("GCLC NSPS Comments") at 8, JA ____.[1]

Lignite is not economical to transport long distances, so it is not traded on the world market like other ranks of coal. Lignite-burning EGUs are, therefore, often mine-mouth plants—power plants that are associated with the mines that supply their

[1] *See also* 40 C.F.R. § 60.5580, relying on ASTM D388-99, Standard Classification of Coals by Rank, which identifies lignite as having heating values below 8,300 Btu/lb, subbituminous coals ranging from 8,300 to 11,500 Btu/lb, and bituminous coals ranging from, generally, 10,500 Btu/lb to 14,000 Btu/lb and above.

coal. *See* EPA-HQ-OAR-2013-0495-10088 (LEC's comments on the proposed 111(b) Rule for new sources) ("LEC NSPS Comments") at 2, JA ____; GCLC NSPS Comments at 8, JA ____. These mines typically have no purpose other than to supply coal for the plant. *See* GCLC NSPS Comments at 8, JA ____.

LEC is a regional, non-profit organization whose primary mission is to promote the continued development and use of lignite coal as an energy resource, especially in North Dakota and neighboring states in the upper Midwest, and to encourage the development of the region's abundant lignite coal resources for use in generating electricity, synthetic natural gas, and other valuable by-products. LEC's membership includes: (1) producers of lignite coal who have an ownership interest in and who mine lignite; (2) users of lignite who operate lignite-fueled EGUs and the nation's only commercial scale "synfuels" plant that converts lignite into pipeline-quality natural gas; and (3) suppliers of goods and services to the lignite-coal industry. *See* LEC NSPS Comments at 2, JA ____, and www.lignite.com, cited therein.

North Dakota relies on coal-based generation for almost 80% of its electricity, and lignite powers a majority of the state's existing EGUs. LEC NSPS Comments at 2, JA ____. North Dakota has enacted legislation declaring it to be an essential government function and public purpose for the state to assist with the development of lignite resources within the state. N.D. Cent. Code § 54-17.5-01; *see also id.* §§ 57-06-17.1 (property tax abatement for CO_2 pipelines related to lignite projects); 57-60-

06 (property tax exemption for coal conversion facilities defined to include lignite projects); & 57-39.2-04.11 (sales tax exemption for lignite gasification byproducts).

Pursuant to and consistent with these statutory directives, LEC works in partnership with the State of North Dakota through programs focused on enabling, developing, promoting, and enhancing both the present and the future use of lignite. These programs include the North Dakota Lignite Research, Development and Marketing Program and the Enhance Preserve and Protect Project. These programs provide grants and funding to promote the development of new lignite-fueled EGUs in the future and of cleaner ways to burn lignite in both new and existing EGUs, including reducing emissions of CO_2. LEC Comments at 2,-4 JA ____-____, and https://www.lignite.com cited therein.

For example, as discussed in the Declaration of Michael Jones ("Jones Declr."), included as part of the addendum to Petitioner-Intervenors' Brief, one way North Dakota encourages the commercial development of lignite deposits within the state is with the Lignite Vision 21 program. Through this program, the state offers financial support to commercial lignite development, such as by sharing the cost of the early development phase of new lignite-based energy conversion facilities. Jones Declr. ¶ 4.

One such project involves the Great Northern Project Development ("GNPD"), which is a member of LEC. GNPD It is the largest private coal holder in the United States. It owns approximately 1 billion tons of lignite coal in North Dakota. *Id.* ¶ 3.

Through Lignite Vision 21, GNPD is developing a lignite energy conversion project at its South Heart, North Dakota location, with state financial support. Presently, the project is evaluating the commercial potential of using gasification with a shift reactor to produce H_2 and CO_2. The CO_2 will be separated and used for enhanced oil recovery. The H_2 will be combusted in a combined cycle power plant to produce power. Alternately, the gas created could be used to produce liquid fuels. *Id.* ¶ 5.

This project and other lignite-based projects have the potential to bring significant economic value to the state, including high paying jobs and significant tax revenue. *See id.* ¶ 6.

Texas is also a large coal-producing state, almost all of it lignite, and Louisiana and Mississippi also have active lignite mines. As discussed in LEC and GCLC's Motion to Intervene, Texas, Louisiana, and Mississippi have all enacted legislation to assist with the development of lignite resources within those states, including incentives designed to facilitate the development of Carbon Capture and Storage ("CCS") technology—on which EPA purported to rely in establishing the standard of performance challenged here. *See, e.g.*, La. Rev. Stat. §§ 30:22-23 (storage/withdrawal of carbon dioxide to/from underground reservoirs and salt domes); 30:148.2-148.9 (leasing state lands for the injection and storage of carbon dioxide); 30:209(4)(e) (carbon dioxide storage operating and revenue agreements); 30:1109-1110 (liability release provisions and establishing the "Carbon Dioxide Geologic Storage Trust

Fund"); Miss. Code §§ 27-65-19 (CCS enhanced oil recovery tax treatment); 77-3-101-129 (rate recovery for CCS projects); Tex. Tax Code §§ 11.31 (pollution control property tax exemption), 151.334 & .338 (sales tax exemption), 171.601-.602 (franchise/margins tax credit), 182.022(c) (gross receipts tax exemption), 313.021-.033 (local property tax abatements/value caps); Tex. Health & Safety Code §§ 382.003(1-a) (definition of "Advanced Clean Energy Project" making lignite projects eligible for various tax exemptions, abatements, and credits); 382.501-510 (establishing the "Texas Offshore Carbon Repository"); 386.051(b)(5), .052(b)(5), .057(b)(3), & 391.001-.304 (establishing and funding the "New Technology Implementation Program" to include lignite projects); and Tex. Nat. Res. Code § 120.001 (definition of "Clean Energy Project" making lignite projects eligible for certain tax credits).

GCLC is comprised of individual electric generating and mining companies with operations in Louisiana, Mississippi, and Texas. All of GCLC's members own and/or operate lignite-fueled power plants and/or lignite mines. Collectively, GCLC's members own and operate approximately 12,500 megawatts (MW) of installed electric generation capacity in Texas and also supply lignite fuel for and/or operate more than 1,000 MW of generation capacity in Louisiana and Mississippi. They also own significant amounts of lignite reserves, and they have paid advance royalties on additional reserves that they do not own in order to secure the rights to mine these reserves in the future. *See* Declaration of Michael Nasi ("Nasi Declr.") (attached as an addendum to Petitioner-Intervenors' Brief), JA ____.

LEC, GCLC, and their members will be harmed by the 111(b) Rule if it is upheld. Accordingly, LEC and GCLC both participated at EPA while the 111(b) Rule was being developed, and both filed comments concerning EPA's proposed 111(b) Rule.[2] Among other things, LEC, GCLC, and their members argued for a separate sub-category for lignite-fueled EGUs. In addition, GCLC and one of its members were the only commentators to point out in the original 2012 comment period that the proposed 111(b) Rule was not consistent with the Energy Policy Act of 2005 (Pub. L. 109-58), 119 Stat. 594.[3]

While every member's circumstances are different, all LEC's and GCLC's members operate lignite-related businesses that will be rendered less valuable because of the Rule. Thus, all—together with LEC and GCLC themselves—will be forced to bear a disproportionate share of the Rule's cost.

Some members of LEC and GCLC own lignite-fueled EGUs that are threatened with premature retirement by the existing source performance standards promulgated under CAA § 111(d). As explained in Petitioners' Opening Briefs, if the 111(b) Rule is set aside, the 111(d) Rule will also be vacated, as it will lack a necessary

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[2] *See* LEC NSPS Comments, JA____; GCLC NSPS Comments, JA ____; EPA-HQ-OAR-2013-0603-0249 (LEC's comments on proposed 111(b) Rule for modified and reconstructed sources) JA____; EPA-HQ-OAR-2013-0603-0289 (GCLC's comments on proposed 111(b) Rule for modified and reconstructed sources) (GCLC MRPS) JA____.

[3] *See* EPA-HQ-OAR-2011-0660-10049 (GCLC's comments on April 13, 2013 proposed 111(b) rule for new stationary sources).

prerequisite. Therefore, the owners of these EGUs have standing to challenge the 111(b) Rule as well as the 111(d) Rule.

Additionally, some members of GCLC and LEC own lignite mines and lignite reserves, as well as the rights to mine additional lignite reserves, that, but for the 111(b) Rule (and the 111(d) Rule) are worth many millions of dollars. Members have invested substantial amounts in the operation of lignite-fueled EGUs, lignite coal mines supplying these EGUs, including investments to secure lignite reserves, and businesses that provide goods and services to lignite owners and users. Nasi Declr. ¶¶ 6, 9, 12. But for the 111(b) Rule, these mines and reserves could provide fuel for newly constructed EGUs. They could also provide fuel for members' existing EGUs that are threatened with premature retirement by the 111(d) Rule.

Further, LEC, GCLC, and their members are involved and/or benefit from projects, programs and incentives, including some created by state statutes like those referenced above, that have as one of their goals the development of technologies to allow lignite to be burned in the future with fewer emissions, including fewer emissions of CO_2. *See* LEC's NSPS Comments at 2, JA____.

LEC and GCLC believe that they have standing to litigate in their own right. But even if one or both do not, they both have standing to litigate on behalf of their members. *Hunt v. Wash. State Apple Adver. Comm'n*, 432 U.S. 333, 343 (1977), *superceded by statute on other grounds as stated in United Food & Commercial Workers' Union Local 751 v. Brown Group*, 517 U.S. 544, 557 (1996).

STANDARD OF REVIEW

The Court must set aside final EPA action that is "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law; contrary to constitutional right, power, privilege or immunity; in excess of statutory jurisdiction, authority, or limitations, or short of statutory right; or without observance of procedure required by law." CAA § 307(d)(9), 42 U.S.C. § 7607(d)(9).

ARGUMENT

A. EPA failed to establish that partial CCS is "adequately demonstrated," within the meaning of § 111(b), for lignite-fueled EGUs.

As discussed in Petitioners' Opening Briefs, EPA based its standard of performance for coal-fueled EGUs in the 111(b) Rule on what it called "partial" CCS technology. LEC and GCLC have both been early, consistent, and strong supporters of research and development of "clean coal" technology, including CCS. *See* LEC NSPS Comments at 2, JA ____; GCLC NSPS Comments at 1, JA ____. But the record in this case does not support using CCS, even partial CCS, as the basis for establishing new source performance standards for coal-fueled EGUs, including lignite-fueled EGUs.

A 111(b) standard of performance for new sources of air pollution must be based on a "best system of emissions reduction" ("BSER"). To be a "BSER," a "system" must be "adequately demonstrated." CAA § 111(a)(1). To be "adequately

demonstrated," a system must, among other things, not be "unreasonably costly." *Sierra Club v. Costle*, 657 F.2d 298, 384 (D.C. Cir. 1981).

On the record before EPA, partial CCS was "unreasonably costly" for lignite-fueled EGUs (as well as other coal-fueled EGUs). Indeed, SaskPower's Boundary Dam CCS Demonstration Project—on which EPA itself relies—actually illustrates this point.

Boundary Dam is lignite fueled. 80 Fed. Reg. at 65,549, JA ____.[4] As discussed in Petitioners' Opening Briefs, it is sited near existing CO_2 pipelines, and its business model relies on the sale of captured CO_2 for enhanced oil recovery, rather than the storage of CO_2 in deep saline formations, at an additional expense, as in EPA's "system." JA ____.

To date, this business model has not been successful. As a result of the problems identified by Petitioners in their Opening Briefs, SaskPower was not able to deliver all the CO_2 it had contracted to sell, resulting in penalties.[5] And *this summer*, SaskPower was forced to renegotiate its CO_2 supply contract to avoid paying a $91

[4] Also Boundary Dam is not a stand-alone power plant, and it is not new. Boundary Dam Power Station consists of six units, one of which was retrofitted with CCS technology. This retrofitted unit is the demonstration project. The discussion of "Boundary Dam" herein refers to the Demonstration Project, not the power station as a whole.

[5] *See* Mike McKinnon, *Internal memos show SaskPower knew of multi-million dollar carbon capture losses*, GLOBAL NEWS, Oct. 27, 2015 (updated Nov. 2, 2015), available at http://globalnews.ca/news/2302017/internal-memos-show-saskpower-knew-of-multi-million-dollar-carbon-capturelosses/ (cited in Utility Air Regulatory Group, Petition for Reconsideration of Final Rule at 6 (Dec. 22, 2015), EPA-HQ-OAR-2013-0495-11894 ("UARG Reconsideration Petition"), JA____.)

million penalty. The renegotiation reportedly reduced annual revenues by about one third, not just for the first year, but over the life of the project.[6] This is significant because EPA denied petitions for reconsideration of the Rule based on its belief that the problems with Boundary Dam were typical of first-year operations and were essentially a thing of the past.[7]

Moreover, at 110 MW, *see* 80 Fed. Reg. at 64,549, JA ____, Boundary Dam is small—very small. By way of comparison, GCLC member San Miguel Electric Cooperative owns a single, 400 MW lignite-fired EGU in rural Texas south of San Antonio. Luminant's Oak Grove power plant, a lignite-fueled plant that began operation in 2010, consists of two units totaling 1600 MW of installed capacity. Standing alone, Boundary Dam was not sufficient to meet EPA's burden as to lignite-fueled units.[8] EPA cannot, in setting a standard of performance for lignite-fueled

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[6] Fraser, D.C., *SaskPower renegotiated contract to avoid $91.8M penalty*, REGINA LEADER-POST, June 13, 2016, available at http://leaderpost.com/news/politics/saskpower-renegotiated-contract-to-avoid-90m-penalty. Accordingly, Petitioner-Intervenors are directing the Court's attention to this article and the one cited in footnote 6, which were published after the Rule, and indeed, after the date to move for reconsideration of the Rule, not as material EPA should have considered, but to show that, contrary to EPA's claims, the problems at Boundary Dam are ongoing.

[7] *See* Stefani Langenegger, Sask. *Carbon Capture Plant Doubles the Price of Power*, CBC NEWS, June 17, 2016, *available at* http://www.cbc.ca/news/canada/saskatchewan/carbon-capture-power-prices-1.3641066.

[8] Further, it is no answer to say that another type of coal, or indeed, another type of fuel altogether could be used. First, the purpose of § 111 is to require BSER for new plants, not to drive a fuel source out entirely. Even assuming EPA could pursue this as a policy choice under some other section of the CAA, it may not do so

EGUs, simply ignore the financial and technical issues at actual new, lignite-fueled plants using CCS—like Boundary Dam—as if those issues did not exist, and rely instead on less relevant, non-lignite EGUs. *See, e.g.*, LEC NSPS Comments at 8-9, JA ____. And there is nothing in this record supporting the conclusion that construction of a new, lignite-fueled EGU the size of Oak Grove, and using CCS, would not be unreasonably expensive. Thus "partial CCS" should not be BSER for new lignite-fuel plants, and EPA erred in using it to set new source performance standards for them.

B. EPA failed to demonstrate that a standard of performance of 1400 lbs CO_2/MWh is achievable for lignite-fueled EGUs.

In setting the standard of performance for coal-fueled EGUs in the 111(b) Rule, EPA made no analysis of lignite separate from other ranks of coal. Instead, it lumped lignite together with subbituminous coal as "low rank" coal, and then purported to justify the standard of performance for this "low rank" coal based on data related solely to subbituminous coal.

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under § 111. Second, the availability of an alternative fuel would leave stranded the owners of lignite and lignite reserves, as well as others in coal-related businesses. As explained below, they have invested in lignite resources that, but for the 111(b) and 111(d) Rules, are worth many millions of dollars, pursuant to a government policy encouraging the building of coal-fueled power plants and making it virtually impossible to build gas plants for many years. Allowing EPA to interpret BSER as broadly as it has in the 111(b) Rule would preclude the building of new lignite-fueled plants. This in turn would raise takings issues, which could be avoided if BSER were merely given the same interpretation it has been given in prior cases.

There is nothing in the record that supports treating lignite and subbituminous coal as substantially equivalent. EPA acknowledged as much in its denial of the petitions filed to reconsider the 111(b) Rule, stating: "*it is difficult, if not impossible, to find real world examples that fully isolate the impact of burning subbituminous versus dried or undried lignite* . . . ." EPA, Basis for Denial of Petitions to Reconsider CAA Section 111(b) Standards of Performance for Greenhouse Gas Emissions from New, Modified, and Reconstructed Fossil Fuel-Fired Electric Utility Generating Units (April 2016), at 21, JA____. By treating lignite and subbituminous as equivalent, EPA erred in two respects: (1) it failed to properly define a baseline emission rate for either virgin lignite or "dried" lignite, instead imposing a subbituminous baseline without any foundation and in direct contradiction to the evidence in the record and (2) it failed to show how CCS technology can overcome the technological and physical limitations that are unique to lignite-fueled generation. The result is that the record fails to adequately demonstrate that a standard of performance of 1400 lbs CO_2/MWh is achievable for lignite-fueled EGUs.

1. EPA based lignite emissions limits on a false baseline.

EPA's baseline emissions levels—its assumptions about emission levels without the application of partial CCS—for supercritical pulverized coal ("SCPC") generation is 1,620 lbs CO_2/MWH-g for bituminous and 1,740 lbs CO_2/MWH-g for "low rank" coal—subbituminous and lignite. *See* 80 Fed. Reg. at 64,562, JA ____. In order to "assess[] the reasonableness of" the assumptions used to generate these two

standards, EPA compared these emissions to the actual emissions of the two best performing, recently constructed, SCPC EGUs burning bituminous and subbituminous coals, *but not lignite*. EPA, Achievability of the Standard for Newly Constructed Steam Generating EGUs (July 31, 2015) ("Achievability TSD") at 5-6, JA ____. This was error because it failed to properly account for the lower heating value of lignite.

Lower ranked coals have lower heating values than higher ranked coals, and lignite is the lowest rank of coal. That is significant for this Rule because heating value is directly related to potential CO_2 emissions: the lower a coal's heating value, the higher its CO_2 emissions will necessarily be *per megawatt hour*, and the more of it needs to be burned when that coal is used as a fuel for an EGU.

An independent and comprehensive analysis of the emissions rates for the different coal ranks showed the following: (1) 1,775 lbs CO_2/MWh for bituminous; (2) 1,830 lbs CO_2/MWh for subbituminous; and (3) exceeding 2,000 lbs CO_2/MWh for lignite. UARG Reconsideration Petition, Ex. J, J. Edward Cichanowicz & Michael C. Hein, Critique of the Environmental Protection Agency's Evaluation of Partial Carbon Capture and Storage as Best System for Emissions Reduction (BSER) ("Cichanowicz & Hein Report) at 3-7 (Dec. 21, 2015), EPA-HQ-OAR-2013-0495-11894, JA____. These results are noteworthy for two reasons: (1) they are all far higher than the rates discussed by EPA and (2) they also demonstrate a greater

increase in CO_2 emissions between subbituminous and lignite than between bituminous and subbituminous.

The Cichanowicz and Hein Report analyzed the actual emissions of the two newest lignite EGUs built in Texas. By contrast, EPA's analysis failed to assess achievability based on the actual emissions from the newest lignite-fired EGUs. Achievability TSD at 6, JA ____. Nonetheless, the emissions differences between subbituminous and lignite in the Cichanowicz and Hein Report are also reflected in the Low Rank DOE/NETL report relied upon by EPA, which shows that lignite generation has a CO_2 emissions rate roughly 80-90 lbs/MWh higher than subbituminous generation. DOE, NETL, Cost and Performance Baseline for Fossil Energy Plants: Vol. 3 Executive Summary: Low Rank Coal and Natural Gas to Electricity (Sept. 2011) at 5, Ex. ES-3, DOE/NETL- 2010/1399, EPA-HQ-OAR-2013-0495-11667 ("NETL Low-Rank Coal CCS Report"), JA____. EPA attempts to account for this by assuming that "lignite drying" can bring the baseline emissions of lignite down to the level of subbituminous.[9] *See, e.g.,* 80 Fed. Reg. at 64,548, JA ____. But the sole basis for this assumption is a citation to a three-page summary of a single report on lignite drying that states "drying the lignite prior to combustion in the boiler is thus an effective way to increase the thermal efficiencies and reduce the CO_2 emissions from lignite-fired power plants." Achievability TSD at 2, n.7, JA ____.

[9] As the name suggests, lignite drying reduces the moisture content of lignite.

Even if true, this is insufficient to support EPA's conclusion that the CO_2 emissions rate is the same for subbituminous coal and dried lignite. Even ignoring the Cichanowicz and Hein Report cited above, and looking only at the DOE/NETL report cited by EPA, lignite drying would have to provide such a benefit to lignite generation that it would offset at least 80-90 lbs/MWh of CO_2 emissions to make CO_2 emissions equivalent to burning subbituminous coal. But the record is devoid of any sort of numerical analysis as to thermal efficiencies and CO_2 emission reductions that can be achieved with lignite drying.

Additionally, there is nothing in the record supporting the commercial availability of lignite drying for use on new EGUs. Furthermore, EPA conducted no actual analysis of the cost of drying. Rather, EPA states that "[t]he cost of lignite drying equipment is assumed to be low compared to the cost of the carbon capture equipment." Achievability TSD at 4, Fn. 10, JA ____. EPA's cost "assum[ption]" is just that—an assumption. It is unsupported and with no clear or articulated basis. Without a cost provided, there can be no assessment of achievability. Before EPA can proceed, and actually determine if lignite drying is feasible/demonstrated, the cost must be known.

Further, EPA frames its cost comparison to the cost of the carbon capture equipment itself. According to EPA's own Achievability Assessment, the costs of 23% partial CCS for "low rank" coal is between 95-121 $/MWh, compared to 75-94 $/MWh when no CCS is used. Achievability TSD at 4, JA ____. This is, at a

minimum, a cost increase of $20/MWh (or over 26%). This is a large amount. It would be like buying a $30,000 car, only to find out that one still needs to purchase a muffler that will cost, at least, an additional $8,000. That is large enough that EPA was required to make a much more detailed showing regarding the actual availability, utility, and cost of lignite drying for new lignite-fueled EGUs than EPA actually made. Comparing the cost of lignite drying to a vague "assum[ption]" that it will be low compared to an expensive control you could put on an EGU provides no meaningful value or analysis of potential achievability of a control.

Petitioner-Intervenors fully support all of Petitioners' arguments that EPA failed to justify a standard of performance of 1400 lbs CO_2/MWh for any coal-fueled EGUs, regardless of the rank of coal used. In addition, however, given the unique characteristics of lignite, there is no basis in the record that supports treating lignite as equivalent to subbituminous coal. Because there is not, EPA's analysis—which is based on treating "dried" lignite as equivalent to subbituminous coal for purposes of CO_2 emissions—is insufficient to justify a standard of performance of 1400 lbs CO_2/MWh for lignite-fueled EGUs.

2. EPA failed to adequately consider the technological impediments to reduction of CO_2 emissions unique to lignite.

Because lignite has the lowest heating value of all ranks of coal, more of it has to be burned compared to EGUs fired by other ranks of coal—including subbituminous. *See* NETL Low-Rank Coal CCS Report at 33, JA ____. This results

in different design requirements for the boiler, the plant footprint, and the emissions controls for lignite-fueled EGUs, making them significantly larger and more expensive to construct and operate—things EPA recognized in its prior rulemaking for the Mercury and Air Toxics Standard ("MATS Rule"). *See* GCLC MRPS Comments at 2-3, JA ____.

Also, lignite also has a high content of a "tenacious ash" that can be difficult to remove from heat transfer surfaces and inhibit boiler performance. ACCCE Comments, App. 2, at 6-8, JA ____.

Additionally, as compared to other ranks of coal, lignite-fueled plants have a greater parasitic load—the amount of energy that a power plant must expend to operate emission controls, rather than providing to the electricity grid. GCLC NSPS Comments at 8, JA ____. Because EPA's performance standard is set in terms of emission per megawatt hour, any siphoning of an EGU's produced electricity to run control equipment necessarily increases its emissions on a MWh basis—because the emissions stay the same, but the amount of electricity produced and made available to the grid decreases as the parasitic load increases. CCS is an incredibly energy intensive process, meaning that these additive energy demands on EGUs necessarily will have a proportionally greater impact at lignite-fueled EGUs compared to those fueled by other ranks of coal, including subbituminous.

EPA failed to consider or account for any of these impediments to using CCS for new, lignite-fired units. Instead, as summarized by EPA, the "final standard" for

coal reflects the degree of emissions reduction EPA believes are achievable at an SCPC unit, burning bituminous coal with a particular carbon capture rate of approximately 16 percent, and operating at an 85 percent capacity factor. Achievability TSD at 1, JA ____. Other coal ranks and the CO_2 capture rate for those ranks were considered "deviat[ions]" from that target. *Id.* In other words, EPA took the 1,400 lbs CO_2/MWh standard it worked out for bituminous coal and then worked backwards to try to address subbituminous coal, and then worked even further backwards to try to address lignite. To reach this standard, EPA grouped lignite with subbituminous, without basis, established artificially low baselines, and then made assumptions about the performance that these units could meet that are not supported by any record evidence. Accordingly, EPA failed to demonstrate that a standard of performance of 1400 lbs CO_2/MWh is achievable for lignite-fueled EGUs

C. EPA could have and should have created a subcategory for lignite.[10] Had it done so, it would have properly concluded that its standard of performance was neither demonstrated or achievable for that subcategory.

In the past, EPA has not always attempted to group subbituminous and lignite together and treat them as equivalent. For example, in the MATS Rule it established a separate subcategory for lignite, distinct from all other ranks of coal.

[10] Of course, Petitioner-Intervenors' arguments related to a separate subcategory for lignite should not be construed as suggesting EPA's BSER or standard of performance were adequately demonstrated for other ranks of coal.

The purpose of the MATS rule was to limit mercury emissions from EGUs. It was EPA's most recent—and most significant—rule imposing emission limits on EGUs prior to EPA's greenhouse gas regulations. In the MATS Rule, EPA established emissions limits for both existing and new sources, with two subcategories within the coal-fired EGU category *based on heating value*: "(1) EGUs designed for coal with a heating value greater than or equal to 8,300 Btu/lb and (2) EGUs designed for low rank virgin coal." 77 Fed. Reg. 9,304, 9367 (Feb. 16, 2012) (codified at 40 C.F.R. § 63.9990). The 8,300 Btu/lb heating value is the demarcation between lignite and all other ranks of coal. *See supra*, n.1. The MATS rule, therefore, created a lignite subcategory and a non-lignite (bituminous and subbituminous) category.

Heating value is just as important to the 111(b) Rule as it was to the MATS Rule. There is no justification for EPA to create a lignite category for the latter and not for the former.[11] If EPA had established a lignite subcategory, it would have been forced to conclude that its standard of performance was neither demonstrated nor achievable for that subcategory. Therefore, EPA erred in failing to create a separate

[11] Furthermore, the other factor EPA considered in creating the special lignite subcategory in the MATS Rule were unique location requirements—specifically that many lignite-fueled EGUs are mine mouth operations. EPA stated that it "determined that these EGUs are universally constructed "at or near" a mine containing low rank virgin coal because it is not cost-effective to transport large quantities of such fuel long distances." MATS Rule, 77 Fed. Reg. 9,304, 9,378, JA ____. This factor too applies with equal force in both the MATS Rule and the 111(b) Rule.

subcategory for new lignite-fueled units to account for the differences between lignite and other ranks of coal.

D. EPA's interpretation of BSER and "achievability" raises constitutional issues that could be avoided by adhering to EPA's prior understanding.

As explained in Petitioners' Opening Briefs, in promulgating the 111(b) Rule, EPA interpreted § 111(b) differently than it had in the past. In the 111(b) Rule, EPA concluded that all that was required was that the individual component parts of its BSER were technically feasible, not that a single "system" combining all the component parts had ever been demonstrated. EPA had never so concluded previously. Nor had EPA interpreted BSER and "achievability" in a way that would prevent new coal-fueled EGUs from being constructed.

It is a fundamental principle of administrative law that, when an agency changes its interpretation of a statute, it must justify that change. And as part of that justification, it must consider the reliance of those regulated under the statute on the prior interpretation. *See Encino Motorcars, LLC v. Navarro*, 136 S. Ct. 2117, 2126 (2016); *see also Mingo Logan Coal Co. v. EPA*, 829 F.3d 710, 719-724 (D.C. Cir. 2016); *id.* at 732-41 (Kavanaugh, J. dissenting).[12]

Additionally, under the doctrine of "constitutional avoidance," a court should avoid a construction of a statute that raises serious constitutional questions if another

[12] In *Mingo Logan Coal*, the majority and the dissent agreed that reliance costs incurred by the holder of a water-discharge permit should be considered by EPA before revoking the permit. The majority, however, found that the permit holder had waived this argument.

reasonable interpretation exists that avoids them. *See Clark v. Martinez*, 543 U.S. 371, 381-82 (2005). In this case, EPA's new construction of BSER and "achievability" raise serious concerns under the Fifth Amendment's Due Process and Takings clauses.

Some of LEC's and GCLC's members own lignite mines and lignite reserves that supply coal as a fuel for EGUs and could supply fuel for new lignite-fueled EGUs. In addition, they have paid advance royalties on additional reserves they do not own in order to secure the rights to mine these reserves in the future. As discussed above, lignite has few commercial uses other than as a fuel for power plants, and, typically, the mines associated with lignite-fueled EGUs often have no purpose other than to supply coal for the plant. But for the 111(b) Rule (and the 111(d) Rule applicable to existing EGUs), these investments are worth many millions of dollars. Additionally, members have invested substantial amounts in businesses that provide goods and services to lignite owners and users.

These investments were made in reliance on EPA's prior interpretations of BSER and "achievability," pursuant to which EPA would not promulgate a standard of performance for new coal-fueled EGUs that would prevent new EGUs from being constructed. These investments were also all made pursuant to longstanding United States policy to encourage the development of coal, including lignite, as an affordable and reliable fuel for EGUs. As such, they represent the investment backed expectations of LEC's and GCLC's members, articulated as U.S. national energy

policy of both Republicans and Democrats dating back at least to the Kennedy administration.

As explained in North Dakota's Opening Brief, the 111(b) Rule would effectively prohibit the construction of new, lignite-fueled EGUs, thereby retroactively stranding substantial investments that the federal government encouraged for 50 years. This would so frustrate investment-backed expectations as to raise serious concerns under the Due Process and Takings clauses of the Fifth Amendment. *See Eastern Enters. v. Apfel*, 524 U.S. 498 (1998); *Penn Cent. Transp. Co. v. New York*, 438 U.S. 104 (1978). By contrast, an interpretation of 111(b) that limits BSER to "systems" that have been shown to be commercially viable for actual working EGUs, without government subsidies—which would be consistent with EPA's past interpretations—will likely avoid these issues. And when an agency's construction of a statute creates "an identifiable class of cases" in which the statute's application will cause a taking, the agency's construction should be rejected, without deference, in favor of one that will not cause a taking. *See Bell Atl. Tel. Cos. v. FCC*, 24 F.3d 1441, 1446-47 (D.C. Cir. 1994) (internal quotation omitted).

CONCLUSION

For the foregoing reasons, the petitions should be granted and the 111(b) Rule vacated.

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Respectfully submitted,

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CERTIFICATE OF COMPLIANCE

Pursuant to Rule 32(a)(7)(C) of the Federal Rules of Appellate Procedure and Circuit Rules 32(e)(1) and 32(e)(2)(C), I hereby certify that the foregoing final form Opening Brief of Petitioner-Intervenors contains 6,237 words, as counted by a word processing system that includes headings, footnotes, quotations, and citations in the count, and therefore is within the word limit set by the Court.

Dated: October 24, 2016

/s/ Mark Walters
Mark Walters

CERTIFICATE OF SERVICE

I hereby certify that, on this 24th day of October 2016, a copy of the foregoing Opening Brief of Petitioner-Intervenors was served electronically through the Court's CM/ECF system on all ECF-registered counsel.

/s/ Mark Walters
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