ORAL ARGUMENT SCHEDULED FOR JUNE 2, 2016

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 Petition for Review of Final Agency Action of the United States Environmental Protection Agency 80 Fed. Reg. 64,662 (Oct. 23, 2015)

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CERTIFICATE AS TO PARTIES, RULINGS, AND RELATED CASES

Pursuant to Circuit Rule 28(a)(1), Petitioners state as follows:

A. Parties, Intervenors, and *Amici Curiae*

These cases involve the following parties:

Petitioners:

No. 15-1363: State of West Virginia; State of Texas; State of Alabama; State of Arizona Corporation Commission; State of Arkansas; State of Colorado; 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; State of New Jersey; State of North Carolina Department of Environmental Quality; State of Ohio; State of South Carolina; State of South Dakota; State of Utah; State of Wisconsin; and State of Wyoming.

No. 15-1364: State of Oklahoma *ex rel.* E. Scott Pruitt, in his official capacity as Attorney General of Oklahoma and Oklahoma Department of Environmental Quality.

No. 15-1365: International Brotherhood of Boilermakers, Iron Ship Builders, Blacksmiths, Forgers & Helpers.

No. 15-1366: Murray Energy Corporation.

No. 15-1367: National Mining Association.

No. 15-1368: American Coalition for Clean Coal Electricity.

No. 15-1370: Utility Air Regulatory Group and American Public Power Association.

No. 15-1371: Alabama Power Company; Georgia Power Company; Gulf Power Company; and Mississippi Power Company.

No. 15-1372: CO_2 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: Tri-State Generation and Transmission Association, Inc.

No. 15-1375: United Mine Workers of America.

No. 15-1376: 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; East Kentucky Power Cooperative, Inc.; East River Electric Power Cooperative, Inc.; East Texas Electric Cooperative, Inc.; Georgia Transmission Corporation; Golden Spread Electrical 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 d/b/a NorthWestern Energy.

No. 15-1379: National Association of Home Builders ("NAHB").

No. 15-1380: State of North Dakota.

No. 15-1382: 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 & Steel Institute; American Wood Council; Brick Industry Association; Electricity Consumers Resource Council; Lignite Energy Council; National Lime Association; National Oilseed Processors Association; and Portland Cement Association.

No. 15-1383: 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.

No. 15-1398: Energy & Environment Legal Institute.

No. 15-1409: Mississippi Department of Environmental Quality; State of Mississippi; and Mississippi Public Service Commission.

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.

No. 15-1432: Newmont Nevada Energy Investment, LLC, and Newmont USA Limited.

No. 15-1442: The Kansas City Board of Public Utilities – Unified Government of Wyandotte County/Kansas City, Kansas.

No. 15-1451: The North American Coal Corporation; The Coteau Properties Company; Coyote Creek Mining Company, LLC; The Falkirk Mining Company; Mississippi Lignite Mining Company; North American Coal Royalty

Company; NODAK Energy Services, LLC; Otter Creek Mining Company, LLC; and The Sabine Mining Company.

No. 15-1459: Indiana Utility Group.

No. 15-1464: Louisiana Public Service Commission.

No. 15-1470: GenOn Mid-Atlantic, LLC; Indian River Power LLC; Louisiana Generating LLC; Midwest Generation, LLC; NRG Chalk Point LLC; NRG Power Midwest LP; NRG Rema LLC; NRG Texas Power LLC; NRG Wholesale Generation LP; and Vienna Power LLC.

No. 15-1472: Prairie State Generating Company, LLC.

No. 15-1474: Minnesota Power (an operating division of ALLETE, Inc.).

No. 15-1475: Denbury Onshore, LLC.

No. 15-1477: Energy-Intensive Manufacturers Working Group on Greenhouse Gas Regulation.

No. 15-1483: Local Government Coalition for Renewable Energy.

No. 15-1488: Competitive Enterprise Institute; Buckeye Institute for Public Policy Solutions; Independence Institute; Rio Grande Foundation; Sutherland Institute; Klaus J. Christoph; Samuel R. Damewood; Catherine C. Dellin; Joseph W. Luquire; Lisa R. Markham; Patrick T. Peterson; and Kristi Rosenquist.

Respondents:

Respondents are the United States Environmental Protection Agency (in Nos. 15-1364, 15-1365, 15-1367, 15-1368, 15-1370, 15-1373, 15-1374, 15-1375, 15-1376,

15-1380, 15-1383, 15-1398, 15-1410, 15-1418, 15-1442, 15-1472, 15-1474, 15-1475, 15-1483) and the United States Environmental Protection Agency and Gina McCarthy, Administrator (in Nos. 15-1363, 15-1366, 15-1371, 15-1372, 15-1377, 15-1378, 15-1379, 15-1382, 15-1386, 15-1393, 15-1409, 15-1413, 15-1422, 15-1432, 15-1451, 15-1459, 15-1464, 15-1470, 15-1477, 15-1488).

Intervenors and *Amici Curiae*:

Dixon Bros., Inc.; Gulf Coast Lignite Coalition; Joy Global Inc.; Nelson Brothers, Inc.; Norfolk Southern Corp.; Peabody Energy Corp.; and Western Explosive Systems Company are Petitioner-Intervenors.

Advanced Energy Economy; American Lung Association; American Wind Energy Association; Broward County, Florida; Calpine Corporation; Center for Biological Diversity; City of Austin d/b/a Austin Energy; City of Boulder; City of Chicago; City of Los Angeles, by and through its Department of Water and Power; City of New York; City of Philadelphia; City of Seattle, by and through its City Light Department; City of South Miami; Clean Air Council; Clean Wisconsin; Coal River Mountain Watch; Commonwealth of Massachusetts; Commonwealth of Virginia; Conservation Law Foundation; District of Columbia; Environmental Defense Fund; Kanawha Forest Coalition; Keepers of the Mountains Foundation; Mon Valley Clean Air Coalition; National Grid Generation, LLC; Natural Resources Defense Council; New York Power Authority; NextEra Energy, Inc.; Ohio Environmental Council; Ohio Valley Environmental Coalition; Pacific Gas and Electric Company; Sacramento

Municipal Utility District; Sierra Club; Solar Energy Industries Association; Southern California Edison Company; 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; and West Virginia Highlands Conservancy are Respondent-Intervenors.

Philip Zoebisch; Pedernales Electric Cooperative, Inc.; Municipal Electric Authority of Georgia; Pacific Legal Foundation; Texas Public Policy Foundation; Morning Star Packing Company; Merit Oil Company; Loggers Association of Northern California; and Norman R. "Skip" Brown are *amici curiae* in support of Petitioners.

Former EPA Administrators William D. Ruckelshaus and William K. Reilly; Institute for Policy Integrity at New York University School of Law; National League of Cities; U.S. Conference of Mayors; Baltimore, MD; Boulder County, CO; Coral Gables, FL; Grand Rapids, MI; Houston, TX; Jersey City, NJ; Los Angeles, CA; Minneapolis, MN; Pinecrest, FL; Portland, OR; Providence, RI; Salt Lake City, UT; San Francisco, CA; West Palm Beach, FL; American Thoracic Society; American Medical Association; American College of Preventive Medicine; American College of

Occupational and Environmental Medicine; and the Service Employees International Union are *amici curiae* in support of Respondents. American Sustainable Business Council and South Carolina Small Business Chamber of Commerce are movant *amici curiae* in support of Respondent.

B. Rulings Under Review

These consolidated cases involve final agency action of the United States Environmental Protection Agency titled, "Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units," and published on October 23, 2015, at 80 Fed. Reg. 64,662.

C. Related Cases

These consolidated cases have not previously been before this Court or any other court. Counsel is aware of five related cases that, as of the time of filing, have appeared before this Court:

(1) *In re Murray Energy Corporation*, No. 14-1112,

(2) *Murray Energy Corporation v. EPA*, No. 14-1151 (consolidated with No. 14-1112),

(3) *State of West Virginia v. EPA*, No. 14-1146,

(4) *In re: State of West Virginia*, No. 15-1277, and

(5) *In re Peabody Energy Corporation*, No. 15-1284 (consolidated with No. 15-1277).

Per the Court's order of January 21, 2016, the following cases are consolidated and being held in abeyance pending potential administrative resolution of biogenic

carbon dioxide emissions issues in the Final Rule: *National Alliance of Forest Owners v. EPA*, No. 15-1478; *Biogenic CO2 Coalition v. EPA*, No. 15-1479; and *American Forest & Paper Association, Inc. and American Wood Council v. EPA*, No. 15-1485.

CORPORATE DISCLOSURE STATEMENTS

Non-governmental Petitioners submit the following statements pursuant to Rule 26.1 of the Federal Rules of Appellate Procedure and Circuit Rule 26.1:

Alabama Power Company is a wholly-owned subsidiary of Southern Company, which is a publicly held corporation. Other than Southern Company, no publicly-held company owns 10% or more of Alabama Power Company's stock. Southern Company is traded publicly on the New York Stock Exchange under the symbol "SO."

American Coalition for Clean Coal Electricity ("ACCCE") is a partnership of companies that are involved in the production of electricity from coal. ACCCE recognizes the inextricable linkage between energy, the economy and our environment. Toward that end, ACCCE supports policies that promote the wise use of coal, one of America's largest domestically produced energy resources, to ensure a reliable and affordable supply of electricity to meet our nation's demand for energy. The ACCCE is a "trade association" within the meaning of Circuit Rule 26.1(b). It has no parent corporation, and no publicly held company owns a 10% or greater interest in the ACCCE.

American Public Power Association ("APPA") is the national association of publicly-owned electric utilities. APPA has no outstanding shares or debt securities in the hands of the public. APPA has no parent company. No publicly held company has a 10% or greater ownership in APPA.

Arizona Electric Power Cooperative, Inc. has no parent corporation. No publicly held corporation owns any portion of Arizona Electric Power Cooperative, Inc., and it is not a subsidiary or an affiliate of any publicly owned corporation.

Associated Electric Cooperative, Inc. has no parent corporation. No publicly held corporation owns any portion of Associated Electric Cooperative, Inc., and it is not a subsidiary or an affiliate of any publicly owned corporation.

Association of American Railroads ("AAR") is a nonprofit trade association whose members include all of the Class I freight railroads (the largest freight railroads), as well as some smaller freight railroads and Amtrak. AAR represents its member railroads in proceedings before Congress, the courts, and administrative agencies in matters of common interest, such as the issues that are the subject matter of this litigation. AAR is a "trade association" within the meaning of Circuit Rule 26.1(b). It

has no parent corporation, and no publicly held company owns a 10% or greater interest in AAR.

Basin Electric Power Cooperative ("Basin Electric") is a not-for-profit regional wholesale electric generation and transmission cooperative owned by over 100 member cooperatives. Basin Electric provides wholesale power to member rural electric systems in nine states, with electric generation facilities in North Dakota, South Dakota, Wyoming, Montana, and Iowa serving approximately 2.9 million customers. Basin Electric has no parent companies. There are no publicly held corporations that have a 10% or greater ownership interest in Basin Electric.

Big Brown Lignite Company, LLC is a wholly owned subsidiary of Luminant Holding Company LLC, which is a Delaware limited liability company and is a wholly owned subsidiary of Texas Competitive Electric Holdings Company LLC ("TCEH"). TCEH is a Delaware limited liability company and is a wholly owned subsidiary of Energy Future Competitive Holdings Company ("EFCH"), which is a Texas corporation and a wholly owned subsidiary of Energy Future Holdings Corp. ("EFH Corp."). Substantially all of the common stock of EFH Corp., a Texas corporation, is owned by Texas Energy Future Holdings Limited Partnership, which is a privately held limited partnership. No publicly held entities have a 10% or greater equity ownership interest in EFH Corp.

Big Brown Power Company, LLC is a wholly owned subsidiary of Luminant Holding Company LLC, which is a Delaware limited liability company and is a wholly owned subsidiary of Texas Competitive Electric Holdings Company LLC ("TCEH"). TCEH is a Delaware limited liability company and is a wholly owned subsidiary of Energy Future Competitive Holdings Company ("EFCH"), which is a Texas corporation and a wholly owned subsidiary of Energy Future Holdings Corp. ("EFH Corp."). Substantially all of the common stock of EFH Corp., a Texas corporation, is owned by Texas Energy Future Holdings Limited Partnership, which is a privately held limited partnership. No publicly held entities have a 10% or greater equity ownership interest in EFH Corp.

Big Rivers Electric Corporation has no parent corporation. No publicly held corporation owns any portion of Big Rivers Electric Corporation, and it is not a subsidiary or an affiliate of any publicly owned corporation.

Brazos Electric Power Cooperative, Inc. has no parent corporation. No publicly held corporation owns any portion of Brazos Electric Power Cooperative, Inc., and it is not a subsidiary or an affiliate of any publicly owned corporation.

Buckeye Institute for Public Policy Solutions ("Buckeye Institute") is a nonprofit organization incorporated in Ohio under Section 501(c)(3) of the Internal Revenue Code. The Buckeye Institute seeks to improve Ohio policies by performing research and promoting market-oriented policy solutions. No parent company or publicly-held company has a 10% or greater ownership interest in the Buckeye Institute.

Buckeye Power, Inc. has no parent corporation. No publicly held corporation owns any portion of Buckeye Power, Inc., and it is not a subsidiary or an affiliate of any publicly owned corporation.

Central Montana Electric Power Cooperative has no parent corporation. No publicly held corporation owns any portion of Central Montana Electric Power Cooperative, and it is not a subsidiary or an affiliate of any publicly owned corporation.

Central Power Electric Cooperative, Inc. has no parent corporation. No publicly held corporation owns any portion of Central Power Electric Cooperative, Inc., and it is not a subsidiary or an affiliate of any publicly owned corporation.

CO_2 Task Force of the Florida Electric Power Coordinating Group, Inc. ("FCG") is a non-profit, non-governmental corporate entity organized under the laws of Florida. The FCG does not have a parent corporation. No publicly held corporation owns 10% or more of the FCG's stock.

Competitive Enterprise Institute ("CEI") is a nonprofit organization incorporated in Washington D.C. under Section 501(c)(3) of the Internal Revenue Code. CEI focuses on advancing market approaches to regulatory issues. No parent company or publicly-held company has a 10% or greater ownership interest in CEI.

Corn Belt Power Cooperative has no parent corporation. No publicly held corporation owns any portion of Corn Belt Power Cooperative, and it is not a subsidiary or an affiliate of any publicly owned corporation.

Coteau Properties Company ("Coteau Properties") is a wholly-owned subsidiary of The North American Coal Corporation ("NACoal"). No publicly held entity has a 10% or greater ownership interest in Coteau Properties. The general nature and purpose of Coteau Properties, insofar as relevant to this litigation, is the mining and marketing of lignite coal as fuel for power generation in North Dakota.

Coyote Creek Mining Company, LLC ("Coyote Creek Mining") is a wholly-owned subsidiary of NACoal. No publicly held entity has a 10% or greater ownership interest

in Coyote Creek Mining. The general nature and purpose of Coyote Creek Mining, insofar as relevant to this litigation, is the mining and marketing of lignite coal as fuel for power generation in North Dakota.

Dairyland Power Cooperative has no parent corporation. No publicly held corporation owns any portion of Dairyland Power Cooperative, and it is not a subsidiary or an affiliate of any publicly owned corporation.

Denbury Onshore, LLC is a wholly owned subsidiary of Denbury Resources Inc., a publicly held corporation whose shares are listed on the New York Stock Exchange. Other than Denbury Resources Inc., no publicly-held company owns 10% or more of any of Petitioner's stock and no publicly-held company holds 10% or more of Denbury Resources, Inc., stock. The stock of Denbury Resources, Inc. is traded publicly on the New York Stock Exchange under the symbol "DNR." Denbury is an oil and gas production company. As a part of its oil recovery operations (generally termed "tertiary" or "enhanced" recovery) that are performed in several states, Denbury, with its affiliated companies, produces, purchases, transports, and injects carbon dioxide for the purpose of the recovery of hydrocarbon resources.

Deseret Generation & Transmission Co-operative has no parent corporation. No publicly held corporation owns any portion of Deseret Generation & Transmission Co-operative, and it is not a subsidiary or an affiliate of any publicly owned corporation.

East Kentucky Power Cooperative, Inc. has no parent corporation. No publicly held corporation owns any portion of East Kentucky Power Cooperative, Inc., and it is not a subsidiary or an affiliate of any publicly owned corporation.

East River Electric Power Cooperative, Inc. has no parent corporation. No publicly held corporation owns any portion of East River Electric Power Cooperative, Inc., and it is not a subsidiary or an affiliate of any publicly owned corporation.

East Texas Electric Cooperative, Inc. has no parent corporation. No publicly held corporation owns any portion of East Texas Electric Cooperative, Inc., and it is not a subsidiary or an affiliate of any publicly owned corporation.

Energy-Intensive Manufacturers Working Group on Greenhouse Gas Regulation ("EIM") is a coalition of individual companies. EIM has no outstanding shares or debt securities in the hands of the public. EIM has no parent corporation, and no publicly held company has 10% or greater ownership in EIM.

Entergy Corporation ("Entergy") is a publicly traded company incorporated in the State of Delaware, with its principal place of business in the city of New Orleans, Louisiana. Entergy does not have any parent companies that have a 10% or greater ownership interest in Entergy. Further, there is no publicly-held company that has a 10% or greater ownership interest in Entergy. Entergy is an integrated energy company engaged primarily in electric power production and electric retail distribution operations. Entergy delivers electricity to approximately 2.8 million customers in Arkansas, Louisiana, Mississippi, and Texas.

Falkirk Mining Company ("Falkirk Mining") is a wholly-owned subsidiary of NACoal. No publicly held entity has a 10% or greater ownership interest in Falkirk Mining. The general nature and purpose of Falkirk Mining, insofar as relevant to this litigation, is the mining and marketing of lignite coal as fuel for power generation in North Dakota.

GenOn Mid-Atlantic, LLC exists to provide safe, reliable, and affordable electric power to consumers. It is a limited liability corporation wholly owned by NRG North America LLC, a limited liability corporation wholly owned by GenOn Americas Generation, LLC. GenOn Americas Generation, LLC is a limited liability corporation wholly owned by NRG Americas, Inc. NRG Americas, Inc. is a corporation wholly owned by GenOn Energy Holdings, Inc., a corporation wholly owned by GenOn Energy, Inc. GenOn Energy, Inc. is a corporation wholly owned by NRG Energy, Inc. a Delaware publicly-traded corporation. NRG Energy, Inc. has no parent corporation. As of the last reporting period, T. Rowe Price Associates, Inc. held a 10% or greater ownership in NRG Energy, Inc. As of the last reporting period, T. Rowe Price Associates, Inc. was a subsidiary of T. Rowe Price Group, Inc., a publicly-traded company.

Georgia Power Company is a wholly-owned subsidiary of Southern Company, which is a publicly held corporation. Other than Southern Company, no publicly-held company owns 10% or more of Georgia Power Company's stock. Southern Company is traded publicly on the New York Stock Exchange under the symbol "SO."

Georgia Transmission Corporation has no parent corporation. No publicly held corporation owns any portion of Georgia Transmission Corporation, and it is not a subsidiary or an affiliate of any publicly owned corporation.

Golden Spread Electrical Cooperative, Inc. has no parent corporation. No publicly held corporation owns any portion of Golden Spread Electrical Cooperative, Inc., and it is not a subsidiary or an affiliate of any publicly owned corporation.

Gulf Power Company is a wholly-owned subsidiary of Southern Company, which is a publicly held corporation. Other than Southern Company, no publicly-held company owns 10% or more of Gulf Power Company's stock. Southern Company is traded publicly on the New York Stock Exchange under the symbol "SO."

Hoosier Energy Rural Electric Cooperative, Inc. has no parent corporation. No publicly held corporation owns any portion of Hoosier Energy Rural Electric Cooperative, Inc., and it is not a subsidiary or an affiliate of any publicly owned corporation.

Independence Institute is a nonprofit organization incorporated in Colorado under Section 501(c)(3) of the Internal Revenue Code. The Independence Institute is a public policy think tank whose purpose is to educate citizens, legislators, and opinion makers in Colorado about policies that enhance personal and economic freedom. No parent company or publicly-held company has a 10% or greater ownership interest in the Independence Institute.

Indian River Power LLC exists to provide safe, reliable, and affordable electric power to consumers. It is a limited liability corporation wholly owned by NRG Energy, Inc., a Delaware publicly-traded corporation. NRG Energy, Inc. has no parent corporation. As of the last reporting period, T. Rowe Price Associates, Inc. held a 10% or greater ownership in NRG Energy, Inc. As of the last reporting period, T. Rowe Price Associates, Inc. was a subsidiary of T. Rowe Price Group, Inc. a publicly-traded company.

Indiana Utility Group ("IUG") is a continuing association of individual electric generating companies operated for the purpose of promoting the general interests of the membership of electric generators. IUG has no outstanding shares or debt securities in the hand of the public and has no parent company. No publicly held company has a 10% or greater ownership interest in IUG.

International Brotherhood of Boilermakers, Iron Ship Builders, Blacksmiths, Forgers, and Helpers ("IBB") is a non-profit national labor organization with headquarters in Kansas City, Kansas. IBB's members are active and retired members engaged in various skilled trades of welding and fabrication of boilers, ships, pipelines, and other industrial facilities and equipment in the United States and Canada, and workers in other industries in the United States organized by the IBB. IBB provides collective bargaining representation and other membership services on behalf of its members. IBB is affiliated with the American Federation of Labor-Congress of Industrial Organizations. IBB and its affiliated lodges own approximately 60% of the outstanding stock of Brotherhood Bancshares, Inc., the holding company of the Bank

of Labor. Bank of Labor's mission is to serve the banking and other financial needs of the North American labor movement. No entity owns 10% or more of IBB.

International Brotherhood of Electrical Workers, AFL-CIO ("IBEW") is a non-profit national labor organization with headquarters located at 900 7th Street, N.W., Washington, D.C. 20001. IBEW's members are active and retired skilled electricians and related professionals engaged in a broad array of U.S. industries, including the electrical utility, coal mining, and railroad transportation sectors that stand to be impacted adversely by implementation of EPA's final agency action. IBEW provides collective bargaining representation and other membership services and benefits on behalf of its members. IBEW is affiliated with the American Federation of Labor-Congress of Industrial Organizations. IBEW has no parent companies, subsidiaries, or affiliates that have issued shares or debt securities to the public.

Kansas Electric Power Cooperative, Inc. has no parent corporation. No publicly held corporation owns any portion of Kansas Electric Power Cooperative, Inc., and it is not a subsidiary or an affiliate of any publicly owned corporation.

LG&E and KU Energy LLC is the holding company for Louisville Gas and Electric Company ("LG&E") and Kentucky Utilities Company ("KU"), regulated utilities that serve a total of 1.2 million customers. LG&E serves 321,000 natural gas and 400,000 electric customers in Louisville, Kentucky and 16 surrounding counties, whereas KU serves 543,000 customers in 77 Kentucky counties and five counties in Virginia. LG&E and KU Energy LLC is a wholly-owned subsidiary of PPL Corporation. Other than PPL Corporation, no publicly-held company owns 10% or more of any of LG&E and KU Energy LLC's membership interests. No publicly held company has a 10% or greater ownership interest in PPL Corporation.

Local Government Coalition for Renewable Energy ("Coalition") is a not-for-profit association of local government entities, including cities, counties and special purpose authorities. Working in coordination with the Municipal Waste Management Association, the environmental affiliate of the U.S. Conference of Mayors, the Coalition participates in state and federal regulatory proceedings, as well as judicial review proceedings, that affect operation of waste-to-energy facilities for management of municipal solid waste. None of the Coalition members have issued stock, partnership shares or any similar indicia of ownership interests, and none of the Coalition members have a parent corporation. As noted below, the Coalition joins this brief with respect to Arguments III.A and III.B.

Louisiana Generating LLC exists to provide safe, reliable, and affordable electric power to consumers. It is a limited liability corporation wholly owned by NRG South

Central Generating LLC, a limited liability corporation which in turn is wholly owned by NRG Energy, Inc., a Delaware publicly-traded corporation. NRG Energy, Inc. has no parent corporation. As of the last reporting period, T. Rowe Price Associates, Inc. held a 10% or greater ownership in NRG Energy, Inc. As of the last reporting period, T. Rowe Price Associates, Inc. was a subsidiary of T. Rowe Price Group, Inc. a publicly-traded company.

Luminant Big Brown Mining Company, LLC is a wholly owned subsidiary of Luminant Holding Company LLC, which is a Delaware limited liability company and is a wholly owned subsidiary of Texas Competitive Electric Holdings Company LLC ("TCEH"). TCEH is a Delaware limited liability company and is a wholly owned subsidiary of Energy Future Competitive Holdings Company ("EFCH"), which is a Texas corporation and a wholly owned subsidiary of Energy Future Holdings Corp. ("EFH Corp."). Substantially all of the common stock of EFH Corp., a Texas corporation, is owned by Texas Energy Future Holdings Limited Partnership, which is a privately held limited partnership. No publicly held entities have a 10% or greater equity ownership interest in EFH Corp.

Luminant Generation Company, LLC is a wholly owned subsidiary of Luminant Holding Company LLC, which is a Delaware limited liability company and is a wholly owned subsidiary of Texas Competitive Electric Holdings Company LLC ("TCEH"). TCEH is a Delaware limited liability company and is a wholly owned subsidiary of Energy Future Competitive Holdings Company ("EFCH"), which is a Texas corporation and a wholly owned subsidiary of Energy Future Holdings Corp. ("EFH Corp."). Substantially all of the common stock of EFH Corp., a Texas corporation, is owned by Texas Energy Future Holdings Limited Partnership, which is a privately held limited partnership. No publicly held entities have a 10% or greater equity ownership interest in EFH Corp.

Luminant Mining Company, LLC is a wholly owned subsidiary of Luminant Holding Company LLC, which is a Delaware limited liability company and is a wholly owned subsidiary of Texas Competitive Electric Holdings Company LLC ("TCEH"). TCEH is a Delaware limited liability company and is a wholly owned subsidiary of Energy Future Competitive Holdings Company ("EFCH"), which is a Texas corporation and a wholly owned subsidiary of Energy Future Holdings Corp. ("EFH Corp."). Substantially all of the common stock of EFH Corp., a Texas corporation, is owned by Texas Energy Future Holdings Limited Partnership, which is a privately held limited partnership. No publicly held entities have a 10% or greater equity ownership interest in EFH Corp.

Midwest Generation LLC exists to provide safe, reliable, and affordable electric power to consumers. It is a limited liability corporation wholly owned by Midwest Generation Holdings II, LLC. Midwest Generation Holdings II, LLC is a limited liability corporation wholly owned by Midwest Generation Holdings I, LLC. Midwest Generation Holdings I, LLC is a limited liability corporation 95% of which is owned by Mission Midwest Coal, LLC and 5% of which is owned by Midwest Generation Holdings Limited, which in turn is wholly owned by Mission Midwest Coal, LLC. Mission Midwest Coal, LLC is a limited liability corporation wholly owned by NRG Midwest Holdings LLC, which in turn is a limited liability corporation wholly owned by Midwest Generation EME, LLC. Midwest Generation EME, LLC is a limited liability corporation wholly owned by NRG Energy Holdings Inc. which is a corporation wholly owned by NRG Acquisition Holdings Inc. NRG Acquisition Holdings is a corporation wholly owned by NRG Energy, Inc., a Delaware publicly-traded corporation. NRG Energy, Inc. has no parent corporation. As of the last reporting period, T. Rowe Price Associates, Inc. held a 10% or greater ownership in NRG Energy, Inc. As of the last reporting period, T. Rowe Price Associates, Inc. was a subsidiary of T. Rowe Price Group, Inc. a publicly-traded company.

Minnesota Power is an operating division of ALLETE, Inc. No publicly-held company has a 10% or greater ownership interest in ALLETE, Inc.

Minnkota Power Cooperative, Inc. has no parent corporation. No publicly held corporation owns any portion of Minnkota Power Cooperative, Inc., and it is not a subsidiary or an affiliate of any publicly owned corporation.

Mississippi Lignite Mining Company ("Mississippi Lignite Mining") is a wholly-owned subsidiary of NACoal. No publicly held entity has a 10% or greater ownership interest in Mississippi Lignite Mining. The general nature and purpose of Mississippi Lignite Mining, insofar as relevant to this litigation, is the mining and marketing of lignite coal as fuel for power generation in Mississippi.

Mississippi Power Company is a wholly-owned subsidiary of Southern Company, which is a publicly held corporation. Other than Southern Company, no publicly-held company owns 10% or more of Mississippi Power Company's stock. Southern Company is traded publicly on the New York Stock Exchange under the symbol "SO."

Montana-Dakota Utilities Co. is engaged in the distribution of natural gas and the generation, transmission, and distribution of electricity in the states of North Dakota, South Dakota, Montana, and Wyoming. Montana-Dakota Utilities Co. is a division of

MDU Resources Group, Inc. No publicly held company has a 10% or greater ownership interest in MDU Resources Group, Inc.

Murray Energy Corporation has no parent corporation and no publicly held corporation owns 10% or more of its stock. Murray Energy Corporation is the largest privately-held coal company and largest underground coal mine operator in the United States.

National Association of Home Builders ("NAHB") is a not-for-profit trade association organized under the laws of Nevada. NAHB does not have any parent companies that have a 10% or greater ownership interest in NAHB. Further, there is no publicly-held company that has a 10% or greater ownership interest in NAHB. NAHB has issued no shares of stock to the public. NAHB is comprised of approximately 800 state and local home builders associations with whom it is affiliated, but all of those associations are, to the best of NAHB's knowledge, nonprofit corporations that have not issued stock to the public. NAHB's purpose is to promote the general commercial, professional, and legislative interests of its approximately 140,000 builder and associate members throughout the United States. NAHB's membership includes entities that construct and supply single-family homes, as well as apartment, condominium, multi-family, commercial, and industrial builders, land developers, and remodelers.

National Rural Electric Cooperative Association has no parent corporation. No publicly held corporation owns any portion of National Rural Electric Cooperative Association, and it is not a subsidiary or an affiliate of any publicly owned corporation.

Newmont Nevada Energy Investment, LLC is a wholly-owned subsidiary of Newmont USA Limited and is the owner and operator of the TS Power Plant, a 242 MW coal-fired power plant located in Eureka County, Nevada, which provides power to Newmont USA Limited's mining operations. No other publicly held corporation owns 10% or more of the stock of Newmont Nevada Energy Investment, LLC.

Newmont USA Limited owns and operates 11 surface gold and copper mines, eight underground mines, and 13 processing facilities in Nevada that are served by the TS Power Plant. Newmont USA Limited is a wholly owned subsidiary of Newmont Mining Corporation and no other publicly held corporation owns 10% or more of its stock.

NODAK Energy Services, LLC ("NODAK") is a wholly-owned subsidiary of NACoal. No publicly held entity has a 10% or greater ownership interest in NODAK.

The general nature and purpose of NODAK, insofar as relevant to this litigation, is the operation of a lignite benefication facility within Great River Energy's Coal Creek Station, a lignite-fired power generating station in North Dakota.

The North American Coal Corporation ("NACoal") is a wholly-owned subsidiary of NACCO Industries, Inc. NACoal is not publicly held, but NACCO Industries, Inc., its parent, is a publicly traded corporation that owns more than 10% of the stock of NACoal. No other publicly-held corporation owns more than 10% of the stock of NACoal. The general nature and purpose of NACoal, insofar as relevant to this litigation, is the mining and marketing of lignite coal as fuel for power generation and the provision of mining services to natural resources companies.

North American Coal Royalty Company ("North American Coal Royalty") is a wholly-owned subsidiary of NACoal. No publicly held entity has a 10% or greater ownership interest in North American Coal Royalty. The general nature and purpose of North American Coal Royalty, insofar as relevant to this litigation, is the acquisition and disposition of mineral and surface interests in support of NACoal's mining of lignite coal as fuel for power generation and the provision of mining services to natural resources companies.

North Carolina Electric Membership Corporation has no parent corporation. No publicly held corporation owns any portion of North Carolina Electric Membership Corporation, and it is not a subsidiary or an affiliate of any publicly owned corporation.

Northeast Texas Electric Cooperative, Inc. has no parent corporation. No publicly held corporation owns any portion of Northeast Texas Electric Cooperative, Inc., and it is not a subsidiary or an affiliate of any publicly owned corporation.

Northwest Iowa Power Cooperative has no parent corporation. No publicly held corporation owns any portion of Northwest Iowa Power Cooperative, and it is not a subsidiary or an affiliate of any publicly owned corporation.

NorthWestern Corporation is a publicly traded company (NYSE: NWE) incorporated in the State of Delaware with corporate offices in Butte, Montana and Sioux Falls, South Dakota. NorthWestern Corporation has no parent corporation. As of February 17, 2016, based on a review of statements filed with the Securities and Exchange Commission pursuant to Sections 13(d), 13(f), and 13(g) of the Securities and Exchange Act of 1934, as amended, BlackRock Fund Advisors is the only shareholder owning more than 10% or more of NorthWestern Corporation's stock.

In addition to publicly traded stock, NorthWestern Corporation has issued debt and bonds to the public.

NRG Chalk Point LLC exists to provide safe, reliable, and affordable electric power to consumers. It is wholly owned by GenOn Mid-Atlantic, LLC. GenOn Mid-Atlantic, LLC is a limited liability corporation wholly owned by NRG North America LLC, a limited liability corporation wholly owned by GenOn Americas Generation, LLC. GenOn Americas Generation, LLC is a limited liability corporation wholly owned by NRG Americas, Inc. NRG Americas, Inc. is a corporation wholly owned by GenOn Energy Holdings, Inc., a corporation wholly owned by GenOn Energy, Inc. GenOn Energy, Inc. is a corporation wholly owned by NRG Energy, Inc., a Delaware publicly-traded corporation. NRG Energy, Inc. has no parent corporation. As of the last reporting period, T. Rowe Price Associates, Inc. held a 10% or greater ownership in NRG Energy, Inc. As of the last reporting period, T. Rowe Price Associates, Inc. was a subsidiary of T. Rowe Price Group, Inc. a publicly-traded company.

NRG Power Midwest LP exists to provide safe, reliable, and affordable electric power to consumers. It is a limited partnership 99% of which is owned by NRG Power Generation Assets LLC and 1% of which is owned by NRG Power Midwest GP LLC, a limited liability corporation wholly owned by NRG Power Generation Assets LLC. NRG Power Generation Assets LLC is a limited liability corporation wholly owned by NRG Power Generation LLC, which is a limited liability corporation wholly owned by NRG Americas, Inc. NRG Americas, Inc. is a corporation wholly owned by GenOn Energy Holdings, Inc., a corporation wholly owned by GenOn Energy, Inc. GenOn Energy, Inc. is a corporation wholly owned by NRG Energy, Inc., a Delaware publicly-traded corporation. NRG Energy, Inc. has no parent corporation. As of the last reporting period, T. Rowe Price Associates, Inc. held a 10% or greater ownership in NRG Energy, Inc. As of the last reporting period, T. Rowe Price Associates, Inc. was a subsidiary of T. Rowe Price Group, Inc. a publicly-traded company.

NRG Rema LLC exists to provide safe, reliable, and affordable electric power to consumers. It is a limited liability corporation wholly owned by NRG Northeast Generation, Inc., a corporation wholly owned by NRG Northeast Holdings Inc. NRG Northeast Holdings Inc. is a corporation wholly owned by NRG Power Generation LLC, a limited liability corporation wholly owned by NRG Americas, Inc. NRG Americas, Inc. is a corporation wholly owned by GenOn Energy Holdings, Inc., a corporation wholly owned by GenOn Energy, Inc. GenOn Energy, Inc. is a corporation wholly owned by NRG Energy, Inc., a Delaware publicly-traded corporation. NRG Energy, Inc. has no parent corporation. As of the last reporting

period, T. Rowe Price Associates, Inc. held a 10% or greater ownership in NRG Energy, Inc. As of the last reporting period, T. Rowe Price Associates, Inc. was a subsidiary of T. Rowe Price Group, Inc. a publicly-traded company.

NRG Texas Power LLC exists to provide safe, reliable, and affordable electric power to consumers. It is a limited liability corporation wholly owned by NRG Texas LLC, which in turn is a limited liability corporation wholly owned by NRG Energy, Inc., a Delaware publicly-traded corporation. NRG Energy, Inc. has no parent corporation. As of the last reporting period, T. Rowe Price Associates, Inc. held a 10% or greater ownership in NRG Energy, Inc. As of the last reporting period, T. Rowe Price Associates, Inc. was a subsidiary of T. Rowe Price Group, Inc. a publicly-traded company.

NRG Wholesale Generation LP exists to provide safe, reliable, and affordable electric power to consumers. It is a limited partnership 99% owned by NRG Power Generation Assets LLC and 1% owned by NRG Wholesale Generation GP LLC, both of which are wholly owned by NRG Power Generation LLC. NRG Power Generation LLC is a limited liability corporation wholly owned by NRG Americas, Inc. NRG Americas, Inc. is a corporation wholly owned by GenOn Energy Holdings, Inc., a corporation wholly owned by GenOn Energy, Inc. GenOn Energy, Inc. is a corporation wholly owned by NRG Energy, Inc., a Delaware publicly-traded corporation. NRG Energy, Inc. has no parent corporation. As of the last reporting period, T. Rowe Price Associates, Inc. held a 10% or greater ownership in NRG Energy, Inc. As of the last reporting period, T. Rowe Price Associates, Inc. was a subsidiary of T. Rowe Price Group, Inc. a publicly-traded company.

Oak Grove Management Company, LLC is a wholly owned subsidiary of Luminant Holding Company LLC, which is a Delaware limited liability company and is a wholly owned subsidiary of Texas Competitive Electric Holdings Company LLC ("TCEH"). TCEH is a Delaware limited liability company and is a wholly owned subsidiary of Energy Future Competitive Holdings Company ("EFCH"), which is a Texas corporation and a wholly owned subsidiary of Energy Future Holdings Corp. ("EFH Corp."). Substantially all of the common stock of EFH Corp., a Texas corporation, is owned by Texas Energy Future Holdings Limited Partnership, which is a privately held limited partnership. No publicly held entities have a 10% or greater equity ownership interest in EFH Corp.

Oglethorpe Power Corporation has no parent corporation. No publicly held corporation owns any portion of Oglethorpe Power Corporation, and it is not a subsidiary or an affiliate of any publicly owned corporation.

Otter Creek Mining Company, LLC ("Otter Creek") is a wholly-owned subsidiary of NACoal. No publicly held entity has a 10% or greater ownership interest in Otter Creek. The general nature and purpose of Otter Creek, insofar as relevant to this litigation, is the development of a mine to deliver lignite coal as fuel for power generation in North Dakota.

PowerSouth Energy Cooperative has no parent corporation. No publicly held corporation owns any portion of PowerSouth Energy Cooperative, and it is not a subsidiary or an affiliate of any publicly owned corporation.

Prairie Power, Inc. has no parent corporation. No publicly held corporation owns any portion of Prairie Power, Inc., and it is not a subsidiary or an affiliate of any publicly owned corporation.

Prairie State Generating Company, LLC ("PSGC") is a private non-governmental corporation that is principally engaged in the business of generating electricity for cooperatives and public power companies. PSGC does not have a parent corporation and no publicly-held corporation owns ten% or more of its stock.

Rio Grande Foundation is a nonprofit organization incorporated in New Mexico under Section 501(c)(3) of the Internal Revenue Code. The Rio Grande Foundation is a research institute dedicated to increasing liberty and prosperity for New Mexico's citizens. No parent company or publicly-held company has a 10% or greater ownership interest in the Rio Grande Foundation.

Rushmore Electric Power Cooperative, Inc. has no parent corporation. No publicly held corporation owns any portion of Rushmore Electric Power Cooperative, Inc., and it is not a subsidiary or an affiliate of any publicly owned corporation.

The Sabine Mining Company ("Sabine Mining") is a wholly-owned subsidiary of NACoal. No publicly held entity has a 10% or greater ownership interest in Sabine Mining. The general nature and purpose of Sabine Mining, insofar as relevant to this litigation, is the mining of lignite coal as fuel for power generation in Texas.

Sam Rayburn G&T Electric Cooperative, Inc. has no parent corporation. No publicly held corporation owns any portion of Sam Rayburn G&T Electric Cooperative, Inc., and it is not a subsidiary or an affiliate of any publicly owned corporation.

San Miguel Electric Cooperative, Inc. has no parent corporation. No publicly held corporation owns any portion of San Miguel Electric Cooperative, Inc., and it is not a subsidiary or an affiliate of any publicly owned corporation.

Sandow Power Company, LLC is a wholly owned subsidiary of Luminant Holding Company LLC, which is a Delaware limited liability company and is a wholly owned subsidiary of Texas Competitive Electric Holdings Company LLC ("TCEH"). TCEH is a Delaware limited liability company and is a wholly owned subsidiary of Energy Future Competitive Holdings Company ("EFCH"), which is a Texas corporation and a wholly owned subsidiary of Energy Future Holdings Corp. ("EFH Corp."). Substantially all of the common stock of EFH Corp., a Texas corporation, is owned by Texas Energy Future Holdings Limited Partnership, which is a privately held limited partnership. No publicly held entities have a 10% or greater equity ownership interest in EFH Corp.

Seminole Electric Cooperative, Inc. has no parent corporation. No publicly held corporation owns any portion of Seminole Electric Cooperative, Inc., and it is not a subsidiary or an affiliate of any publicly owned corporation.

South Mississippi Electric Power Association has no parent corporation. No publicly held corporation owns any portion of South Mississippi Electric Power Association, and it is not a subsidiary or an affiliate of any publicly owned corporation.

South Texas Electric Cooperative, Inc. has no parent corporation. No publicly held corporation owns any portion of South Texas Electric Cooperative, Inc., and it is not a subsidiary or an affiliate of any publicly owned corporation.

Southern Illinois Power Cooperative has no parent corporation. No publicly held corporation owns any portion of Southern Illinois Power Cooperative, and it is not a subsidiary or an affiliate of any publicly owned corporation.

Sunflower Electric Power Corporation has no parent corporation. No publicly held corporation owns any portion of Sunflower Electric Power Corporation, and it is not a subsidiary or an affiliate of any publicly owned corporation.

Sutherland Institute is a nonprofit organization incorporated in Utah under Section 501(c)(3) of the Internal Revenue Code. The Sutherland Institute is a public policy think tank committed to influencing Utah law and policy based on the core principles of limited government, personal responsibility, and charity. No parent company or

publicly-held company has a 10% or greater ownership interest in the Sutherland Institute.

Tex-La Electric Cooperative of Texas, Inc. has no parent corporation. No publicly held corporation owns any portion of Tex-La Electric Cooperative of Texas, Inc., and it is not a subsidiary or an affiliate of any publicly owned corporation.

Tri-State Generation and Transmission Association, Inc. ("Tri-State") is a wholesale electric power supply cooperative which operates on a not-for-profit basis and is owned by 1.5 million member-owners and 44 distribution cooperatives. Tri-State issues no stock and has no parent corporation. Accordingly, no publicly held corporation owns 10% or more of its stock.

United Mine Workers of America ("UMWA") is a non-profit national labor organization with headquarters in Triangle, Virginia. UMWA's members are active and retired miners engaged in the extraction of coal and other minerals in the United States and Canada, and workers in other industries in the United States organized by the UMWA. UMWA provides collective bargaining representation and other membership services on behalf of its members. UMWA is affiliated with the America Federation of Labor-Congress of Industrial Organizations. UMWA has no parent companies, subsidiaries, or affiliates that have issued shares or debt securities to the public.

Upper Missouri G. & T. Electric Cooperative, Inc. has no parent corporation. No publicly held corporation owns any portion of Upper Missouri G. & T. Electric Cooperative, Inc., and it is not a subsidiary or an affiliate of any publicly owned corporation.

Utility Air Regulatory Group ("UARG") is a not-for-profit association of individual generating companies and national trade associations that participates on behalf of its members collectively in administrative proceedings under the Clean Air Act, and in litigation arising from those proceedings, that affect electric generators. UARG 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 UARG.

Vienna Power LLC exists to provide safe, reliable, and affordable electric power to consumers. It is a limited liability corporation wholly owned by NRG Energy, Inc., a Delaware publicly-traded corporation. NRG Energy, Inc. has no parent corporation. As of the last reporting period, T. Rowe Price Associates, Inc. held a 10% or greater ownership in NRG Energy, Inc. As of the last reporting period, T. Rowe Price

Associates, Inc. was a subsidiary of T. Rowe Price Group, Inc. a publicly-traded company.

Wabash Valley Power Association, Inc. has no parent corporation. No publicly held corporation owns any portion of Wabash Valley Power Association, Inc., and it is not a subsidiary or an affiliate of any publicly owned corporation.

West Virginia Coal Association ("WVCA") is a trade association representing more than 90% of West Virginia's underground and surface coal mine production. No publicly-held company has 10% or greater ownership of the WVCA.

Western Farmers Electric Cooperative has no parent corporation. No publicly held corporation owns any portion of Western Farmers Electric Cooperative, and it is not a subsidiary or an affiliate of any publicly owned corporation.

Westar Energy, Inc. ("Westar") is a publicly traded company (symbol: WR) incorporated in the State of Kansas, with its principal place of business in the city of Topeka, Kansas. Westar is the parent corporation of Kansas Gas and Electric Company ("KGE"), a Kansas corporation with its principal place of business in Topeka, Kansas. Westar owns all of the stock of KGE. In addition to Westar's publicly traded stock, both Westar and KGE have issued debt and bonds to the public. Westar does not have any parent companies that have a 10% or greater ownership interest in Westar. Further, there is no publicly-held company that has a 10% or greater ownership interest in Westar.

Wolverine Power Supply Cooperative, Inc. has no parent corporation. No publicly held corporation owns any portion of Wolverine Power Supply Cooperative, Inc., and it is not a subsidiary or an affiliate of any publicly owned corporation.

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[1] The Local Government Coalition for Renewable Energy joins this brief with respect to Arguments III.A and III.B only.

[2] Argument V.C is advanced only by the States of Wyoming and North Dakota.

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GLOSSARY OF TERMS

Act (or CAA)	Clean Air Act
BSER	Best System of Emission Reduction
CO_2	Carbon Dioxide
EIA	U.S. Energy Information Administration
EPA	U.S. Environmental Protection Agency
ERCs	Establishing Tradable Emission Reduction Credits
ERCOT	Electric Reliability Council of Texas
JA	Joint Appendix
MWh	Megawatt-Hour
NERC	North American Electric Reliability Corporation
NO_x	nitrogen oxides
Pounds of CO2 per Megawatt Hour	lbs CO_2/MWh
Proposed Rule or Proposal	U.S. Environmental Protection Agency, Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. 34,830 (June 18, 2014)
RTOs	Regional Transmission Organizations
Rule	U.S. Environmental Protection Agency, Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, Final Rule, 80 Fed. Reg. 64,662 (Oct. 23, 2015)

JURISDICTIONAL STATEMENT

Petitioners incorporate by reference the jurisdictional statements included in Petitioners' Opening Brief on Core Legal Issues.

STANDING STATEMENT

Petitioners incorporate by reference the standing statements included in Petitioners' Opening Brief on Core Legal Issues.

STATEMENT OF ISSUES

1. Whether EPA violated section 307 of the Clean Air Act ("CAA" or "Act")[3] by promulgating a rule it never proposed.

2. Whether the Rule violates section 111 because EPA's "best system of emission reduction" is not "adequately demonstrated" and because the Rule's emission guidelines are not "achievable" by regulated sources.

3. Whether the Rule arbitrarily and capriciously excludes certain sources of non-emitting generation from the compliance options available for state plans.

4. Whether EPA failed to consider important aspects of, and has made critical errors in, its emission guidelines, including:

   a. Failing to establish necessary subcategories;

   b. Failing to consider renewable energy limits;

   c. Regulating sources that can only be regulated under section 111(b); and

   d. Conducting a deeply flawed cost-benefit analysis.

5. Whether the Rule is arbitrary and capricious because it fails to accommodate individual States' circumstances, thus causing particular harm to certain States.

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[3] Unless otherwise stated, all statutory references are to the Clean Air Act. The Table of Authorities includes parallel citations to the U.S. Code.

STATUTES AND REGULATIONS

The Rule is codified in 40 C.F.R. Part 60, Subpart UUUU. All applicable statutes and regulations are contained in the addendum attached hereto or the addendum to the Opening Brief of Petitioners on Core Legal Issues.

INTRODUCTION

Even if EPA had authority under section 111(d) to fundamentally transform the electric sector through "generation shifting" and to regulate the activity of owners and operators of sources rather than the sources themselves,[4] the Rule remains fatally flawed.

The Rule is so untethered to what EPA proposed that no one could have divined the Rule EPA finalized—an emission reduction program based on separate, uniform performance rates for coal- and gas-fired units applied nationwide. This violates a bedrock administrative law principle—that the final rule, or at least something akin to it, has actually been proposed, so that the public has a meaningful opportunity to comment.

In part due to this failure, the administrative record does not support EPA's conclusions and aggressive emission reduction goals. Nearly everything in the Rule—from the foundation of EPA's "best system of emission reduction" to the

[4] Petitioners have explained why EPA does *not* have such authority in Petitioners' Opening Brief on Core Legal Issues ("Core Issues Brief").

achievability of the emission guidelines,[5] from the workability of the individual "Building Blocks" to EPA's projections of the renewable and natural gas-fired generating capacity, from the individual emission limits to EPA's broadest emission reduction claims—is based on unfounded assumptions and pure speculation, all made by an agency that by its own admission lacks expertise to restructure the energy sector.

This is not how rulemaking works. The Rule must be vacated.

STATEMENT OF THE CASE

I. The Proposed Rule

EPA's proposed rule would have established emission guidelines in the form of State-specific annual average carbon dioxide ("CO_2") emission rate goals for each of the 49 States with existing fossil fuel-fired units. 79 Fed. Reg. 34,830, 34,957, Table 1 (June 18, 2014), JA__, __ ("Proposed Rule" or "the proposal").[6] Each State-specific goal was designed to reflect the aggregate CO_2 emissions performance of all affected units in that State, adjusted to account for redispatch from coal to gas, EPA's

[5] EPA's emission "guidelines" are in fact binding standards of performance; to avoid confusion, however, this brief refers to them as "guidelines." *See* Core Issues Brief at 74-78.

[6] The Core Issues Brief presents in its Statement of the Case the statutory and regulatory history of section 111; a description of the President's Climate Action Plan and the Rule; and a summary of the Rule's requirements. That Statement of the case also provides a detailed explanation of how EPA devised national "CO_2 emission performance rates" for fossil fuel-fired power plants based on three "Building Blocks." To avoid repetition, this brief incorporates by reference that Statement.

projected generation from qualifying renewable energy sources, and generation "avoided" through consumer-based energy efficiency measures. *Id.* at 34,893-94, JA__-__. EPA based the Proposed Rule's emission guidelines on a "best system of emission reduction" ("BSER") comprising four EPA-identified "Building Blocks." *Id.* at 34,836-37, JA__-__.

Building Block 1 was based on heat rate improvements (*i.e.*, improved combustion efficiency) of 6% at coal units across each State's fleet. *Id.* at 34,859-61, JA__-__.

Building Block 2 was based on displacing some or all of a State's coal-fired generation with increased generation from existing natural gas combined cycle units, until those gas units operate at 70% of their annual nameplate capacity on average or until coal generation is eliminated from the State. *Id.* at 34,862-64, JA__-__. EPA observed that 10% of existing gas units in the nation operated at annual capacity factors (*i.e.*, the ratio of a unit's actual output to its maximum potential output over a year) of 70% or higher in 2012 and assumed the remaining fleet could reach and sustain the same utilization level on average. *Id.* at 34,863, JA__.

Building Block 3 reflected new renewable generation and generation from under-construction and nuclear capacity at risk for retirement. *Id.* at 34,866, JA__.

Finally, Building Block 4 was based on reducing consumers' electricity demand through State-run energy efficiency programs. *Id.* at 34,871, JA__.

EPA calculated each State's unique goal by adjusting 2012 generation and emissions data from the State's regulated units to reflect the theoretical application of each Building Block on a statewide level. *Id.* at 34,895-96, JA__-__. The resulting emission guidelines were binding only on States and were not targeted at—or directly applicable to—individual units. Instead, EPA expected States to develop their own plans to impose legal requirements on a broad class of "affected entities." *Id.* at 34,901, JA__. For example, state plans might oblige entities other than existing fossil-fuel units to develop new renewable generation or implement consumer efficiency programs. *Id.* The Proposed Rule also allowed States to adopt "market-based trading programs" and develop multi-State plans, but trading was not an integral part of the BSER. *See id.* at 34,837, JA__.

II. The Rule

Although the Rule repeats many of the proposal's fundamental legal defects,[7] its core regulatory requirements bear little resemblance to the proposal. In particular, EPA dramatically altered the most fundamental aspect of the emission guidelines, based its definition of BSER and the target implementation levels on an entirely new rate-based methodology, and included emissions trading as an integral part of the Rule. Each of these changes is discussed below.

[7] *See* Core Issues Brief at 29-86.

A. Nationally Uniform Performance Rates

In stark contrast to the proposal, the final Rule establishes two nationally uniform emission rates–(i) one for coal-, oil, and gas-fired steam generating units;[8] and (ii) one for natural gas combined cycle units. 40 C.F.R. part 60, subpart UUUU, Table 1. These rates, and state plans implementing them, only apply to coal and gas units, and not to the broad range of "affected entities" as proposed.

Although the Rule also specifies rate-based and mass-based goals for each State, these are simply alternative expressions of the uniform performance rates. The Rule makes clear the emission rates are the "chief regulatory requirement of th[e] rulemaking," 80 Fed. Reg. at 64,820, 64,823, JA__, __; the State goals, derived from the performance rates, are alternative ways to demonstrate compliance. *Id.* at 64,820, JA__. EPA based the national performance rates on modified versions of three of the four proposed "Building Blocks," applied regionally rather than on the State level. *Id.* at 64,718, JA__.

EPA's adoption of nationally uniform rates that apply only to affected units shifts the burden of assuring that alternative generation would be available away from the States (as in the Proposed Rule) to the owners and operators of affected units. Instead of expecting States to ensure compliance with statewide goals through a broad

[8] The vast majority of steam units are coal units. References in this brief to coal units include the small number of gas- and oil-fired steam units the Rule covers. "Gas units" refers to natural gas combined cycle units.

range of state measures, the Rule effectively imposes on owners and operators of affected units the obligation to do whatever is necessary to comply with the rates, including investing in and shifting generation to alternative sources of generation, subsidizing alternative generation, or shutting down affected units. *Id.* at 64,718, 64,724, JA__, __.

B. BSER Determination and Building Block Targets

As the basis for the national performance rates, EPA determined the BSER would be based on the modified three Building Blocks. *Id.* at 64,744, JA__. Rather than applying the BSER on a State-by-State basis, as proposed, EPA applied the Building Blocks in the aggregate across three broad regions, such that the final Rule's performance rates are not based on measures that can be implemented within many States or reflect achievable targets for individual units. *Id.* at 64,813, 64,816-19, JA__, __-__.

This shift from State-specific goals based on State-by-State analysis to uniform performance rates based on a regional analysis led EPA to find that each Building Block could "achieve" new, and in most cases more aggressive, generation targets. For example, in estimating heat rate improvement targets for coal units under Building Block 1, the Agency disavowed any reliance on "implementation of specific measures." Greenhouse Gas Mitigation Measures Technical Support Document for the Final Rule ("GHG Mitigation Measures TSD") at 2-25, EPA-HQ-OAR-2013-0602-36859, JA__. Instead, EPA *assumed* that units could "maintain [over time] the

better heat rates they have previously achieved" only over a brief period by reducing variation from those heat rates using "good maintenance and operating practices." *Id.* Based on past heat rate data, EPA estimated potential heat rate improvements of 2.1 to 4.3% for the three regions. 80 Fed. Reg. at 64,789, 64,817, JA__, __.

For Building Block 2, EPA altered the target utilization rate for gas units from 70% of net nameplate capacity, to 75% of net summer capacity. *Id.* at 64,795, JA__. The final Rule also expects that under-construction gas units, once completed, can contribute 20% of capacity to displace coal-fired generation. *See id.* at 64,817, JA__.

EPA modified Building Block 3 by removing nuclear and existing renewable generation from the BSER and dramatically increasing the incremental renewable generation targets it considers achievable. *Id.* at 64,803, 64,809, JA__, __. Instead of basing state renewable generation targets on the average of neighboring state policies, EPA determined the nationwide maximum year-to-year change in renewable generation from 2010-2014 and added that amount each year after 2023—in addition to aggressive projections of "base case" renewable growth—to develop regional renewable generation targets, more than doubling the amount of new renewable energy predicted under the Proposed Rule. *Id.* at 64,807-08, JA__-__.

Moreover, EPA explained that it assessed whether the BSER was adequately demonstrated, and whether the Building Block targets and the emission guidelines were achievable, on an industry-wide basis rather than for individual affected units. *See id.* at 64,816-19, 64,779, JA__-__, __; CO_2 Emission Performance Rate and Goal

Computation Technical Support Document for CPP Final Rule ("Goal Computation TSD") at 6, EPA-HQ-OAR-2013-0602-3850, JA__. Further, EPA clarified its BSER is not simply based on reducing the operations of fossil units. Instead, fossil generation is being reduced due to a shift to alternative generation, including substantially increased renewable generating capacity that EPA claims will assure that overall demand is met. *See* 80 Fed. Reg. at 64,724 n.352, 64,782, JA__, __. As such, EPA's conclusion that its BSER is adequately demonstrated (and that its emission guidelines are achievable) relies on finding that the resulting generation mix can fully meet demand that was previously served by fossil fuel-fired generation.

C. The Integral Role of Trading Programs

Unlike the proposal, the Rule makes emissions trading programs "an integral part of [EPA's] BSER analysis," establishing tradable emission reduction credits ("ERCs") as the only mechanism available for affected units to achieve the Rule's uniform emission performance rates. *Id.* at 64,734, JA ___.[9] In other words, EPA's assumption that States will "establish standards of performance incorporating emissions trading" is key to its conclusion that the owners and operators of all affected units have tools available to implement the BSER. *Id.* at 64,735, JA__. Likewise, EPA's decision to apply BSER on a regional rather than state level assumes

[9] This is underscored by EPA's proposed federal plan, which requires interstate trading to achieve its standards. 80 Fed. Reg. at 64,966-65,011, (Oct. 23, 2015).

the availability not only of trading, but *interstate* trading, because an affected unit's standard will be based at least partly on emission-reducing opportunities outside its State. *Id.* at 64,666, 64,673, 64,827, JA__, __, __.

The *only* way an affected unit can comply with the Rule's uniform emission performance rates is to generate, purchase, or hold a sufficient number of ERCs through a trading program to calculate a lower (wholly fictional) average emission rate for the source at or below 1,305 pounds of CO_2 per megawatt hour ("lbs CO_2/MWh") (for coal units) or 771 lbs CO_2/MWh (for gas units). 40 C.F.R. § 60.5790(c)(1); *see also* 80 Fed. Reg. at 64,752, JA__ (listing actions affected units can take to achieve limits, all of which include using ERCs). These ERCs are not automatically issued or distributed to affected units. They must be created through the production of qualifying generation, such as new renewable generation, and then transferred. Increased generation from gas units may also create ERCs that can be used for compliance by coal units. 80 Fed. Reg. at 64,905 , JA__. Because increased generation from existing gas units must itself be covered by ERCs from other qualifying sources, the Rule relies doubly on ERCs generated from increased renewable generation. *Id.* at 64,905, JA__. Moreover, ERCs can only exist if they are provided for in a State's plan, and they can only be traded between States if expressly allowed in the plans of both the generating and purchasing States.

Therefore, the Rule's requirements cannot be met if EPA's projected levels of renewables or a sufficiently robust trading program fail to materialize. Any shortfall in

renewable generation will yield a shortfall in ERCs, making it impossible for affected units to obtain the only available compliance tools to generate electricity.

SUMMARY OF ARGUMENT

The final Rule is fatally flawed on myriad procedural and substantive grounds. It was promulgated in a manner flatly at odds with the protections expressly set out in the Act, and its substance is spawned of pure speculation, unsupported by the record. The Rule must be vacated because it is arbitrary, capricious, and contrary to law.

I. Meaningful public participation is an essential element of rulemaking. EPA's Rule could not have been divined from its proposal. By departing so radically from that proposal, EPA promulgated a Rule on which the public had no opportunity to comment.

II. EPA bears the burden to show that its selected "best system of emission reduction" has been adequately demonstrated to be reliable, efficient, and not exorbitantly costly. EPA must also show the emission guidelines derived from that system are "achievable" by individual sources, operating in the real world. Conjecture, speculation, and crystal ball inquiries do not suffice.

Here, because EPA uses a restructuring of the energy supply sector to drive CO_2 emission reductions, EPA must show that its system actually can achieve that result, without impairing the reliability of the nation's electric supply. EPA has not made that showing for its three "Building Blocks," separately or together.

EPA must also show that individual sources can achieve the emission guidelines, consistent with meeting electric demand. EPA concedes that no individual source could install controls that would enable it to meet the guidelines. Instead, the guidelines can only be met if a substantial number of sources shut down and the remaining sources purchase ERCs from EPA-favored generation facilities. That cannot happen without threatening electric supply reliability in many States.

III. The Rule treats the electric sector as a single "grid" comprising all generating sources in the nation. But in selecting which sources can generate emission reduction credits or be counted for compliance purposes, EPA arbitrarily discriminates against many existing, low- or zero-emission generating units that are part of that grid.

IV. Though EPA purports to have taken State-specific circumstances into account in setting the 47 individual state emission goals, in fact it only considered how much coal generation and how much gas generation each State possessed. EPA gave no meaningful consideration to State-specific factors that will make compliance with its emission guidelines impossible, including imminent plant retirements, transmission and pipeline infrastructure, the difficulty of trading between States and Indian tribes, State-specific electric market structure and reliability challenges, historic emission rates that show that EPA's emission guidelines are unrealistic, and earlier voluntary emission reduction efforts that make the Rule's additional required reductions impossible to achieve.

ARGUMENT

I. EPA Violated Section 307 By Promulgating A Never-Proposed Rule.

In the Rule, EPA departed fundamentally from the proposal, turning the rulemaking process into a mockery. "The process of notice and comment rule-making is not to be an empty charade," but instead "a process of reasoned decision-making" in which "interested parties" are afforded "the opportunity . . . to participate in a meaningful way." *Conn. Light & Power Co. v. NRC*, 673 F.2d 525, 528 (D.C. Cir. 1982). Meaningful participation is impossible when EPA proposes one thing and finalizes something else entirely.

A. The Rule Is Fundamentally Different From The Proposal.

As explained above, the final Rule establishes a CO_2 emission reduction program based on uniform, nationally applicable performance rates for two types of units – 1,305 lbs CO_2/MWh for coal, and 771 lbs CO_2/MWh for gas. 80 Fed. Reg. at 64,752, JA__. Every other element of the Rule flows from these two performance rates. Yet neither rate, nor even the concept of such a rate, was noticed in the Proposed Rule. In fact, EPA clearly stated that it had rejected the option of setting uniform rates, emphasizing it was proposing "the use of output-weighted-average emission rates for all affected [units] in a state *rather than nationally uniform emission rates*

for all affected [units] of particular types." 79 Fed. Reg. at 34,894, JA__ (emphasis added).[10] The Rule thus does exactly what EPA said in its proposal it would not do.

EPA had proposed to develop a unique goal for each State based on a complex mathematical formula. *Id.* at 34,896 n.265, JA__. That goal was to be a single, blended rate that applied to both the coal- and gas-fired units in a State. *Id.* at 34,895, JA __. A broad range of "affected entities," including producers of alternative generation, were responsible for implementation of these state goals. Everything was tied to EPA's establishment of these State-specific, blended, output-weighted-average emission rates. EPA thus did not include, or solicit any comment on, *any* emission reduction program based on uniform unit-specific performance rates applicable to general categories of units. Nor did EPA signal that it was considering adopting a rule that would shift all responsibility for implementation from "affected entities" to "owners/operators" of affected units.[11]

Finally, EPA adopted applicability language in the Rule that expanded coverage to units not subject to the proposal. Under the proposal, only facilities "constructed

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[10] The only other reference to "uniform" rates in the proposal is later on the same page, where EPA explains why it is proposing the use of output-weighted-average emission rates *rather than* nationally uniform rates. 79 Fed. Reg. at 34,894, JA__.

[11] This case thus stands in stark contrast to the typical case where EPA proposes to set a standard at a particular level, but also takes comment on other possible levels. *See, e.g.*, 79 Fed. Reg. 1,430, 1,470, 1,487 (Jan. 8, 2014) (soliciting comment on a range of possible new unit standards for the same pollutant and source category regulated here).

for the purpose of" supplying to the grid 1/3 or more of potential output and 219,000 MWh net-electric output were covered. 79 Fed. Reg. at 34,954, JA__. This mirrored decades-old applicability language governing steam generating units under the NSPS, Subpart Da. *See* 40 C.F.R. §§ 60.40Da(a)(1), 60.41Da; *see also* 44 Fed. Reg. 33,580, 33,613 (June 11, 1979). The final Rule expands coverage to include most generators connected to a utility power distribution system and capable of selling more than 25 MW of electricity. 40 C.F.R. § 60.5845.

Simply put, EPA promulgated a final rule it never proposed.

B. EPA's Circumvention of the Rulemaking Process Requires Vacatur.

By finalizing a Rule bearing no resemblance to the proposal, EPA violated its obligations under section 307(d)(3) and circumvented the rulemaking process. By law, EPA must provide in each proposal the factual data on which that proposed rule is based, the methodology used in obtaining and analyzing the data, and major legal interpretations and policy considerations underlying the proposal. CAA § 307(d)(3)(A)-(C). The very purpose of this requirement is to give the public a meaningful opportunity to comment. Here, EPA pulled the ultimate "surprise switcheroo," *Envtl. Integrity Project v. EPA*, 425 F.3d 992, 996 (D.C. Cir. 2005), rendering any comment opportunity illusory.

This is not a "logical outgrowth" case, in which EPA promulgated a rule "that differs in some particulars from its proposed rule." *Small Refiner Lead Phase-Down Task*

Force v. EPA, 705 F.2d 506, 546 (D.C. Cir. 1983). "Whatever a 'logical outgrowth' of [an agency's] proposal may include, it certainly does not include the Agency's decision to repudiate its proposed [position] and adopt its inverse." *Envtl. Integrity Project*, 425 F.3d at 998. For such changes to be lawful, the "necessary predicate" is that the agency "has alerted interested parties to the possibility of the agency's adopting a rule different than the one proposed," so the final rule is a "logical outgrowth" of the proposal. *Kooritzky v. Reich*, 17 F.3d 1509, 1513 (D.C. Cir. 1994).

This doctrine does not extend to a final rule that finds no roots in, and actually adopts the very frame work expressly rejected in, the agency's proposal. "Something is not a logical outgrowth of nothing," and the doctrine is inapplicable where commenters would have had to "divine [the agency's] unspoken thoughts." *Envtl. Integrity Project*, 425 F.3d at 996 (citations omitted). Agencies "may not turn the provision of notice into a bureaucratic game of hide and seek." *MCI Telecomms. Corp. v. FCC*, 57 F.3d 1136, 1142 (D.C. Cir. 1995).

No one could have divined from EPA's proposal that a final rule based on uniform, nationally-applicable performance rates was even a possibility, that units not even addressed in the proposal would be regulated, or that EPA would apply an entirely different methodology with new data in establishing those rates. Such silence in a proposal does more than frustrate meaningful comment; it assures no comment.

EPA should have proposed and taken comment on its new approach, just as EPA did when it took a fundamentally different approach in the CO_2 standards for

new generating units that were promulgated on the same day.[12] That EPA did not take the same easy (and lawful) step here bespeaks the Administration's rush to get the Rule out the door. Unless this Court repudiates EPA's conduct, it invites abuse of the rulemaking process. The Rule must be vacated. If EPA wishes to promulgate this Rule, it must start over, with a proper proposal.

II. EPA'S BSER Is Not "Adequately Demonstrated" And Its Emission Guidelines Are Not "Achievable" Under Section 111.

A. EPA Must Show Both "Adequate Demonstration" Of The BSER And "Achievability" Of The Emission Guidelines.

This Court "ha[s] established a rigorous standard of review under section 111." *Nat'l Lime Ass'n v. EPA*, 627 F.2d 416, 429 (D.C. Cir. 1980). EPA must establish that the BSER is "'adequately demonstrated,'" and that the performance standards derived from the BSER are "'achievable.'" *Id.* (quoting CAA § 111(a)). EPA fails to establish either. Both requirements derive from section 111(a)(1), which defines a "standard of performance" 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) the Administrator determines has been adequately demonstrated.

[12] EPA first proposed those standards for new generating units on April 13, 2012. 77 Fed. Reg. 22,392. After "receiv[ing] more than 2.5 million comments," along with "new information," EPA formally withdrew that proposal on January 8, 2014, 79 Fed. Reg. 1,352, and initiated a new rulemaking process, 79 Fed. Reg. 1,430.

CAA § 111(a)(1). The two, though interrelated, are legally distinct, and the Rule must satisfy both.

The first demands that EPA "adequately demonstrate[]" that the technology selected as BSER "is one which has been shown to be reasonably reliable, reasonably efficient, and [not] exorbitantly costly in an economic or environmental way." *Essex Chem. Corp. v. Ruckelhaus*, 486 F.2d 427, 433 (D.C. Cir. 1973). Although EPA does not have to show the technology is currently in *regular use*, it must "'adequately demonstrate[]' that there will be 'available technology.'" *Portland Cement Ass'n v. Ruckelhaus*, 486 F.2d 375, 391 (D.C. Cir. 1973) (citation omitted).

The second requires EPA to establish the performance rate to be achieved through application of the BSER is "within the realm of the adequately demonstrated system's efficiency." *Essex Chem. Corp.*, 486 F.2d at 433-34. EPA may not set a rate "at a level that is purely theoretical or experimental," nor may it base its assessment of feasibility on "its subjective understanding of the problem or a 'crystal ball inquiry.'" *Id.* at 433-34 (quoting *Portland Cement*, 486 F.2d at 391); *accord Lignite Energy Council v. EPA*, 198 F.3d 930, 934 (D.C. Cir. 1999) ("EPA may not base its determination … on mere speculation or conjecture"). Rather, EPA must "affirmatively show that its standard reflects consideration of the range of relevant variables that may affect emissions in different plants" and must explain how the standard is "capable of being met under most adverse circumstances which can reasonably be expected to recur." *Nat'l Lime Ass'n*, 627 F.2d at 431 n.46, 433.

B. EPA Failed To Satisfy Its Burdens.

Until this Rule, EPA has always used tests and studies of existing control equipment to determine whether individual sources could apply a particular technology (e.g., a wet scrubber) or operational practice (e.g., fuel switching) to reduce emissions to a specified level. *See, e.g.*, *id.*, at 627 F.2d at 424-25 (baghouses, scrubbers, and other technologies); *Essex Chem. Corp.*, 486 F.2d at 435-46 (SO_2 absorption systems, acid-mist eliminators, and other technologies). The Court would review to ascertain whether EPA had shown both that (1) the technology or practice (the "system of emission reduction") was "adequately demonstrated" and (2) the resulting emission limit was "achievable" on a source-by-source basis. *E.g., Sierra Club v. Costle*, 657 F.2d 298 (D.C. Cir. 1981); *Nat'l Lime Ass'n*, 627 F.2d at 431-48; *Essex Chem. Corp.*, 486 F.2d at 436-41.

Here, EPA's "system of emission reduction" is neither a technology nor an operational process that controls emissions from individual facilities. Instead, it is a "system of alternative electric generation" intended to reduce emissions from the whole industry, primarily by shifting generation from existing coal units to gas units and new renewable resources.

By de-coupling BSER from actions taken at individual sources, and instead reorganizing the industry, EPA does not escape its burden to show the system has been adequately demonstrated and the emission guidelines are achievable. To the contrary, it must now evaluate not just whether individual sources will be able to

reach a certain emission target upon installing a tested technology, but whether the lights will stay on across the country under the Rule. This is critical, because if EPA has guessed wrong, brown-outs, black outs, and severe economic disruption will result.

This Court therefore must "take a 'hard look'" at EPA's facts and reasoning, *Small Refiner Lead Phase-Down Task Force*, 705 F.2d at 520 (citation omitted), and it should not afford any deference to EPA's explanations, as the agency admittedly lacks expertise in the power supply industry. *Unbelievable, Inc. v. N.L.R.B.*, 118 F.3d 795, 805 (D.C. Cir. 1997) (citation omitted) (the "court does not defer to agency decision in matter outside of agency's expertise").[13]

EPA bears an enormous burden. It must show its system of alternative generation will be "reasonably reliable," "reasonably efficient," and not "exorbitantly costly." *Essex Chem.*, 486 F.2d at 433. EPA must show its plan *will work*. This involves complex considerations about how electricity will be generated and distributed, including whether each Building Block can be employed at EPA's assumed levels, where new generating resources will be located, whether sufficient transmission

[13] EPA, Response to Public Comments on Proposed Amendments to National Emission Standards for Hazardous Air Pollutants for Existing Stationary Reciprocating Internal Combustion Engines and New Source Performance Standards for Stationary Internal Combustion Engines at 50, EPA-HQ-OAR-2008-0708-1491 ("The issues related [to] management of energy markets and competition between various forms of electric generation are far afield from EPA's responsibilities for setting standards under the CAA.").

infrastructure will exist to handle the generation shifting the Rule requires, and whether the resulting mix of generating assets can provide reliable power at all times to all customers in all parts of the nation. EPA is required to identify a BSER "that has been demonstrated" to avoid precisely this kind of guesswork.

Because EPA's BSER is not tethered to actions taken at individual sources, even if EPA had adequately demonstrated its system of alternative generation on a sector wide-basis (which it did not), it still would not follow that EPA's emission guidelines are achievable. EPA must independently show that individual existing sources and States can employ the Building Blocks to achieve the emission guidelines on a consistent basis, accounting for "the range of relevant variables that may affect emissions in different plants." *Nat'l Lime Ass'n*, 627 F.2d at 431 n.46, 433. In so doing, EPA may not resort to "mere speculation or conjecture." *Lignite Energy Council*, 198 F.3d at 934. But EPA cannot avoid such speculation, as reorganizing an entire industry to reduce emissions has never before been attempted, much less demonstrated.

EPA has not carried its burden here. It has not shown the three Building Blocks are adequately demonstrated or achievable. It has failed to reasonably assess the substantial new transmission the Rule effectively requires. It has not shown individual sources can achieve its performance rates through application of the BSER. And it illegally requires sources and States to rely on an inadequately demonstrated

emissions trading program to achieve compliance with its emission guidelines and State plan requirements.

1. EPA Has Not Shown That Any Of Its Three Building Blocks Is Adequately Demonstrated Or Achievable.

As explained below, EPA sought to demonstrate its Building Blocks on a regional basis. By so doing, it failed to comply with the statutory requirement to demonstrate that its BSER is adequately demonstrated and its emission guidelines are achievable by sources. *See National Lime Ass'n*, 627 F.2d at 434. But even assuming a regional approach is lawful, EPA also failed to demonstrate that the Building Blocks targets are achievable regionally.

a. Building Block 1.

EPA's first Building Block relies on heat rate improvements to reduce CO_2 emissions at existing coal-fired units. 80 Fed. Reg. at 64,745, JA__. But EPA's heat rate improvement target is based on abstract, arbitrary calculations untied to any specific heat rate improvement measures. *See id.*; GHG Mitigation Measures TSD at 2-25, JA__. Consequently, EPA has failed to establish that any specific measures are adequately demonstrated, or that its Building Block 1 target is achievable.

EPA calculated the average heat rate improvement that would occur if each coal-fired unit could reduce its hourly heat rate by a percentage value (or "consistency factor") based on the lowest historical "benchmark" values reported under similar operating conditions. GHG Mitigation Measures TSD at 2-45 to 2-47, JA__-__. Using

this approach, EPA estimated heat rate improvement targets for each region. *Id.* at 2-50, JA__.[14] Essentially, EPA observed that units' heat rates appeared to be lower at some times or in some years than others, and then assumed that coal units could proactively and continually replicate past optimum heat rate observations simply by using "good maintenance and operating practices." *Id.* at 2-25, 2-45, JA__, __.

Nothing in the record supports this assumption. In fact, the opposite is true: although some units might be able to take steps to marginally improve or maintain their heat rates, heat rate variation is driven by factors beyond their control. UARG Comments at 221, EPA-HQ-OAR-2013-0602-22768, JA__; Southern Company Comments at 81, 91-96, EPA-HQ-OAR-2013-0602-22907, JA__. Yet EPA did not distinguish between variations that are driven by controllable factors and those that are uncontrollable for an existing source, such as unit design, size, cooling conditions, and location. 80 Fed. Reg. at 64,788, JA__; *see also* UARG Comments at 221, JA__.[15]

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[14] EPA claimed two other approaches supported these targets: (i) a calculation of the average improvement if each unit returned to its best two-year average heat rate; and (ii) a similar approach using separate estimates of the best two-year average heat rate under different operating conditions. 80 Fed. Reg. at 64,788-89, JA__-__.

[15] The same logic holds true for numerous other sources for myriad reasons. The Rule did not consider, nor did EPA allow comment on, issues of critical importance to many sources, and space constraints do not permit them to be raised with specificity here. This Court must understand that not raising those issues does not diminish their importance; deficiencies in the Rule were interwoven into the warp and woof of every sentence, requirement, and the very logic underlying the Rule.

For instance, although EPA claims that it controlled for the influence of capacity factor and ambient temperature, two primary drivers of heat rate, units have no way to control their capacity factors, which are driven by demand and each unit's position in the dispatch or local meteorological conditions. 80 Fed. Reg. at 64,788, JA__. Units operate more efficiently at higher loads and on cooler days. *Id.*; *see also* GHG Mitigation TSD at 3-5, JA__ (capacity factor accounts for up to a 50% variation in heat rate); UARG Comments at 209-10, JA__-__; LG&E and KU Energy LLC Comments at 13-14, EPA-HQ-OAR-2013-0602-31932, JA__-__; EPA Memorandum, Best System of Emission Reduction (BSER) for Reconstructed Steam Generating Units and Integrated Gasification Combined Cycle (IGCC) Facilities ("Reconstructed EGU TSD") at 4, EPA-HQ-OAR-2013-0603-0046, JA__ (operating at 50% load can increase heat rate by 10% or more). EPA did not truly "control for the influence of [the] variables" as it claims. 80 Fed. Reg. at 64,788, JA__. Its approach is premised on average operating conditions over the historical period EPA analyzed; it cannot account for changed operating conditions the coal-fired fleet can be expected to face in the future.

Consequently, if the coal fleet faces lower capacity factors (which is the express goal of Building Block 2's shift to gas generation) or higher ambient temperatures (which is likely if Building Block 2 forces more coal units to serve as summertime peak load units), the resulting increase in heat rate could overwhelm any of the fleet's marginal heat rate improvements. By failing to account for uncontrollable factors that

can counteract heat rate improvement efforts, EPA ignored its duties to ensure that its BSER "is reasonably reliable" and to set performance rates that are "achievable under the range of relevant conditions." *Nat'l Lime Ass'n*, 627 F.2d at 431 n.46, 433.

More fundamentally, EPA failed to show that sufficient heat rate-improving measures are available for units to implement to achieve EPA's targets. EPA admits its targets are based on statistical analyses and not on "heat rate improvements that would be achieved by implementation of specific measures." GHG Mitigation Measures TSD at 2-25, JA__. EPA provides a list of "best operating practices" and "equipment upgrades" that are *conceptually* capable of reducing heat rates, *id.* at 2-11, JA__, but fails to analyze whether those measures can yield sufficient improvements, whether they are available to a sufficient number of units, or whether they are already being implemented at units and thus cannot be further deployed. In other words, EPA has no idea whether Building Block 1 will work on the ground.

In reality, the heat rate improvement measures EPA lists—particularly the lower-cost "best operating practices"—are already widely adopted. 80 Fed. Reg. at 64,792, JA__. Many units, having already made such improvements, cannot achieve a reduction in heat rates from 2012 levels, especially because many of the units made modifications to comply with EPA rules that require additional energy to operate and therefore reduce the efficiency of the unit. *See* UARG Comments at 211-28, JA__-__; Gulf Coast Lignite Coalition Comments at 25-27, EPA-HQ-OAR-2013-0602-23394, JA__-__; Southern Company Comments at 80-91, EPA-HQ-OAR-2013-0602-22907,

JA__-__; LG&E and KU Energy LLC Comments at 10-14, JA__-__; Luminant Comments at 53-59, EPA-HQ-OAR-2013-0602-33559, JA__-__. Particularly in energy-deregulated markets such as the Electric Reliability Council of Texas ("ERCOT"), coal generators have installed state-of-the-art technologies to improve thermal efficiencies simply to compete effectively, and there are few additional gains available. *See* Public Utility Comm'n of Texas Comments ("PUCT Comments") at 42, EPA-HQ-OAR-2013-0602-23305, JA__. Also, the actual payoffs of EPA-identified measures are limited, given that they are not compatible with all units, and their benefits are non-additive and degrade over time. UARG Comments at 212-16, JA__-__; Luminant Comments at 55, 57 n.237, JA__, __.

EPA failed to assess whether any specific measures are available for units to achieve its Building Block 1 targets, and did not show that the targeted heat rates have ever been maintained across the coal fleet. There is no basis for assuming that the best historical efficiency ever achieved can be achieved every year in the future.

Because many of EPA's erroneous assumptions were never noticed, *supra* Section I, there was no opportunity to comment on them. By not allowing comment, for example, on incorrect 2012 data, EPA is severely penalizing new units intentionally designed to be highly efficient and provide base load electricity for a 30-year life span. Such a procedurally deficient Rule, with a BSER that fails to meet statutory standards, is arbitrary, capricious, and contrary to law. Prairie State

Generating Company Comments at 3, 6, EPA-HQ-OAR-2013-0602 (Dec. 1, 2014), JA __, __.

b. Building Block 2.

EPA's second Building Block also is not adequately demonstrated and its targets are not achievable, because EPA (i) failed to support its target for increased utilization of existing gas units, (ii) erroneously counted hypothetical "unused" capacity from under-construction gas units, and (iii) improperly relied on capacity from gas units' duct burners for redispatch.

(i) EPA Failed To Support Its Target For Increased Utilization Of Existing Gas Units.

Building Block 2 assumes existing fossil steam generation will shift "to existing [gas units] within each region up to a maximum [gas] utilization of 75% on a net summer basis." 80 Fed. Reg. at 64,795, JA__. EPA bases this 75% capacity factor on speculative assumptions about the level of generation the existing gas fleet can achieve, without assessing the fleet's real-world constraints, accounting for the eventual deterioration and retirement of existing units, or reconciling its assumptions with its modeling results. *See* GHG Mitigation Measures TSD at 3-5 to 3-13, JA__-__. Thus, EPA has not shown that the existing gas fleet can obtain an overall 75% capacity factor, or that its Building Block 2 target is achievable.

EPA relied on three data types to justify its 75% capacity factor; none of these supports its conclusion.

First, EPA cited a statistical analysis based on 2012 generation. *Id.* at 3-6 to 3-11, JA__-__. This reveals the overall average capacity factor of the gas fleet in 2012 was only 46%; more than 20% of the fleet operated at a capacity factor of less than 20%, and only 15% operated at or above the 75% level. *Id.* at 3-6, 3-9, JA__, __. These data—which occurred in a year with historically low natural gas prices that already incentivized the use of gas generation, *see id.* at 3-11, JA__—hardly support a conclusion that a fleet-wide capacity factor of 75% has been demonstrated or is achievable.

In fact, the existing fleet would have to increase its generation by about two-thirds from 2012 levels to meet the 75% capacity factor, and EPA provides no data or analysis suggesting how that level of generation might be accomplished. EPA argues nonetheless that because capacity factors of 75% or more were achieved in each of the electricity interconnections *on at least one day*, this "demonstrate[s] the ability of the natural gas transmission system to support this level of generation." GHG Mitigation Measures TSD at 3-11, JA__. But EPA never explains how these high usage numbers establish that such circumstances could be achieved across the fleet *day-after-day, year-after-year*, and never considers the various site- or region-specific factors such as economics, regional grid restrictions, and regulatory constraints that would inform that question.

Second, EPA presented data suggesting natural gas generation is expected to grow over time. *Id.* at 3-11 to 3-13, JA__-__. This is irrelevant. Such growth will come

to a significant extent from the construction of *new* units. But since new units cannot be used to "average down" the CO_2 emission rates for affected fossil-steam units, 80 Fed. Reg. at 64,801, JA__, EPA's data provides no indication that the capacity factor for the *existing* fleet can increase by the approximately two-thirds EPA assumes.

Third, EPA pointed to the availability of the existing gas fleet, stating that "EPA assumes that [gas] has an availability of 87%" and that certain units may have availability factors as high as 92%. GHG Mitigation Measures TSD at 3-5, JA__. But "availability" (the percentage of hours during a given year a unit is available to not offline due to outages) offers no information about whether those units are capable of operating at sufficiently higher capacity factors over an extended period to meet a fleet-wide capacity factor target of 75%, or are located sufficiently close to coal units to supply the load that the displaced generation would have served. For example, many units with "available" capacity cannot increase utilization due to permit limits on operations, the need to provide dedicated backup capacity for renewable resources, or their location in areas designated as nonattainment for one or more ambient air quality standards. *See* UARG Comments at 230-31, JA__.

EPA never assessed these critical questions. Even if the fleet could physically achieve such a high capacity factor, Building Block 2 can work only if the fleet is located in areas where it can serve demand that would otherwise be supplied by coal generation. For example, it is of little use if a gas unit in Florida can physically operate at a 75% capacity factor if the coal generation it needs to displace is located in North

Dakota, even though both locations are within the eastern interconnection. That is not how electricity transmission works.

These limitations are heightened in Texas, where over 90% of electricity is consumed in ERCOT, which has limited import capacity. *See infra* II.B.2.b.i. In calculating the amount of generation shifting under Building Block 2, EPA did not consider this but instead assumed, wrongly, that generation shifting can occur freely across entire interconnections. Goal Computation TSD at 14-15, JA__-__.

Finally, EPA's Building Block 2 assumption is undermined by its own modeling. EPA used its Integrated Planning Model to show that existing gas units could be operated at a 75% capacity factor. *Id.* at 3-20, JA__. What the model actually showed was that, to achieve that capacity factor, existing gas units would have to displace generation not only from existing coal units, as contemplated under Building Block 2, but also from *new* gas units in significant amounts. *Compare* CPP Base Case Modeling, Base Case RPT Files, RegionalSummaryModelRegionSets, sheet at rows 2335 and 2355, JA__, *with* CPP BB2 75% Modeling, BB2-75% RPT Files, RegionalSummaryModelRegionSets, rows 2335 and 2355, JA__. EPA's model thus demonstrates that the existing gas cannot achieve a 75% capacity factor *through generation shifting from coal units*.

EPA failed to meet its burden with respect to Building Block 2.

(ii) EPA Erroneously Counted "Unused" Capacity From Under-Construction Units.

EPA also erred by counting hypothetical "unused" generating capacity from under-construction gas units as available for redispatch under Building Block 2. EPA assumed gas units that were under-construction or commenced operation in 2012 would operate at a 55% annual capacity factor in the future without the Rule, leaving 20% of their generating capacity available to displace generation from coal units. 80 Fed. Reg. at 64,817, JA__.

This assumption is speculative and unreasonable. EPA ignored key factors that drive a new unit's utilization, particularly whether it was designed to provide baseload or as a load-following unit. UARG Comments at 197, JA__. Subsequent operating data from many of these "under-construction" units show EPA dramatically underestimated their actual utilization. For example, North Carolina's Lee gas unit operated at an 81% annual net capacity factor in its first full year of operation, already well above EPA's 75% Building Block 2 target, let alone its 55% baseline assumption for under-construction units, leaving no room for increased utilization. *Id.* Indeed, for the set of units EPA designated as "under-construction" because they commenced operation during 2012, the generation-weighted average capacity factor was 77% in their first full year of operation. *See id.*, Attachment C at 11 Tbl. 6, JA__. EPA's guidelines call on those units to devote another 20% of their capacity to displacing coal-fired generation, for a total capacity factor of 92%.

This error inflated the level of redispatch under Building Block 2, making the performance standards infeasibly stringent. EPA should have excluded hypothetical generation from under-construction units when calculating the guidelines because it had no rational way to estimate their future unused capacity. EPA claims that even if it overestimated available redispatch capacity, some of the under-construction units' baseline generation will have a "replacement effect instead of an incremental one," yielding the same overall shift from coal- to gas-fired generation. 80 Fed. Reg. at 64,817 n.748. This is more baseless conjecture: EPA offers no evidence this "replacement effect" exits, that it will outweigh EPA's mistakes regarding utilization of under-construction units, or that it will replace generation from coal-fired units rather than more expensive renewable generation.

(iii) EPA Erred By Relying On Capacity From Gas-Fired Units' Duct Burners For Redispatch.

Building Block 2 is further undermined by EPA's erroneous reliance on capacity from gas units' duct burners for redispatch under Building Block 2. Response to Comments ("RTC") Ch. 3 § 3.2 at 172, EPA-HQ-OAR-2013-0602-36876, JA__. Many gas units are equipped with duct burners that can *temporarily* boost power output during peak load periods. UARG Comments at 206, JA__. Continual operation of these duct burners is infeasible: their use introduces thermal stress that the unit is not designed to withstand for prolonged periods, causing accelerated equipment wear. *Id.* Duct burners also operate less efficiently than the rest of the unit, substantially

increasing the unit's heat rate (and thus its CO_2 emission rate). *Id.* EPA's sole response—that "[d]uct burners are a component of [gas] capacity" and are therefore included for redispatch—is conclusory and fails to address the serious problems commenters raised. RTC Ch. 3 § 3.2 at 172, JA__. Consequently, EPA's unsupported 75% capacity factor is in reality significantly higher.

For these reasons, EPA's conclusion that Building Block 2 can achieve the targeted level of generation shifting is precisely the type of "crystal ball" inquiry prohibited by the case law. *Portland Cement*, 486 F.2d at 391.

c. Building Block 3.

Building Block 3 assumes that generation at affected units will be replaced "by using an expanded amount of zero-emitting renewable electricity (RE)." 80 Fed Reg. at 64,803, JA__. EPA determined the amount of available new renewables generation by forecasting the growth in renewables generation anticipated through 2021 in the absence of the Rule, and adding target renewables growth rates for 2022-2030 that EPA predicts can occur as a result of the Rule. *See id.* at 64,807-09, JA__; GHG Mitigation Measures TSD at 4-1 to 4-2, 4-6, JA__-__, __. Both forecasts are based on unsupported, unrealistic assumptions about future growth. EPA thus has not shown that the total renewables required by the Rule are adequately demonstrated, nor shown that its Building Block 3 target is achievable.

EPA calculated growth levels of renewable energy anticipated to occur without the Rule that are significantly greater than those projected by the U.S. Energy

Information Administration ("EIA")—the governmental entity charged with forecasting electricity generation and demand. EPA projected that by 2020 renewable energy generation, other than hydropower, will grow to 406,000 GWh; yet EIA projects that it will grow only to 335,000 GWh. *Compare* Analysis of the Clean Power Plan, Base Case SSR at Summary Tab[16] *with* EIA Annual Energy Outlook 2015 at A-31, EPA-HQ-OAR-2013-0602-36563, JA __. Moreover, EPA's projection in the Rule was significantly greater than its projection in the proposal that renewable energy generation in 2020 would be only 299,000 GWh. *See* Analysis of the Proposed Clean Power Plan, Base Case SSR at Summary tab.[17]

EPA failed to adequately explain why it increased its projections so significantly in the Final Rule, or why the estimation of the entity responsible for such forecasts should be discounted, particularly given that EPA is no expert on these issues. EPA used 2012's growth in renewables as the base growth level, but that year was artificially inflated due to a tax credit that expired on December 31, 2012—causing many projects to be shifted from 2013 to 2012. 21st Century Energy, "What's In a Target," 13-15 (Jan. 2016), http://www.energyxxi.org/sites/default/files/What%27s%20In%20a%20Target%20FINAL.pdf. EPA has failed to

[16] *Available at* http://www.epa.gov/sites/production/files/2015-08/base_case.zip, Base Case SSR Excel file, Summary Tab.

[17] *Available at* http://www.epa.gov/sites/production/files/2015-07/epa_base_for_the_proposed_clean_power_plan.zip, (Base Case-SSR Excel file, Summary Tab.

adequately demonstrate the near-term renewables levels used in its BSER determination.

With regard to renewable generation levels after 2021, EPA assumed that each of the various types of renewables (solar, onshore wind, geothermal, and hydropower) can achieve annual growth rates from 2024-2030 equivalent to the maximum annual growth rate each achieved from 2010-2014. GHG Mitigation Measures TSD at 4-5, JA__. In other words, EPA assumed that each technology will achieve its *highest* historical one-year growth rate for seven consecutive years. EPA failed to explain the basis for this extraordinary assumption. Rather, it appears once again to be the type of "crystal ball inquiry" that cannot support a BSER determination.

A closer look at the numbers reveals how disconnected from reality EPA's assumption truly is. EPA assumed wind power on average can achieve a capacity factor of 41.8%, when historical average capacity factors across the United States from 2008-2014 range between 28.1% and 34%. *Compare GHG* Mitigation Measures TSD at 4-3, JA__, *with* EIA, *Electric Power Monthly* at Table 6.7.B. (Feb. 2014), EPA-HQ-OAR-2013-0602-0162, JA __. While technologies may be expected to improve over time, any such improvements will likely be offset by the need to place an increasing amount of wind generating capacity in less optimal locations. In any event, EPA failed to adequately explain how average wind capacity factors can be increased by the approximately 30% it assumes.

Why does this matter? It matters because, if EPA's crystal ball guesses turn out to be wrong (as the record predicts they will), the results will be disastrous. Under the Rule, because no gas unit can comply with the applicable performance rates, any generation produced by a gas unit must be "offset" by ERCs from Building Block 3. 40 C.F.R. § 60.57954(b). As a result, if no ERCs were available from Building Block 3, there would also be no ERCs for Building Block 2, with the result that *no* gas or coal unit could generate *any* electricity. Every shortfall in the number of Building Block 3 ERCs needed for gas units to increase their capacity factor to 75% will result in a shortfall in ERCs that coal units need to generate electricity. Consequently, if EPA's Building Block 3 assumptions are not supported, not only will there be a shortfall in the generation produced by Building Block 2 and 3, but, even more troubling, generation that could be produced by coal and is needed to meet the shortfall from Building Blocks 2 and 3 will not be able to be produced. This "death spiral" that EPA's "system" creates underscores the critical error EPA made in finding that Building Block 3 is "adequately demonstrated" and "achievable."

In the end, EPA based its Building Block 3 analysis not on historically demonstrated levels of renewable generation, but on unsupported, highly speculative assumptions that far exceed both current projections and average historical growth rates. EPA also failed to assess any of the real world considerations associated with such massive growth, including where the new generating resources will be built, who will build them, and how will they be integrated into the existing electrical grids.

Southern Company Comments at 153-55, JA__. Building Block 3 is thus impermissibly based on speculation and conjecture.

d. EPA Failed To Account For Application Of BSER On Generating Units' Emission Rates.

EPA's Building Blocks also fail to account for how application of the BSER will negatively impact generating units' emission rates. To calculate the guidelines, in each interconnection EPA used the overall average 2012 CO_2 emission rates for coal units (adjusted downward by the Building Block 1 target) and gas units. Goal Computation TSD at 10, 16-17, JA__. But EPA ignored comments demonstrating that implementing BSER will *raise* the CO_2 emission rates of those units above 2012 levels. For coal units, the BSER is based on reducing those units' utilization, which EPA admits *increases* CO_2 emission rates. For some units, low load operation can increase heat rate by 10% or more, eclipsing any Building Block 1 heat rate improvements. GHG Mitigation Measures TSD at 2-34, JA__; Reconstructed EGU TSD at 4, JA__; UARG Comments at 209-10, JA__.

For gas units, implementing BSER will involve increasing utilization of less efficient units that were designed for optimum performance when following load (i.e., not acting as baseload). UARG Comments at 210, JA__. These units emit CO_2 at higher rates when used more heavily, increasing the overall emission rate of the subcategory. *See* 79 Fed. Reg. at 34,980, JA__ (admitting some gas units "are designed to be highly efficient when operated as load-following units" but are less efficient at

baseload). Heavy use of gas units' duct burner capacity, *see supra* at II.B.1.b.iii will also raise those units' CO_2 emission rates. EPA's failure to account for these effects on fleet average emission rates further undermines its BSER calculation.

2. EPA Has Failed To Account For Grid Reliability Or Infrastructure Needs.

EPA's BSER is also fatally flawed because EPA failed to meaningfully assess the massive infrastructure build-out and upgrades that must occur or the Rule's impact on the reliability of the electric grid. EPA has not shown its plan will work, if for no other reason than it has failed to consider fully and adequately the important questions of transmission infrastructure and reliability.

a. EPA Failed To Meaningfully Assess The Need To Build New Infrastructure.

EPA failed to meaningfully assess the new infrastructure that will be required to implement Building Block 2 and 3's generation shifting. Replacing fossil generation with new generation requires transmission infrastructure. EPA thus must establish that the replacement generation contemplated by its BSER can be delivered in a manner that ensures reliable power to meet user demands in all parts of the country. EPA has not made that showing. EPA also failed to demonstrate that the existing gas pipeline infrastructure would be sufficient to meet the substantially increased demand for gas under the Rule. Southern Company Comments at 121-24, 220, JA__.

Instead of assessing how new infrastructure will be created and paid for, EPA incorrectly assumes little additional infrastructure will be needed. *See, e.g.*, 80 Fed. Reg.

at 64,801, 64,810, JA __. EPA failed to demonstrate that this assumption is anything but a speculative, "crystal ball" hope. Indeed, EPA's assumption is belied by the chorus of warnings from the experts.

For example, the North American Electric Reliability Corporation ("NERC"), the regulatory authority charged with ensuring the reliability of the North American bulk power network, concluded that the Rule's "transformative shift" in electricity generation would "lead[] to the need for transmission and gas infrastructure reinforcements." NERC, Potential Reliability Impacts of EPA's Proposed Clean Power Plan at vii, EPA-HQ-OAR-2013-0602-37007, JA__. NERC noted that thousands of miles of new high voltage transmission would be required to satisfy reliability and contingency analysis requirements. *Id.* at vii, 32, 34, JA__. Similarly, Regional Transmission Organizations ("RTOs") charged with operating the system to balance generation and demand warned that substantial new infrastructure was needed to ensure reliability. *See, e.g.*, Midcontinent Independent System Operator, Inc. Comments at 3, EPA-HQ-OAR-2013-0602-22547, JA__; Southwest Power Pool Comments at 3, EPA-HQ-OAR-2013-0602-20757, JA__.

States and utilities also commented on the proposal's lack of transmission capacity to support generation shifting in various parts of the nation. *See, e.g.*, Southern Company Comments at 219-21, JA__-__; Montana Public Service Comm'n Comments at 9, 11-12, EPA-HQ-OAR-2013-0602-23936, JA__, __-__; Mississippi Public Service Commission Comments at 21-23, EPA-HQ-OAR-2013-0602-22931,

JA__; North Dakota Department of Health Comments at 23, EPA-HQ-OAR-2013-0602-24110, JA__; West Virginia Department of Environmental Protection Comments at 35, 62, EPA-HQ-OAR-2013-0602-23540, JA__; Public Utility Commission of Texas ("PUCT") Comments at 42, EPA-HQ-OAR-2013-0602-23305, JA __. For example, commenters noted that in Wyoming there is no significant gas generation to absorb the load EPA mandates be taken from the State's coal plants, which means most of the required generation shifting must go to newly-constructed wind farms; and this new generation will require substantial new transmission infrastructure to ensure reliability. Basin Electric Comments at 25-29, JA__-__.

EPA offered little justification for its contrary conclusion, except to assert the States will somehow work miracles with the "flexibility" allegedly afforded them. *See* 80 Fed. Reg. at 64,801, 64,810, JA__, __. This is not a demonstration; it is an abdication.

b. EPA Failed To Ensure Reliable Electric Supply.

Additionally, to be "adequately demonstrated," any system of emission reduction for fossil units must ensure a reliable electric supply to avoid brownouts and blackouts. EPA has failed to show that its system of alternative electric generation will be reliable—in other words, that the lights won't go out.

EPA conceded both that it lacks the expertise to assess grid reliability and that it did not conduct a true reliability assessment of the generation shifting its "system"

of emission reduction requires. *See* 80 Fed. Reg. at 64,874-81, JA__-__.[18] EPA recognized that "planning authorities and system operators constantly consider, plan for and monitor the reliability of the electricity system with both a long-term and short-term perspective." *Id.* at 64,874, JA__. Further, it acknowledged such reliability assessments are "multidimensional, comprehensive, and sophisticated." *Id.* But nowhere in the record did EPA provide such an assessment showing that application of its ambitious BSER will result in the transmission necessary for a reliable electricity system. Instead, EPA deferred for another day consideration of this critical issue, and assumed States, system planners, and operators could "develop a pathway" to a reliable electricity system. *See id.* at 64,876-77, JA__-__. Thus, this nation's electricity depends on the creation of a new "pathway" engineered by States and system planners that the Rule's architect cannot articulate.

Further, EPA's conclusion that system reliability will not be affected is based not on a legal or technical conclusion, but on an *assumption* baked into its Integrated Planning Model—the model "must maintain adequate reserves in each region" and is

[18] EPA did produce a document purporting to assess the reliability impacts of the final Rule based on its modeling. Technical Support Document: Resource Adequacy and Reliability Analysis ("Reliability TSD") at 1-2, EPA-HQ-OAR-2013-0602-36847, JA __-__. Rather than assessing reliability in a meaningful way, it merely "assumes that adequate transmission capacity exists to deliver any resources located in or transferred to [a] region." *Id.* at 3, JA __. Tellingly, EPA does not even cite its analysis in discussing reliability in the preamble to the Rule. *See* 80 Fed. Reg. at 64,874-81, JA __-__. And EPA concedes that future analysis is required to assess reliability issues. *Id.* at 63,876-77, JA __-__.

built around that assumption. Reliability TSD at 3, JA __; *see* PUCT Comments at 30, JA __.

NERC, the RTOs, and others warned EPA of significant reliability concerns with EPA's proposal to quickly and radically restructure the nation's energy supply. *See, e.g.*, Midcontinent Independent System Operator, Inc. Comments at 3, EPA-HQ-OAR-2013-0602-22547, JA __ (expressing similar concerns); Southwest Power Pool, SPP's Reliability Impact Assessment of the EPA's Proposed Clean Power Plan at 3, 5-6 (Oct. 8, 2014), JA__, ___-___(describing its reliability assessment of the proposed rule); NERC, Potential Reliability Impacts of EPA's Proposed Clean Power Plan, Initial Reliability Review at 19, EPA-HQ-OAR-2013-0602-37006, JA__ ("NERC Reliability Review").

EPA largely brushed off these concerns. It failed to conduct its own meaningful assessment or confront the issues posed by Southwest Power Pool's assessment. It failed to address the need for a reliability safety valve; and its "reliability safety mechanism" does not address the problem, as it provides only temporary relief for catastrophic events like floods and offers States *no* flexibility to adjust either the emission requirements or the schedule to address reliability problems. 80 Fed. Reg. at 64,876, 64,878, JA __, __. Its vague statements about working "with FERC and DOE … to help ensure continued reliable electric generation and transmission" offer no reasoned discussion of the issue and no assurance that its plan will work. And its assurances that the Rule provides "flexibility" and a "gradual" compliance schedule

ducks rather than confronts the issue, *id.* at 64,875-76, JA __, reflecting EPA's wish-upon-a-star approach.

Moreover, the "flexibility" EPA touts is not available in all areas, particularly in ERCOT and in areas served by rural electric cooperatives. In these areas, unique characteristics put such flexibility firmly out of reach, and showcase the reliability problems posed by the Rule that EPA has failed to confront and adequately demonstrate.

(i) The Electric Reliability Council Of Texas

In setting BSER based on national performance rates, EPA irrationally refused to address the unique nature of the electric market in Texas. Texas is the only State that has utilities operating in each of the nation's three electrical interconnections: ERCOT, the western interconnection, and the eastern interconnection. Approximately 90% of Texas electricity consumption (covering 75% of Texas's land mass) occurs within ERCOT. http://www.ercot.com/about/profile/. It is a unique "power island," separated from the nation's eastern and western interconnections by asynchronous ties that inhibit cross-interconnect electric transmission.[19] This means nearly all "generation shifting" would have to occur within Texas. *See* PUCT Comments at 31, JA__; Texas Comm'n on Environmental Quality's ("TCEQ")

[19] ERCOT can import a limited amount of megawatts from outside its grid. *See* ERCOT 2014 State of the Grid Report at 7, http://www.ercot.com/content/news/presentations/2015/2014%20State_of_the_Grid_Web_21015.pdf.

Comments at 2, EPA-HQ-OAR-2013-0602-22305, JA__; Luminant Comments at 49, JA__. Texas thus cannot reduce its coal generation and purchase and import gas-fired or renewable generation from a generator in another State at the levels EPA mandates. PUCT Comments at 31; TCEQ Comments at 2. Compliance with the Rule would pose significant challenges to maintaining reliability within ERCOT.

The Rule would supplant ERCOT's economic dispatch model operating in a uniquely competitive market. PUCT Comments at 10, JA__. Because ERCOT investor-owned utilities have been separated into generation, transmission and distribution, and retail services companies—with only the transmission and distribution function subject to traditional regulation—units bear the risk of owning and operating their assets without guaranteed recovery of their costs or profit through regulated utility rates. *See* Tex. Util. Code Ann. § 39.001; PUCT Comments at 1, 4, JA__, __. In the absence of long-term power contracts, the ERCOT market is operated through unit-specific bidding and dispatch, with ERCOT using the generation with the lowest bids to serve load, subject to transmission constraints. PUCT Comments at 48, JA__. Bids are generally made reflecting the short-run marginal costs of the units and dispatch decisions are made by ERCOT on the basis of those bids. *Id.* at 43, JA__. Therefore, units in this competitive energy-only market are already motivated to make efficiency improvements to their plants. *Id.*

EPA has ignored concerns from PUCT and Luminant regarding these impacts in the ERCOT Market. *See* Luminant Comments at 66-68, JA__-__; PUCT

Comments at 8-10, 37-38, 42-44, 48-51, JA at __-__, __-__, ___-__, __-__. EPA acknowledged that "all of the lower-48 states, *with the exception of Texas*, are part of a multi-state, regional grid." Legal Memorandum for Proposed Carbon Pollution Emission Guidelines for Existing Electric Utility Units at 91, EPA-HQ-OAR-2013-0602-0419, JA__ (emphasis added). The Federal Power Act also recognizes the limited nature of federal jurisdiction over the unique ERCOT market. 16 U.S.C. § 824(b); *see also* PUCT Comments at 8 n.12, JA__. EPA ignored these critical distinctions in the Rule.

EPA's only answer is the Rule's so-called "flexibility." 80 Fed. Reg. at 64,665, 64,880, JA__, __. But EPA's "central" assumption of a multi-state electricity system that provides this "flexibility" and underlies its BSER is simply not applicable to Texas. 79 Fed. Reg. at 34,878, JA__. EPA is not an expert in electric grid reliability, *Del. Dept. of Natural Res. & Envtl. Control v. EPA*, 785 F.3d 1, 18 (D.C. Cir. 2015), and its inexperience is evident here. EPA's refusal to account for ERCOT's unique status and to heed ERCOT's reliability concerns is arbitrary and capricious. *Id.*

(ii) Cooperatives

The Rule also will make it impossible for many electric cooperatives to provide reliable, low cost electricity to rural America (including the poorest parts of the nation) in compliance with their obligations under 7 U.S.C. § 901, *et seq*. Rural electric cooperatives typically serve large, primarily residential, low-density service territories in the poorest and most rural parts of the country. National Rural Electric

Cooperative Association ("NRECA") Comments at 2-3, 129-30, EPA-HQ-OAR-2013-0602-33118, JA__-__, __-__.

The Rule severely restricts generation sources available to cooperatives, *see* NERC Reliability Review at 19, JA__, many of which own a single coal unit and rely on its high-capacity-factor operation for their generation. Generation & Transmission Cooperative Fossil Group Comments ("G&T Fossil Comments") at 21, EPA-HQ-OAR-2013-0602-23164, JA__. These cooperatives have invested billions of dollars to install state-of-the-art emissions controls on their coal units to comply with other regulations. *See* NRECA Comments at 14, JA__; *see also* EPA, Regulatory Impact Analysis for the Final Mercury and Air Toxics Standards 3-13 (Dec. 2011), http://www.epa.gov/ttn/ecas/regdata/RIAs/matsriafinal.pdf. Severely constraining or retiring the operation of coal units will in turn severely challenge cooperatives' ability to serve their members and create substantial financial issues. NRECA Comments at 52, JA__.

For example, the Arizona cooperatives serve 150,000 individual meters, spread across a large rural service area. Arizona Electric Power Co. Comments at 2, EPA-HQ-OAR-2013-0602-22972, JA__. Arizona Electric Power Company will be forced to curtail coal and gas-fired generation or even retire some or all of its steam units by 2022 to comply. *Id.* at 49, JA__. Such closure jeopardizes electric reliability in Southern Arizona. *Id.* at 29, JA__.

Cooperatives do not have shareholders or equity. G&T Fossil Comments at 22, JA __. All increased costs associated with the Rule must be borne by member-customers through increased rates, which will have a devastating impact on the communities served. *Id.*; Western Farmers Electric Cooperative Comments at 14, Dkt. No. EPA-HQ-OAR-2013-0602-23644, JA__. Moreover, because many rural residents do not have access to natural gas and must depend exclusively on electricity or expensive propane and heating oil for warmth during cold months, electric cooperative member-customers lack practical, affordable alternatives when their electric rates rise. NRECA Comments at 2, JA __. In electric cooperative service territories, increases in rates force difficult decisions about whether to heat or cool houses even in extreme weather. *Id.* at 2-3, 129-30, JA __-__, __-__.

By failing to take the unique challenges of rural areas into account in its BSER, EPA has failed to demonstrate its system is reasonably reliable—that rural customers will still have an affordable and reliable electric supply.

3. EPA's BSER Is Not "Demonstrated" Or "Achievable" By Individual Sources.[20]

EPA compounds its first error—its failure to show that the individual Building Blocks are adequately demonstrated on a grid-wide scale or that the individual targets from those Building Blocks are achievable—by then combining them and further speculating about how they will operate together and how individual sources can achieve the performance rates.

EPA acknowledged that the BSER must "be available to an *individual source* … [and] allow it to meet the standard." 80 Fed. Reg. at 64,722, JA__ (emphasis added). Moreover, EPA "recognize[d] the uniqueness and complexity of individual power plants" and was "aware that there are site-specific factors that may prevent some [units] from achieving performance equal to region-level assumptions for a given technology." Goal Computation TSD at 6, JA__. Yet EPA admittedly did not "mak[e] those unit-level evaluations," instead applying assumptions of what the source category *as a whole* might achieve through application of the Building Blocks *on a regional basis*. *Id.*; 80 Fed. Reg. at 64,779, JA__.

[20] As discussed in the Core Issues Brief, EPA's system of emission reduction is unlawful because it is not based on pollution controls or process changes that can be accomplished at the source itself, but instead necessitates the construction of new renewable energy facilities and generation shifting. Even if these activities could be considered to be legally valid components of BSER under section 111(d), EPA would still have to show that individual sources will be able to employ such strategies to meet the ambitious emission guidelines on a per-source basis.

This is fatal to the Rule. And while it may be difficult for EPA to demonstrate that individual units can apply an industry-wide system as opposed to controls or practices implementable at an individual facility, that is EPA's statutory burden with this Rule. It cannot be shirked simply because the scope of EPA's BSER is unprecedented. Further, as in *National Lime Ass'n*, EPA erred by establishing emission guidelines without analyzing whether much of the industry can meet them, given the great "variations in operations" of utilities around the country. 627 F.2d at 434.

4. The Rule is Not Saved by the Presumed Availability of a Trading Program.

EPA concedes that individual sources will not be able to achieve the Rule's performance rates through the Building Blocks, but nonetheless insists that compliance can be achieved through "a wide range of emission reduction measures, *including measures that are not part of the BSER*." RTC Ch.1 §§ 1.0-1.5 at 179, JA__ (emphasis added). In particular, EPA states that emissions trading is "integral" to its assessment of the BSER and the achievability of its emission guidelines. 80 Fed. Reg. at 64,733-35, JA__-__. EPA cannot rely on actions that are not part of the BSER to establish the achievability of its guidelines. It has neither established a trading program nor analyzed the reliability or achievability of any such programs that might be established by the States. Moreover, the restrictions EPA has placed on State trading programs makes it far less likely that sufficiently robust programs will develop.

EPA's admission that sources will need to engage in trading to satisfy the emission guidelines is itself a concession that the guidelines are not "achievable through the application of [BSER]" as required by section 111(a)(1). This is again fatal. EPA cannot establish emission guidelines based on its BSER, acknowledge that those guidelines are unachievable in many cases through application of the BSER, and then tell regulated parties they have the "flexibility" to apply other, non-BSER actions to achieve the guidelines. While regulated parties often have flexibility to choose alternative methods of satisfying a standard that has been shown to be achievable through application of the BSER, that is far different than allowing EPA to rely on non-BSER measures to show that the standard itself is achievable. This Court has rejected this very argument before, holding that "the flexibility appropriate to enforcement will not render 'achievable' a standard which cannot be achieved on a regular basis." *National Lime Ass'n*, 627 F.2d at 431 n.46.

Nor does EPA conduct any meaningful analysis to determine whether, even if it could rely on trading, sufficiently robust trading systems will arise. For trading to be relied upon to justify EPA's BSER, several things must happen. First, because the Rule does not establish (or even require the creation of) any trading mechanism, States must individually adopt trading programs. Second, because in many instances actions within particular States will be insufficient for the sources within the State to comply, State plans must be coordinated to allow for interstate trading. Third,

participants within these coordinated trading programs must generate and trade enough credits to allow compliance for all sources.

EPA offers no analysis showing this will happen; it only "anticipates" that "organized markets will develop." 80 Fed. Reg. at 64,731-32, JA__-__. Anticipation is not demonstration and does not satisfy the requirement that EPA offer a "'satisfactory explanation'" and take a "'hard look at the salient problems.'" *Portland Cement*, 665 F.3d at 187 (citations omitted).

EPA also cites instances where trading has been successfully employed in connection with federal clean air programs. *See* 80 Fed. Reg. at 64,696-97, JA__-__; Legal Memorandum Accompanying Clean Power Plan for Certain Issues at 105-10, EPA-HQ-OAR-2013-0602-36872, JA__-__. But in each case, individual sources could comply without relying on trading if it so chose. That distinction overwhelms any possible comparison to the Rule, where trading is the only way to achieve compliance.

Regardless, the mere fact that trading programs have been used before hardly means trading programs will arise here, or that there will be sufficient credits for sources to comply. Moreover, in each of those instances, an overarching set of federal statutory or regulatory requirements established the trading program. *See* CAA §§ 401-416. The NO_x State Implementation Plan Call, Clean Air Implementation Rule, and Cross-State Air Pollution Rule are all *EPA-imposed* federal implementation plans that set up trading programs for States that contribute significantly to downwind

nonattainment. 80 Fed. Reg. at 64,696, JA__. The Clean Air Mercury Rule established a cap-and-trade program based on mercury reductions that could be achieved by controls installed at individual units. *Id.* at 64,697, JA__. In stark contrast, the Rule here does not establish any trading program, or even require States to allow for trading in their individual State plans. At the same time, the Rule's performance rates cannot be met without ERCs, and EPA acknowledges trading is "integral" to BSER.

Additionally, the Rule imposes affirmative restrictions that will inhibit—rather than encourage the development of—sufficiently robust trading mechanisms. These restrictions include: requiring States to either enter into a formal multi-state plan or adopt emission standards equal to the sub-category performance rates in order to engage in interstate trading, 40 C.F.R. § 60.5750(d); prohibiting issuance of ERCs for resources operating prior to January 1, 2013, *id.* § 60.5800(a)(1), *see infra* at III.B requiring that the credit generating resource be located in a rate-based State, except under limited circumstances, *id.* § 60.5800(a)(3); limiting ERC generation in mass-based States to wind, solar, geothermal, hydro, wave, and tidal sources, *id.* § 60.5800(a)(3); prohibiting credits for CO_2 emission reductions that occur outside the electric power sector, *id.* § 60.5800(c)(3); and offering no meaningful way to take advantage of unit retirements as a means of creating ERCs. These restrictive provisions limit the ability of States to create a trading environment in which adequate ERCs will be available at a reasonable price.

EPA's whole plan collapses if new trading programs do not germinate, yet EPA has not shown they will ever do so.

C. EPA Imposes on States an Impossible Task of Implementing BSER to Achieve Required Emission Reductions.

Section 111(d) obligates the States to establish performance standards that reflect the BSER. However, EPA's BSER is a house of cards that collapses under the weight of reality.

Given EPA's failure to establish the adequate demonstration or achievability of its three individual Building Blocks, it is hardly surprising that the Rule's performance rates are *manifestly* unachievable under "the range of relevant conditions" that affect different sources in different States. *Nat'l Lime Ass'n,* 627 F.2d at 433. Many States lack the resources that EPA's BSER assumes or have unique geographic or infrastructure limitations that prohibit or severely limit their potential to shift generation to lower- or zero- emitting generation. *See* Section II.B.2., *supra*, Section V, *infra*. These States cannot apply the Building Blocks that comprise BSER to even approach the performance rates EPA is imposing on the States and their sources.

For instance, Montana must achieve a nearly 50% reduction in coal unit CO_2 emissions by 2030.[21] But Montana sources cannot apply BSER to achieve this level of

[21] For Montana, the final rate-based CO_2 emission goal for 2030 is 1,305 lbs CO_2/MWh (compared to a baseline rate of 2,481 lbs CO_2/MWh), for a 47.4% emissions rate reduction goal; and the final mass-based goal is 11,303,107 short tons (Continued...)

emission reduction because there are no gas units (or associated transmission) in the State. Goal Computation TSD Appendix 5, JA__. Additionally, while Montana has renewable energy potential, its sources cannot build enough renewable energy to replace 50% of the State's baseload generation or build the necessary transmission capability by 2030. Montana Public Service Comm'n Comments at 9, EPA-HQ-OAR-2013-0602-23936 ("MPSC Comments"), JA__. Its neighbor North Dakota is in a comparable situation, with 99.4% of the fossil-fuel generation in the State coming from coal in 2013.[22] The State faces a 44.9% emission reduction requirement but has no gas units in the State. Goal Computation TSD Appendix 5, JA__.

Similarly, Kentucky faces massive CO_2 reduction requirements, but sources cannot achieve those reductions within the State's borders. Coal generation provides over 90% of the State's electricity needs, LG&E and KU Energy LLC Comments at 3, JA__; the *only* gas unit in Kentucky was under construction during the Rule's comment period, *id.* at 14, JA__; and Kentucky has little wind and solar potential, UARG Comments at 243, JA__.

Kansas, North Dakota, West Virginia, and Wyoming face similar situations, where 90% of their in-state fossil generation comes from coal units but sources within those States have limited ability to replace that generation with gas and renewable

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of CO_2 (compared to an adjusted baseline level of 19,147,321 short tons of CO_2), a 41% emissions reduction goal. Goal Computation TSD, Appendix 5, JA__.

[22] http://www.eia.gov/electricity/state/NorthDakota/.

generation. Wyoming Comments at 14-20, JA__; Kansas Department of Health & Environment Comments at 7, EPA-HQ-OAR-2013-0602-23255, JA__; West Virginia Department of Environmental Protection at 41-42, JA__. Similarly, Texas (operating primarily within the limited ERCOT region) has significantly higher renewable generation than the U.S. average and has already utilized the most promising sites for renewable generation. Luminant Comments at 63-64, JA__-__.

Finally, as discussed above, the fact that EPA would allow States to develop emissions trading systems under their state laws to achieve compliance does not save the Rule. The Act requires States to establish performance standards for existing sources within their own borders. § 111(d). EPA has not shown that it can require States to rely on extraterritorial emissions credits in setting and achieving the performance standards for sources within their borders. While EPA may consider the electric power industry a "highly integrated" and "complex machine," state laws are not. EPA cannot impose on individual States the obligation to look beyond their borders.

EPA therefore has failed to show that all States can apply the BSER to approach EPA's mandated emission guidelines.

III. The Rule Arbitrarily Penalizes Many Sources Of Low- And Non-Emitting Generation Along With Companies And States That Have Already Taken Costly Actions To Reduce Emissions Of Greenhouse Gases.

To justify the Rule's radical approach, EPA asserts the electric industry is unique, that all its sources form an interconnected, "complex machine"—the electric supply system. 80 Fed. Reg. at 64,725, JA__. Thus, it reasons, increases in generation from one source affect generation from other sources, and electrons can freely flow to wherever they are needed when existing units shut down. *Id.* For that reason, EPA invented its new "system" of emission reduction based on forcing the industry to shift to EPA's favored sources of electricity.

EPA's approach is arbitrary and capricious in two ways. First, it ignores a significant part of the existing mix of electric generating sources that plays a substantial role in how fossil fuel-fired units are dispatched and operated. Second, it arbitrarily penalizes zero- and low-emitting generating facilities (including wind, solar, and nuclear) that began operating before 2013. 40 C.F.R. § 60.5800(a)(1). In doing so, EPA significantly disadvantages the States and companies that have been at the forefront of addressing climate change.

A. EPA Arbitrarily Ignores A Large Part Of The Electric Supply System For Compliance Purposes.

It is hypocrisy for EPA to claim its system is based on the whole grid while it ignores large parts of that grid: existing renewable energy, nuclear generation that

provides approximately 20% of the nation's power[23] with zero emissions, hydro-electric generation that supplies the majority of electricity in many regions of the country, co-generation units, and waste-to-energy facilities with very low carbon footprints. All are critical to the electric supply system and to reducing the demand for electricity from fossil fuels. EPA arbitrarily excludes them as compliance options.

The existence of these EPA-disfavored non-fossil resources has driven many companies' electric supply resource decisions. For example, hydroelectric generation dominates the supply of electricity in the Pacific Northwest, giving those States the lowest average emission rates per megawatt hour in the country. *See* Portland General Electric Comments at 18, EPA-HQ-OAR-2013-0602-23507, JA__. The seasonal and variable nature of hydroelectric generation also dominates the other resource decisions in the region. *Id.* at 33, JA__; 80 Fed. Reg. at 64,815, JA__. Yet, EPA failed to consider the importance of maintaining existing hydroelectric power and its unique characteristics in its analysis for Rule compliance. 80 Fed. Reg. at 64,735, JA__. Similarly, companies that have invested in nuclear generation over the years have kept their emission rates lower; yet EPA ignored the huge benefit nuclear units contribute to zero-emission generation. *Id.*; Entergy Comments at 21-22, EPA-HQ-OAR-213-0602-22874, JA__-__ . EPA essentially assumes these generation resources will

[23] EIA, What is U.S. electricity generation by energy source, https://www.eia.gov/tools/faqs/faq.cfm?id=427&t=3 (Mar. 2015).

continue operating at similar levels in perpetuity, and fails to recognize the significant role their continued operation will play in future dispatch and emissions performance of the electricity sector.

Because EPA effectively ignored these resources, it "failed to consider an important aspect of the problem." *Motor Vehicle Mfrs. Ass'n. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983). EPA cannot base a rule on the assumption that a large part of the "system" it is regulating does not exist or that its status as of 2012 will remain static forever.

B. The Rule Arbitrarily Discriminates Between Low- and Zero-Emitting Sources Built Before And After January 1, 2013.

No good deed goes unpunished. This Rule bears that out. In determining whether a resource can count toward compliance, the Rule discriminates between identical resources based on whether they were constructed before or after January 1, 2013. The existence of *any* cut-off date is arbitrary. It punishes entities that chose to invest in zero- and lower-emission resources early to address the very problem EPA seeks to tackle. It also creates harmful and perverse incentives for the future operation of early-built resources. EPA acknowledges the "clearly emerging growth in clean energy innovation, development and deployment," 80 Fed. Reg. at 64,663; JA__, as critical to reducing greenhouse gas emissions. Yet the Rule makes no allowance for this early action. To the contrary, it uses these early actions as a way to impose on those companies and States even more stringent performance rates.

Several States' experiences are illustrative:

- Over the past fourteen years, New Jersey entities invested $3.27 billion in renewable energy and energy efficiency. New Jersey Department of Environmental Protection Comments at 2, EPA-HQ-OAR-2013-0602-22758; JA__; *see also* New Jersey Technical Comments at 5, EPA-HQ-OAR-2013-0602-22758; JA__.
- In 2012, Kansas entities increased the State's wind generation capacity exponentially. *See* Existing Kansas Wind Farms, http://kansasenergy.org/wind_projects.htm.
- Between 2005 and 2012, Minnesota entities invested $4 billion to reduce CO_2 emissions by almost 21%. Xcel Energy Inc. Comments at 9-10, EPA-HQ-OAR-2013-0602-22748; JA__.
- In the past 15 years, Washington State has invested more than $8 billion in renewable energy sources. Pacific Coast Collaborative Comments at 2, EPA-HQ-OAR-2013-0602-22947, JA__.
- Texas—which produced 23% of all wind energy produced in the United States and more than twice as much wind energy as the next highest wind energy producing state in 2012—is likewise being punished as a first mover in this area. TCEQ Comments at 2, JA__.

Other examples abound.

EPA's arbitrary discrimination between identical power generation resources is contrary to the Administrative Procedure Act and creates perverse market incentives. *See Indep. Petrol. Ass'n of Am. v. Babbitt*, 92 F.3d 1248, 1258 (D.C. Cir. 1996). Even though pre-2013 zero-emission sources provide precisely the same environmental benefit as post-2013 sources, the Rule significantly disadvantages pre-2013 sources without a plausible justification. EPA assumes that resources constructed before 2013 will continue operating at their present rates indefinitely, partially alleviating the need for fossil fuel-based power. *See* 80 Fed. Reg. at 64,737, 64,897, JA__, __. Yet the Rule will lead to the opposite result. EPA's rule discounts the value of existing renewable energy, incentivizes owners to defer or stop maintenance and helps create a fleet of stranded renewable energy assets.

This trend will only increase when pre-2013 generators face diminishing value as the full implementation of the Rule causes ERC value to increase. EPA simply fails to recognize that in creating economic advantage for newer resources, it will render less viable existing resources of *identical* environmental value. EPA should not be in the business of picking winners and losers arbitrarily.

The discriminatory impact of EPA's arbitrary cutoff date for compliance tools is underscored by the circumstances confronting waste-to-energy facilities. Although these facilities provide significant carbon emission reductions—every ton of municipal solid waste directed to a waste-to-energy facility rather than a landfill avoids

more than one ton of greenhouse gas emissions[24]—the technology is expensive, 64.6% more costly than landfilling. LGCRE Comments at 9-11, JA__, __.

That cost disparity jeopardizes communities' continued reliance on waste-to-energy, and ERC eligibility could be pivotal for sustained operation versus shutdown. Pre-2013 facilities need revenue incentives such as ERCs "to make investments to continue producing clean energy." Absent such incentives, operators "may ultimately choose to retire facilities rather than extend their lives." *Id.* at 7-11, JA__, __; *see* http://www.mprnews.org-/story/2010/10/12/ground-level-cities-in-crisis-red-wing (Minnesota waste-to-energy facility closes due to high operating expense and low-cost landfill alternative); http://energyrecoverycouncil.org/wpcontent/uploads/2016/02/DMS-3307817-v3-CREA_Minutes-April_9_2015.pdf (waste-to-energy facility in Los Angeles County faces possible shutdown due to declining electric revenues). Moreover, while EPA acknowledges the role of waste-to-energy and other pre-December 31, 2012 renewables in "keeping CO_2 emissions lower than they would otherwise be," it speculates that denying these sources ERC eligibility will not affect the net carbon reduction EPA projects. 80 Fed. Reg. at 64737, JA __. EPA's speculation is not supported by the record, and such arbitrary "unsupported

[24] *See Air Emissions from MSW Facilities*, EPA, http://www3.epa.gov/epawaste/nonhaz/municipal/wte/airem.htm#7; *see also Bridging the Gap*, UNEP at 37-38 http://www.unep.org/pdf/UNEP_bridging_gap.pdf (United Nations advises that waste sector emissions can be reduced 80% through significant diversion of landfilled waste to waste-to-energy).

suppositions" require reversal. *McDonnell Douglas Corp. v. U.S. Dept. of the Air Force*, 375 F.3d 1182, 1186-87 (D.C. Cir. 2004).

EPA compounds these problems by imposing a discount on waste-to-energy-produced electricity. Although waste-to-energy's throughput is biogenic (paper, food waste, etc.) as well as anthropogenic (e.g., non-recyclable plastics), throughput is typically at least 40% anthropogenic. http://www.ecomaine.org/education/NAWTEC%20Maritatopercent20Hewes%20paper.pdf. Under the Rule, State plans will be allowed to qualify *only the biogenic portion* as renewable. 40 C.F.R. § 60.5800(a)(4)(iii). Aside from contradicting the greenhouse gas emission reduction objective at the heart of the Rule and EPA's recognition of the significant reductions waste-to-energy achieves, the discount will mean lower energy revenues for these facilities and further jeopardize local governments' ability to sustain their higher cost. EPA's rationale for discounting waste-to-energy electricity is nowhere stated. EPA acknowledged comments opposing such a discount, *see* RTC Ch. 3 §§ 3.5-3.12 at 360-63, JA__-__, but did not respond. That failure requires reversal. *Del. Dep't of Natural Res*, 785 F.3d at 11.

The same is true of the nuclear industry. Companies have invested millions of dollars in recent years to increase both the capacity and the capacity factors from nuclear units. For example, Entergy undertook a 178 MW uprate of its Grand Gulf nuclear station in 2012 and began operating at close to its new, higher capacity in September of that year. Entergy's Comments at 21-22, JA__, __. Because nuclear

units operate as baseload generators, the 178 MW of new generation creates over three times the benefit of, for example, wind generation that achieves only a 33% capacity factor. Yet, under the Rule, because Entergy undertook the uprate in 2012 instead of three months later, it receives no credit and never will. New Jersey also made large investments toward increasing the three nuclear power plants' output prior to 2013. *See* New Jersey Department of Environmental Protection Comments at 2, 4, JA__, __; *see also* New Jersey Technical Comments at 22-24, JA__-__.

All these investments produced environmental benefits, reduced emissions and helped spur the renewable energy industry. The cost for those benefits is already being borne by the ratepayers in these States. Yet EPA's Rule provides them with no benefit. Further, EPA simply presumes that all of these good acts will remain in place forever. But EPA's own Rule effectively discourages that outcome.

EPA's date cutoff also arbitrarily penalizes renewable resources that were installed during 2012 and only generated for a portion of the year. EPA states that "generation from . . . [renewable energy] capacity installed prior to 2013 has been excluded from the EPA's calculation of the CO_2 emission performance rates in the emission guidelines." 80 Fed. Reg. at 64,897, JA__. This explanation does not account for renewables that became operational during 2012 because generation from such renewables would not have been present during the entire year. A portion of generation from these sources is completely lost: it is neither part of the baseline nor is eligible to generate compliance credits.

C. EPA Unlawfully Prohibits The Use of Enhanced Oil Recovery That Also Results In Associated CO_2 Storage.

The Rule limits the injection of CO_2 from affected facilities to Subpart RR-compliant facilities. *See* 40 C.F.R. § 60.5860(f)(2). Enhanced oil recovery operators inject CO_2 into oil- and gas-bearing formations to recover stranded hydrocarbons, reporting the quantity of CO_2 injected under 40 C.F.R. Part 98, Subpart UU. The Rule limits the storage of CO_2 from affected units to operations that report under the far more burdensome requirements of Subpart RR. It thus functionally prohibits facilities from using CO_2 in enhanced oil recovery. 40 C.F.R. § 60.5860(f)(2). That is unlawful for two reasons.

First, this requirement was nowhere in the Proposed Rule. In fact, EPA maintained that it was not considering carbon sequestration as a BSER component. *See* 79 Fed. Reg. at 34,857, JA__.

Second, the restriction tramples state mineral property laws and private mineral leases. *See* 58 C.J.S. Mines and Minerals § 403. Compliance is impracticable for many operations that commingle CO_2 from affected units and other sources. And the Rule conflicts with prior EPA statements advocating enhanced oil recovery for carbon sequestration. *See* 79 Fed. Reg. at 1,473-74; *id.* at 1,478-479. Indeed, it undermines the government- and ratepayer-funded plan to use enhanced oil recovery at a first-of-its-kind integrated gasification combined cycle power plant in Kemper County, Mississippi. *See id.* at 1,435. EPA dismissed these concerns as a matter of cost alone.

See 80 Fed. Reg. at 64,884, JA__. That was error. The Subpart RR condition should be vacated.

IV. EPA Has Failed To Consider Important Aspects Of The Rule.

The Supreme Court has repeatedly recognized that an agency decision is arbitrary and capricious where the agency has "failed to consider an important aspect of the problem." *State Farm*, 463 U.S. at 43. "[J]udicial review can occur only when agencies explain their decisions with precision, for '[i]t will not do for a court to be compelled to guess at the theory underlying the agency's action…." *Am. Lung Ass'n. v. EPA*, 134 F.3d 388, 392 (D.C. Cir. 1998) (citing *SEC v. Chenery Corp.*, 332 U.S. 194,196-97 (1947)). EPA has failed to consider important aspects of the Rule and made critical errors in its emission guidelines as a result.

A. The Rule Impermissibly Regulates New Units.

The Rule requires that mass-based state plans include provisions to prevent "leakage," or "shifts in generation to unaffected fossil fuel-fired sources that result in increased emissions, relative to what would have happened had generation shifts consistent with the [BSER] [] occurred." 80 Fed. Reg. at 64,822-23; JA__-__. "Unaffected fossil fuel-fired sources" refers to new units subject to EPA's performance standards under section 111(b). CAA § 111(b). The leakage requirement must be vacated, as EPA has no authority under section 111(d) to require that States prevent the increased dispatch of new units.

Measures to prevent the dispatch of new units unlawfully subject such units, which are regulated under Section 111(b), to a state plan under section 111(d). This violates the plain language of the CAA. *See also* 80 Fed. Reg. at 65,039; JA__. The CAA establishes two avenues for applying performance standards to sources: (i) regulation of "new sources" under section 111(b), or (ii) regulation of "existing source[s]" under section 111(d). These two avenues are mutually exclusive, as a unit cannot be both a new unit and an existing unit. Under section 111(a)(6),"[t]he term 'existing source' means any stationary source *other than a new source*." CAA § 111(a)(6) (emphasis added). In contrast, section 111(a)(2) defines a "new source" as "any stationary source, the construction or modification of which is commenced after the publication of regulations (or, if earlier, proposed regulations) prescribing a standard of performance under this section which will be applicable to such source." *Id.* § 111(a)(2). This statutory language clearly and unambiguously establishes non-overlapping definitions of "new" and "existing" units, leaving no room for any alternative interpretation. *See Chevron v. Natural Res. Def. Council*, 467 U.S. 837, 842-43 (1984). Even EPA recognizes that sources may be subject only to section 111(b) *or* section 111(d), and not both. Proposed Federal Plan, 80 Fed. Reg. at 65,039. Accordingly, EPA has no authority to regulate the dispatch of new units under section 111(d), and the leakage requirement must be vacated. EPA cannot require States to implement rule elements the Agency itself has no authority to implement.

B. EPA Failed to Establish The Necessary Subcategories For Coal Types And Generation Technologies.

For new sources, the Act permits EPA to establish different emissions limitations for subcategories of units, and EPA regularly does so. CAA § 111(b)(2) (EPA "*may* distinguish among classes, types, and sizes within categories" (emphasis added)); *see* 80 Fed. Reg. at 64,760, JA__. EPA's section 111(d) rules go further for existing sources, *mandating* adoption of subcategories where existing sources have unique characteristics. 40 C.F.R. § 60.22(b)(5) (EPA "*will* specify different emission guidelines or compliance times or both for different sizes, types, and classes of designated facilities when costs of control, physical limitations, geographical location, or similar factors make subcategorization appropriate." (emphasis added)).[25] EPA acted arbitrarily and capriciously by failing to do so here, particularly for lignite coal-fired units.

EPA's own past rulemakings and unique lignite unit characteristics demonstrate the necessity of subcategorization. For example, EPA previously established subcategories for lignite-fired coal units in the Mercury and Air Toxics Standards rule under section 112. 77 Fed. Reg. 9,304, 9,379 (Feb. 16, 2012); *see* Luminant Comments at 82-86, JA__-__.

[25] This provision contrasts with others that simply *allow* EPA to subcategorize. *Cf.* CAA § 111(b)(2).

Here, the record shows that mine-mouth lignite units have significantly higher costs of control (i.e., retirement or curtailment) compared to other units in the category. Luminant Comments at 83-84, JA__-__. Lignite-fired units are always located at or near the mine that feeds it due to transportation cost constraints, and retirement of the unit is thus certain to cause shutdown of the mine and breach of long-term fuel supply contracts, with magnified economic impacts on the surrounding communities. *See* NACoal Comments at 20-22, JA__-__. EPA nonetheless treated all coal units the same in the Rule, reasoning that "each affected [unit] can achieve the performance rate by implementing the BSER." 80 Fed. Reg. at 64,760, JA__. Given the unique constraints faced by lignite-fired units, the failure to subcategorize was arbitrary and capricious.

C. EPA Failed to Consider Renewable Energy's Limitations.

EPA failed to consider the inherent limitations on generation and distribution of energy from renewable energy sources in electric markets. The Rule fails to address various issues associated with incorporating substantial amounts of renewable generation into the electric grid, including its substantial reliability impacts (including voltage support, system inertia, and stability issues), as well as transmission planning, siting, and construction issues. Southern Company Comments at 153-56, JA__-__. States like Texas have seen these limitations firsthand. Wind generation in Texas generally produces only a fraction of its output during times of peak demand, thereby making the availability of fossil generation critical for maintaining reliability; the Rule

fails to accommodate this shortcoming. PUCT Comments at 61, JA__ (EPA used a capacity factor for Texas wind of between 39 and 41%, in contrast to a prior ERCOT estimate of 8.7% availability during summer peak demand); Luminant Comments at 71, JA__ (wind generation is volatile); Montana Public Service Comm'n Comments at 11-12, JA__-__ (renewables' transmission constraints). EPA assumed unrealistically optimistic and unsupported capacity factors for renewable energy generation. *See* "What's In a Target," *supra*, at 17-20. It also gamed its analysis to show much lower cost associated with renewables by lowering coal generation substantially below the levels of the Base Case in the Proposed Rule and substantially below EIA's long Term Coal Generation forecast as well. EVA Report 17-24, 64-68, http://www.nma.org/pdf/EVA-Report-Final.pdf.

D. EPA's Cost-Benefit Analysis Is Fundamentally Flawed.

Section 111(a) requires consideration of costs. EPA, however, diminishes the Rule's costs by inflating its purported benefits in a manner outside the CAA's scope. The Rule is therefore arbitrary and capricious. *See Michigan v. EPA*, 135 S. Ct. 2699, 2707 (2015) (it is not "rational … to impose billions of dollars in economic costs in return for a few dollars in health or environmental benefits").

EPA monetizes the Rule's climate-related benefits using the Global Social Cost of Carbon. The Global Social Cost of Carbon's flaws are well known: the Interior Department calls it "misleading" because it excludes "the social benefits of energy production." Dep't of Interior, Federal Coal Leases COC-0123475 01 and COC-

68590, at 4-26 (Jan. 2016), http://www.wrcc.osmre.gov/initiatives/colowyo/documents/Colowyo_Collom_EA_CH%201-7.pdf. The National Academy of Sciences says it is outdated, inaccurate, and uncertain. Nat'l Academy of Sciences, *Assessment of Approaches to Updating the Social Cost of Carbon*, at 1 (2016). Academics characterize it as "meaningless," "close to useless," and "arbitrary." Robert S. Pindyck, *Climate Change Policy*: *What Do the Models Tell Us?*, J. Econ. Lit. 51(3), 860-72 (2013), http://dspace.mit.edu/openacces-disseminate/1721.1/88036. EPA's reliance on this flawed tool is fatal.

Further, the CAA expressly forecloses use of the Global Social Cost of Carbon because foreign benefits exceed the cost-benefit analysis' permissible scope. The Act's purpose is exclusively domestic: "[T]o protect and enhance the quality of *the Nation's* air resources [for] … *its* population." CAA § 101(b) (emphases added). EPA has acknowledged this. 74 Fed. Reg. 66,496, 66,514 (Dec. 15, 2009). Congress explicitly says when EPA may consider foreign benefits. *E.g.*, CAA § 115.

Only 10% of the claimed global benefits from reducing CO_2 emissions accrue to the United States. UARG Comments, Supp. No. 12, Social Cost of Carbon TSD at 11, EPA-HQ-OAR-2013-0602-22768, JA __. Stripping foreign benefits from the Rule's cost-benefit analysis reduces climate-related benefits to, at most, $0.3 billion in 2020 and $2.0 billion in 2030. *See* Regulatory Impact Analysis ("RIA") at ES-22, EPA-HQ-OAR-2013-0602-37105, JA__. The Rule's claimed (and underestimated) costs ($2.5 billion in 2020 and $8.4 billion in 2030) dwarf these domestic benefits.

EPA also failed to account for real-world effects that suppress the claimed benefits, further skewing the cost-benefit analysis. The Rule does not account for emissions resulting from the Clean Energy Incentive Program, which enables States to emit up to 300 million tons of CO_2 without it counting against their emission goals. 80 Fed. Reg. at 64,829, JA__. This further diminishes the Rule's benefits. EPA admits this program "is not reflected" in its cost-benefit analysis. RIA at 3-45, JA__.

The Rule also overstates emissions reductions by ignoring that industries respond to energy price increases by shifting production abroad. This depresses benefits because those businesses do not reduce—and may increase—emissions. This result will inevitably occur because the Rule will raise electricity costs. Rather than account for this issue, EPA simply notes the phenomenon and moves on. *Id.* at 5-6, JA__-__.

EPA also failed to consider the 30,000 premature deaths associated with the loss of disposable income resulting from the Rule. Oil and Gas Industry Organizations and Participants-II Comments at 18-20, EPA-HQ-OAR-2013-0602-25423, JA__-__.

Because EPA "entirely failed to consider" these "important aspect[s] of the problem," *State Farm*, 463 U.S. at 43, EPA's cost-benefit analysis cannot support the Rule, and the Rule should be vacated. *Nat'l Ass'n of Home Builders v. EPA*, 682 F.3d 1032, 1040 (D.C. Cir. 2012) ("[A] a serious flaw undermining [cost-benefit] analysis can render the rule unreasonable.").

V. The Rule Should Have Been Tailored To Individual State Circumstances.

The arbitrariness of EPA's actions is demonstrated by the unique harm that will befall many States under the Rule because EPA failed to take into account individual States' circumstances. The resulting harm is exemplified by the following experiences of Arizona, New Jersey, North Carolina, Utah, Wisconsin, and Wyoming.

A. In Calculating Wisconsin's Baseline Emissions, EPA Improperly Disregarded A Nuclear Plant's Imminent Retirement.

EPA improperly disregarded the imminent retirement of a nuclear power plant in using 2012 data to calculate Wisconsin's starting point from which the Plan's reductions are based. 80 Fed. Reg. at 64,813-27, JA__-__. The Kewaunee plant—which EPA acknowledged represented over 7% of Wisconsin's generation in 2012, EPA's RTC Ch. 4, §§ 4.5-4.9 at 25, JA__—was decommissioned in May 2013. Wis. Dep't of Nat. Res. Comments, pt. 3 at 1, EPA-HQ-OAR-2013-0602-23541, JA__ ("WDNR Comments"). The majority of that lost generation was replaced with fossil-fuel generation from the existing fleet in 2013 and beyond.

EPA recognized the retirement in the proposal, 79 Fed. Reg. at 34,870, JA__, but failed to increase the baseline to account for the replacement generation after 2012 in either the Proposed or Final Rule. 80 Fed. Reg. at 64,813-19, JA__-__; *see also* RTC Ch. 4, §§ 4.5-4.9 at 25, JA__. EPA did increase other States' baselines, such as Minnesota's, based on a coal-fired generation unit that was temporarily offline in 2012 but resumed operation in 2013. 80 Fed. Reg. at 64,815, JA__; RTC Ch. 4 §§ 4.5-4.9 at

8-9, JA__. Had EPA applied this approach to Wisconsin's final goal, its target would have been approximately 6.5% higher. Wisconsin raised this issue to EPA, WDNR Comments, pt. 3 at 1, JA__, but EPA ignored it.

EPA's willful blindness is unlawful in three respects. First, its failure to account for the known issues with Kewaunee's retirement, EPA's RTC Ch. 4 §§4.5-4.9 at 25, JA___, demonstrates a failure to "articulate a satisfactory explanation for its action including a rational connection between the facts found and the choice made." *State Farm*, 463 U.S. at 43. Second, failing to treat similarly situated States alike (that is, Wisconsin like Minnesota)—without giving a rational explanation—contravenes the principle that "[a]n agency must treat similar cases in a similar manner unless it can provide a legitimate reason for failing to do so." *Indep. Petrol. Ass'n v. Babbitt*, 92 F.3d 1248, 1258 (D.C. Cir. 1996); *accord Kreis v. Sec'y of Air Force*, 406 F.3d 684, 687 (D.C. Cir. 2005). Finally, by failing to respond to Wisconsin's comments regarding Kewaunee, the agency failed to respond to all "relevant" and "significant" public comments. *Home Box Office, Inc. v. FCC*, 567 F.2d 9, 35-36 & n.58 (D.C. Cir. 1977).

B. EPA Failed To Truly Account For Trading Between States And Indian Tribes in Arizona And Utah.

Even if the Court finds that a trading platform is a lawful basis for establishing BSER under section 111(d), EPA's failure to recognize a uniform method of trading between mass-based and rate-based jurisdictions imposes an arbitrary, capricious, and unlawful hardship on States like Arizona and Utah. In determining States' obligations,

EPA contends it can derive mass-based targets from rate-based targets. 80 Fed. Reg. at 64,743, JA__. If EPA can fairly convert a rate-based goal to a mass-based goal for establishing state carbon emission targets, it follows that these same conversions could be used to facilitate trading between rate- and mass-based States. EPA's failure to allow for such trading prohibits rate- and mass-based States and sovereign Tribes from working together.

This impediment works a unique harm in Arizona, where a substantial component of the State's energy is generated on tribal lands belonging to the Navajo Nation, which will be directly regulated by EPA. 80 Fed. Reg. at 65,033, JA __ (proposing to find it "necessary and appropriate for EPA to regulate units on tribal land). Whatever emission standards are imposed on Arizona's generation will foreclose many potential regulatory avenues that ought to be available. For example, if EPA regulates the Navajo Nation under a mass-based plan, Arizona would be compelled to also adopt a mass-based plan or else forfeit any ability to coordinate with this major aspect of the State's basic infrastructure. Trading between types of plans is critical, if trading is approved by this Court as part of the BSER.[26]

The Bonanza Power Plant owned by Utah-based Deseret Power Electric Cooperative is also located on Tribal lands and is therefore under federal jurisdiction.

[26] This is also important for Utah, a part of the Pacifcorp service territory, which includes States that are currently planning both rate- and mass-based compliance. www.pacificorp.com/about/co.html.

See 80 Fed. Reg. at 64,705, JA__. The plant is an essential part of the Utah power system, and trading between types of plans (if lawful) will be critical.

C. EPA Ignored Wyoming's Unique Circumstances.

EPA's nationally-applicable guidelines ignore a number of State-specific circumstances in Wyoming. 80 Fed. Reg. at 64,816-19, JA__-__. First, EPA's significant changes to the BSER Building Blocks disproportionately imposed stringent emission reduction goals on Wyoming—the 6% reduction it was asked to meet in the Proposed Rule nearly doubled in the Final Rule. *Compare* 79 Fed. Reg. at 34,895, JA__, *with* 80 Fed. Reg. at 64,824, JA__. For Wyoming's coal fleet, with higher emission rates from air-cooled plants, the initial overall rate is 2,331 lbs/MWh, which requires an 11.57% reduction to reach the eastern interconnection rate adjusted for Building Block 1. Wyoming Public Service Comm'n at 34-38, JA__-__ (discussing the impossibility of attaining either set of goals).

EPA also failed to take into account Endangered Species Act concerns specific to Wyoming. In analyzing the Building Blocks, EPA relied on data from the National Renewable Energy Laboratory ("NREL"), 80 Fed. Reg. at 64,807, JA __despite the fact that the NREL explicitly states it did not capture "site-specific challenges of building electricity infrastructure." 2015 Standard Scenarios Annual Report: U.S. Electric Sector Scenario Exploration. National Renewable Energy Laboratory at 19, http://www.nrel.gov/docs/fy15osti/64072.pdf. EPA's goal thus did not take into account the difficulties for Wyoming in developing renewables in the protected sage

grouse corridor. Wyoming Department of Environmental Quality Comments at 20, EPA-HQ-OAR-2013-0602-22977, JA__.

To avoid those difficulties, EPA should have formally consulted under the Endangered Species Act ("ESA"), 16 U.S.C. §§ 1531-1544, to determine whether the Rule would jeopardize threatened and endangered species. Under the ESA, federal agencies must ensure "any action authorized, funded, or carried out by such agency" is not likely to jeopardize the continued existence of any endangered or threatened species. *Id.* § 1536(a)(2).

The Rule is no typical CAA rulemaking. EPA designed the Rule to envelop non-jurisdictional assets, like wind farms, and to fundamentally transform the electric sector, resulting in significant new solar and wind power generation projects with the potential to significantly impact threatened and endangered species. 80 Fed. Reg. at 64,926, JA __. Yet EPA refused to consult under the ESA, asserting that the Rule's impacts were not "sufficiently certain to occur so as to require consultation." *Id.* at 64,925-27, JA __-__. This was error. *E.g., Conner v. Burford*, 848 F.2d 1441, 1453 (9th Cir. 1988) (lack of fulsome information not sufficient to justify failure to consult).

EPA's excuse is also belied by past agency actions. For example, when the federal government considered the environmental impacts from siting and authorizing wind farms throughout the Upper Great Plains, the authorizing agency consulted with the Fish and Wildlife Service on a programmatic level, despite the fact that (i) the study area spanned all or part of six States, (ii) the exact location of the possible wind

farms was unknown, and (iii) the proposed action did not authorize planning, construction, or operation of any specific projects. 80 Fed. Reg. 24,914, 24,915 (May 1, 2015).[27] Moreover, the Services' implementing regulations allow an agency to consult with the Services in incremental steps, which EPA neglected to consider. 50 C.F.R. § 402.14(k). Such "[i]ncremental step consultation is most appropriate for long-term, multi-staged activities for which agency actions occur in discrete steps[]." Endangered Species Consultation Handbook at 5-8 (Mar. 1998). That is precisely the situation here. 80 Fed. Reg. 64,663-82, JA __-__. EPA's failure to do so, especially in light of Wyoming's specific concerns, was arbitrary and capricious.

D. The Rule Would Cause Particular Harm to Utah.

Utah also will experience unique harms that demonstrate EPA's arbitrary and capricious actions here: EPA based Utah's emission limits on erroneous and unrepresentative baseline data and the Rule interferes with the State's ability to protect its most sensitive air shed.

1. Utah's Targets Are Unrepresentative Of Historic Utah Emissions.

EPA's Utah CO_2 emission baselines and targets do not represent Utah's true baseline emissions because EPA failed to account for a five-month outage at the State's largest coal-fired power plant, thus unfairly penalizing Utah. Goal

[27] *See generally* http://plainswindeis.anl.gov/documents/fpeis/UGP_Wind_BA.pdf (Apr. 2015).

Computation TSD Appendix, JA__. EPA's arbitrary approach resulted in the establishment of unrepresentative baseline emissions and unfairly stringent performance standards for Utah.

Because EPA used only 2012 emissions to establish the State baselines and goals, it failed to account for the fact that Unit 1 at the Intermountain Power Project ("IPP") plant had a significant outage of five months during 2012. Intermountain Power Agency Comments at 5, EPA-HQ-OAR-2013-0602-24053, JA __. IPP is Utah's largest coal plant and typically represents almost one-third of Utah's annual electric generation, making the outage's impact on EPA's 2012 baseline and Utah's final goal significant. Goal Computation TSD Appendix, JA __. The Intermountain Power Agency and Utah raised this issue with EPA, IPA Comments at 5, JA__; Utah Comments at 9, EPA-HQ-OAR-2013-0602-23100, JA__, but EPA was unresponsive and wrongly assumed that other state power plants had compensated for the outage. In fact, the vast majority of power produced at IPP is sent to California, and Utah plants were not deployed to make up the shortfall. IPA Comments at 6, JA __.

EPA set Utah's 2030 mass-based emissions target at 23,778,193 tons of CO_2. *See* 80 Fed. Reg. at 64,825, JA__. Adjusting Utah's baseline upwards to account for the significant outage at IPP would add potentially two-and-a-half million tons to the target. *See* Goal Computation TSD Appendix, JA__. EPA has imposed arbitrarily more stringent CO_2 goals on Utah that will substantially increase compliance costs. The Rule has set targets for some States that are above their current emissions, *see* 80

Fed. Reg. at 64,825, JA__, Statewide Mass-Based CO_2 Emission Performance Goals, JA__, potentially providing them tradeable value that States like Utah that have limits below their current emissions will need to purchase.

2. The Rule Unlawfully Impedes Utah's Ability to Protect Its Most Sensitive Air Shed.

In developing Utah's targets, EPA arbitrarily assumed Utah's natural gas plants could increase their usage 40 to 50% to run at 75% of summer capacity, interfering with Utah's ability to manage its most sensitive air shed in protection of the health and welfare of its citizens. *See* 80 Fed. Reg. at 64,795, JA__. Utah's coal-fired power plants are located in sparsely populated areas. *See* Utah's Energy Landscape, Utah Geological Survey, Circular 117 at 40 (2014), http://energy.utah.gov/wp-content/uploads/Utahs-Energy-Landscape-3rd-Edition.pdf. All of Utah's major gas plants are located in Utah's most urbanized area, the Wasatch Front, where over 70% of Utah's citizens live.[28] By requiring greater usage of those gas-fired plants, the Rule would increase the emissions directly affecting over 70% of Utah's citizens, and unlawfully interfere with the State's ability to protect its citizens' health and welfare.

Indeed, as part of its state implementation plan, Utah has agreed to run its gas units at lower (moderate) capacities. *See e.g.* Utah State Implementation Plan, Control

[28] Utah Legislature Population Briefing Paper (2014 Session), Office of Legislative Research and General Counsel, le.utah.gov/lrgc/briefings/PopulationBriefing2014.pdf.

Measures for Area and Point Sources, Fine Particulate Matter, PM 2.5 SIP for the Provo, Utah Nonattainment Area, Section IX, Part A.22.[29] This creates numerous legal and practical conflicts with the Rule. All four of Utah's existing gas-fired plants are located in or adjacent to non-attainment areas for $PM_{2.5}$ that face strict limits on NOx emissions as a result. *Id.* Requiring redispatch to higher levels of gas utilization conflicts with the state plan and other environmental requirements. Moreover, EPA recently finalized a more stringent ozone standard, 79 Fed. Reg. 65,292 (Oct. 26, 2015), creating additional uncertainty and constraints.

E. EPA Failed To Take Into Account States Like New Jersey That Have Chosen To Deregulate Energy Services.

The Rule fails to consider the positions of the numerous energy-deregulated States in assuming that state utility regulators can impose the Rule's requirements on affected units. *See, e.g.*, RTC Ch. 1 §§ 1.11-1.15 28-29, 33, 135, JA__- __, __, ___. The Rule will require each energy-deregulated State to pass new legislation specific to its unique energy market structure, infringing upon the States' sovereignty. *See* Core Issues Brief at Section IV.

For example, New Jersey in 1999 deregulated its energy regulatory structure, limiting the jurisdiction of the New Jersey Board of Public Utilities (NJBPU) to the regulation of electric and gas distribution companies. *See* Electric Discount & Energy

[29] http://www.deq.utah.gov/Pollutants/P/pm/pm25/.

Competition Act, N.J.S.A. 48:3-49 *et seq.* (the "N.J. Act"). NJBPU no longer exercises authority over generating units and will therefore require significant legislative and regulatory changes to comply with the Rule. New Jersey Technical Comments at 8, JA__. Other States, like Texas, face similar issues. Luminant Comments at 48-49, JA__-__.

New Jersey would also have to enact new legislation to order the implementation of energy efficiency measures related to the electric transmission system to comply with the Rule. As an energy-deregulated state, New Jersey is a member of PJM Interconnection, LLC, the federally-authorized regional transmission organization. *Id.* at 27, JA__. Implementation of the Rule would involve an extensive reorganization of the power grid and electric distribution within New Jersey and across the entire PJM region.

Additionally, at a minimum, NJBPU would require amendments to New Jersey's existing statutes and regulations governing its renewable portfolio standard. Those regulations[30] require electric suppliers to include minimum renewable energy amounts in the electricity they sell. N.J. Stat. Ann. 48:3-87(d); N.J. Admin. Code 14:8-2.3. The rules specify separate minimum requirements for solar electric generation, Class I renewable energy, and Class II renewable energy. N.J. Admin. Code 14:8-2.3(a), (k). A renewable energy credit or solar renewable energy credit represents all of

[30] Found at N.J.A.C. 14:8-2.1, *et seq.* and authorized by N.J.S.A. 48:3-49, *et seq.*

the environmental benefits or attributes of one megawatt hour of generation from either a Class I or Class II renewable energy or solar energy facility. N.J. Stat. Ann. 48:3-51. By contrast, the Rule provides for an emission reduction credit for only CO_2, which is but one of the environmental benefits in the New Jersey renewable or solar energy credit system. Moreover, the Rule does not account for the out-of-state purchase of RECs. New Jersey's statutes and regulations would need to be revised because the same megawatt hour could not satisfy both requirements.

F. EPA Arbitrarily Excluded From Consideration Prior Emissions Reductions Achieved In North Carolina.

EPA failed to recognize the substantial emission reductions achieved in North Carolina under its 2002 Clean Smokestacks Act ("CSA"). The CSA required stringent emission reductions on coal units to be achieved within ten years. N.C. Gen. Stat. § 143-215.107D(b)-(e). The CSA allowed regulated operators to determine for the units in their systems how to achieve the reductions, rather than imposing specific emission limitations on a unit-by-unit basis. *Id.* § 143-215.107D(f). Additionally, the North Carolina utilities decided starting in 2009 to invest in new gas generating units and close small, inefficient and uncontrolled coal units. N.C. Utilities Comm'n Docket No. E-2, sub 960, Progress Energy Carolina Application To Construct a 950-MW Combined Cycle Natural Gas Fueled Electric Generation Facility in Wayne County (Aug. 18, 2009), JA__.

EPA arbitrarily ignored these emission reductions when it set North Carolina's emission goals. For example, in 2005, the first year in which measures were beginning to be implemented to comply with the CSA, statewide CO_2 emissions from affected North Carolina units totaled 78,000,000 tons. EPA Clean Air Markets Program Data, http://ampd.epa.gov/ampd/. Those same sources' CO_2 emissions dropped to just under 58 million tons in 2012, the Rule's baseline year, a decrease of nearly 25%. Goal Computation TSD Appendix, JA__.

The final mass goal set for North Carolina is 51,266,234 tons of CO_2 annually. 80 Fed. Reg. at 64,825, JA__. But most of the CO_2 emission reductions that can reasonably be achieved have already been achieved through coal retirements and natural gas conversion. Implementation of the "Clean Smokestacks Act": Report to N.C. Envtl. Review Comm'n (May 30, 2014), http://daq.state.nc.us/news/leg/2014_Clean_Smokestacks_Act_Report.pdf. Yet, North Carolina received no credit for this pioneering work.

The aggregate rate goal set for North Carolina is 1,136 lbs CO_2/MWh. *See* 80 Fed. Reg. at 64,824, JA__. In 2012, the baseline year, North Carolina's aggregate rate of CO_2 emissions per megawatt-hour was 1,778. Goal Computation TSD Appendix, JA__. In 2005, the aggregate rate was 1,986. Clean Air Markets Program Data: EIA, form EIA-923 and detailed data, www.eia.gov/electricity/data/eia923. EPA gave no credit to that 11% rate decrease, despite the fact that, in 2012, the North Carolina rate

for coal units was the lowest in the country and its rate for gas facilities the eighth lowest.

North Carolina is being penalized for its exemplary record of clean energy generation well in advance of EPA's efforts a decade later.

CONCLUSION

For the foregoing reasons, as well as those set forth in the Core Issues Brief, the petitions should be granted and the Rule vacated.

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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(a)(1) and 32(a)(2)(C), I hereby certify that the foregoing Opening Brief of Petitioners on Procedural and Record-Based Issues contains 19,723 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: February 19, 2016

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CERTIFICATE OF SERVICE

I hereby certify that, on this 19th day of February 2016, a copy of the foregoing Opening Brief of Petitioners on Procedural and Record-Based Issues was served electronically through the Court's CM/ECF system on all ECF-registered counsel.

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