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MEMORANDUM

January 13, 2014

To: Subcommittee on Energy and Power Democratic Members and Staff

Fr: Committee on Energy and Commerce Democratic Staff

Re: Subcommittee Markup of H.R. 3826

On Monday, January 13, 2014, at 4:00 p.m. in room 2123 of the Rayburn House Office Building, the Subcommittee on Energy and Power will conduct opening statements for the markup of H.R. 3826, the "Electricity Security and Affordability Act." The Subcommittee will reconvene on Tuesday, January 14, 2014, at 10:00 a.m. in room 2123 of the Rayburn House Office Building.

A discussion draft of H.R. 3826, which is commonly referred to as the Whitfield-Manchin bill after the bill's sponsors in the House and Senate, was the subject of a legislative hearing in the Subcommittee on Energy and Power on November 14, 2013.

I. EXISTING EPA AUTHORITY AND ACTIONS ON POWER PLANT EMISSIONS OF CARBON POLLUTION

In June 2013, President Obama announced a Climate Action Plan to cut carbon pollution and prepare for the effects of climate change.[1] In that Plan, he directed the Environmental Protection Agency (EPA) to use its existing authority under the Clean Air Act to control carbon pollution from new and existing fossil fuel-fired power plants.[2] President Obama simultaneously issued a Presidential Memorandum on Power Sector Carbon Pollution Standards providing more

[1] Executive Office of the President, *The President's Climate Action Plan* (Jun. 2013) (online at www.whitehouse.gov/sites/default/files/image/president27sclimateactionplan.pdf).

[2] *Id.* at 6.

detailed direction to the EPA, including deadlines.[3] It set deadlines of September 20, 2013, for a new proposed rule for new plants, June 1, 2014, and June 1, 2015, for proposed and final rules, respectively, for existing plants, and June 30, 2016, for state submission of plans regulating existing plants.[4]

A. Clean Air Act Authority

Section 111 of the Clean Air Act directs EPA to set performance standards to control air pollution from new stationary sources. Section 111(b) requires these standards to "reflect the degree of emission limitation achievable through the application of the best system of emission reduction which (taking into account the cost of achieving such reduction and any non-air quality health and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated." Over the long history of this provision, which has been part of the Clean Air Act in various forms since 1970, the D.C. Circuit has provided guidance to EPA on how to interpret and implement this directive.[5] The key considerations for setting a section 111(b) standard are technical feasibility, quantity of emissions reductions, costs that are reasonable (i.e., not exorbitant), and advancing pollution-control technology.[6]

The advancement of pollution-control technology is intended to force the adoption of new, innovative, and more effective technologies, and not simply those technologies that have already been widely adopted. This intent is clearly stated both in the requirement for "best system of emission reduction" and in the legislative history. For example, the Senate Committee Reports for the 1970 and 1977 Clean Air Act Amendments explain that new source performance standards "should provide an incentive for industries to work toward constant improvement"[7] and "stimulate the development of new and better technology."[8] In interpreting this mandate, the D.C. Circuit has noted that the statute "embraces . . . technological innovation."[9]

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[3] President Barack Obama, *Presidential Memorandum – Power Sector Carbon Pollution Standards* (Jun. 25, 2013) (online at www.whitehouse.gov/the-press-office/2013/06/25/presidential-memorandum-power-sector-carbon-pollution-standards).

[4] *Id*.

[5] U.S. Environmental Protection Agency, *Standards of Performance for Greenhouse Gas Emissions from New Stationary Sources: Electric Utility Generating Units; Proposed Rule*, 79 Fed. Reg. 1430 (Jan. 8, 2014) (hereinafter *GHG Performance Standards NPRM*) (online at www.gpo.gov/fdsys/pkg/FR-2014-01-08/pdf/2013-28668.pdf).

[6] *Id.* at 1462.

[7] Senate Committee on Public Works, *National Air Quality Standards Act of 1970*, 91st Cong. (Sept. 17, 1970) (S. Rept. 91-1196), at 17.

[8] Senate Committee on Environment and Public Works, *Clean Air Amendments of 1977*, 95th Cong. (May 10, 1977) (S. Rept. 95-127), at 17.

[9] *Sierra Club v. Costle*, 657 F.2d 298, 346 (D.C. Cir. 1981).

In addition, section 111(d) requires EPA to issue rules to direct states to reduce pollution from existing sources that would have been covered by a section 111(b) standard if they were new sources, with respect to air pollutants that are neither covered by a National Ambient Air Quality Standard (NAAQS) or listed as a hazardous air pollutant under section 112 (i.e., that are not otherwise regulated). Section 111(d) provides that the state regulations for existing sources are required under a procedure analogous to the requirements for State Implementation Plans (SIPs) under section 110. The SIP provisions explicitly allow state plans to include "economic incentives such as fees, marketable permits, and auctions of emissions rights."[10] Thus, states have considerable flexibility to design their own standards, subject to the overall pollution reduction goals for these sources established by EPA by rule. EPA can step in and regulate existing sources directly if the state fails to develop and enforce adequate requirements.

B. Proposed Rule for New Sources

1. *Proposed Standards of Performance*

EPA has proposed to set standards of performance for carbon dioxide (CO_2) emissions from new coal-fired power plants based on a finding that technology to partially capture carbon emissions from these plants is the "best system of emission reduction . . . adequately demonstrated."[11] Specifically, EPA proposes to allow coal-fired units to meet either a CO_2 limit of 1,100 pounds per megawatt hour (lbs/MWh) over a 12-month period, or 1,000-1,050 lbs/MWh over an 84-month (seven year) period. EPA also proposes to set standards for natural gas-fired units based on the emission reductions achieved by natural gas combined cycle units of 1,000 lbs/MWh for larger units. To meet the 1,100 lbs/MWh standard for new coal-fired units, power plant operators will need to install partial carbon capture and storage (CCS) technology sufficient to reduce CO_2 emissions by 30% to 50% below units without CCS.[12]

EPA's proposal finds that partial CCS is the best system of emission reduction because it is technically feasible, achieves significant CO_2 reductions, provides an incentive for technological innovation, and has reasonable costs, which means that the costs can be accommodated by the industry.[13] The proposal relies upon extensive technical information including findings of the 2010 Interagency Task Force on CCS, which was established by President Obama, studies and reports from the Department of Energy (DOE) national laboratories, particularly the National Energy Technology Laboratory, which focuses on fossil fuel technologies, and results from demonstration projects and full-scale CCS projects that are in operation or under construction or development at power plants and other industrial facilities.[14]

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[10] Clean Air Act § 110(a)(2)(A).

[11] U.S. Environmental Protection Agency, *GHG Performance Standards NPRM*. Note that EPA had issued a previous proposal to set carbon pollution performance standards for these sources in April 2012, but decided to withdraw that proposal and re-propose in this notice.

[12] *Id*. at 1436.

[13] *Id.* at 1467-1485.

[14] *Id*. The majority claims that EPA's proposal violates provisions in the Energy Policy Act of 2005 that bar EPA from considering the use of technology at a facility that received

With respect to costs, EPA notes several key points. First, very few new coal-fired units are projected to be constructed in the future due to higher costs than natural gas-fired units and some renewable energy resources, as well as uncertainty regarding future regulations to address carbon pollution. Thus, the rule is projected to impose no notable compliance costs.[15] The few new coal-fired projects that are currently being considered or constructed have substantially higher per-kilowatt electricity costs than natural gas-fired units, but some utilities may prefer coal based on considerations of energy and fuel diversity, as well as concerns about future higher natural gas prices.[16] Second, there is substantial potential to use the captured CO_2 for enhanced oil recovery (EOR), which considerably lowers the costs. Third, requiring partial CCS instead of full CCS, which would require capture rates of around 90%, further substantially lowers costs. And finally, based on the projected costs of the electricity produced, partial CCS is competitive with new nuclear power and biomass power, even without EOR.[17]

At the November 14, 2013, Energy and Power Subcommittee hearing, Dr. Sue Tierney, Managing Principal of The Analysis Group, testified that uncertainty in carbon regulation has made new investments in coal-fired power plants risky, while simultaneously making it difficult for utilities to gain regulatory approval for the CCS projects needed to reduce their carbon pollution. She testified that EPA's proposed performance standards for new coal-fired power plants are needed to provide regulatory certainty for coal and CCS to move forward and that EPA's proposed standards will create "a positive investment environment at a time when the nation stands to spend up to a trillion dollars on new generating capacity in parts of the country."

2. *Status of CCS Technology*

In the proposed rule, EPA notes that each step of the CCS process – CO_2 capture, compression and transportation, and storage – is feasible and has been demonstrated. Technologies to capture CO_2 from industrial gas streams have been around since the 1930s, and

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federal financial assistance under that Act to determine whether the technology is "adequately demonstrated" for purposes of the Clean Air Act section 111. Letter from Chairman Upton and Chairman Whitfield to U.S. Environmental Protection Agency Administrator McCarthy (Nov. 15, 2013) (online at energycommerce.house.gov/sites/republicans.energycommerce.house.gov/files/letters/20131115EPA.pdf). These claims are based on an erroneous interpretation of the provisions, which prohibit EPA from making a section 111 determination based solely on the use of technology at a federally funded demonstration project, but do not preclude all use of such information as supporting evidence, as well as a misreading of EPA's proposal, which cites extensive other evidence supporting the proposed finding. *See, e.g.*, Environmental Defense Fund, *The Strong Legal Foundation for the Carbon Pollution Standards for New Power Plants: A Response to the House Energy and Commerce Committee's Letter on the Energy Policy Act of 2005 and Carbon Capture and Storage Technology* (Dec. 5, 2013) (online at blogs.edf.org/climate411/files/2013/12/Response-to-House-Committee-Letter-on-EPAct.pdf).

[15] U.S. Environmental Protection Agency, *GHG Performance Standards NPRM*, at 1496.

[16] *Id.* at 1475.

[17] *Id.* at 1475-1477.

the technologies needed to capture CO_2 from coal-fired power generation are all technologically feasible.[18] The U.S. has transported CO_2 by pipeline for nearly 40 years and currently has 3,600 miles of existing pipelines that transport more than 50 million metric tons of CO_2 per year.[19] CO_2 storage, too, is both technologically feasible and demonstrated.[20] EPA estimates that 95% of the 500 largest CO_2 point sources in the U.S. are within 50 miles of a possible geological storage site,[21] while the U.S. Geological Survey recently estimated that the U.S. could store 500 times the country's annual energy-related CO_2 emissions underground.[22] CO_2 has been injected underground for more than 40 years in the U.S. for the purpose of EOR,[23] including EOR activities in the Permian Basin from 1972 to 2005 that resulted in net storage of 55 million metric tons of CO_2 underground.[24] CO_2 storage has also been demonstrated at non-EOR sites.[25]

In the power sector, CCS has been demonstrated at pilot-scale at coal-fired power plants in the U.S. and abroad, including AEP's Mountaineer Plant in West Virginia and Southern Company's Alabama Power Plant Barry.[26] These technologies are now being brought to commercial-scale. The first commercial-scale coal-fired CCS projects in North America are expected to begin operating next year, and include Southern Company's 582 MW IGCC Kemper County Energy Facility in Mississippi, which will capture 65% of its CO_2 emissions for EOR, and SaskPower's 110 MW Boundary Dam Project in Saskatchewan, Canada, which will capture 90% of its CO_2 emissions.[27] Other commercial-scale CCS projects being developed in the U.S. include the 400 MW IGCC Texas Clean Energy Project, the 300 MW IGCC Hydrogen Energy California project, and the Future Gen 2.0 project in Illinois. [28]

3. *Similar Regulatory Requirements in States and Other Countries*

EPA's proposed CO_2 standards for new power plants are similar to standards already adopted by the states of California, Oregon, Montana, New York, and Washington. California and Oregon require new coal-fired power plants to meet a 1,100 lbs/MWh emission standard,[29] the same level EPA proposes. New York and Washington limit power plant emissions to 925

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[18] *Id*. at 1471-1472.

[19] *Id*. at 1472.

[20] *Id*. at 1472-1474.

[21] *Id*. at 1472.

[22] *Id*. at 1473.

[23] *Id*.

[24] *Id*. at 1472.

[25] *See, e.g.*, *id*. at 1472-1473.

[26] *Id*. at 1474-1475.

[27] *Id*. at 1475.

[28] *Id*. at 1435, 1475, 1479.

[29] CAL. CODE REGS. tit. 20 § 2902 (2007); OR. REV. STAT. § 757.524 (2009).

and 970 lbs /MWh, respectively, which will require new coal-fired power plants to capture and store even more of their CO_2 than under EPA's proposal.[30] Finally, Montana has adopted a standard requiring new coal-fired power plants to capture and store at least 50% of their CO_2 emissions,[31] which is similar to EPA's proposed standard.[32]

EPA's proposed standards are also consistent with efforts in other countries. Canada has adopted a CO_2 emission standard of 926 lbs/MWh for new coal-fired power plants.[33] And on December 18, 2013, the U.K. adopted a CO_2 emission standard of 992 lbs/MWh for all new fossil fuel-fired power plants.[34] Both standards will require new coal plants to use partial CCS.

C. Upcoming Proposal on Existing Sources

The Presidential Memorandum to EPA directed EPA to launch the effort to develop requirements for existing sources "through direct engagement with States, . . . leaders in the power sector, labor leaders, non-governmental organizations, other experts, tribal officials, other stakeholders, and members of the public."[35] It also directed EPA to tailor the requirements to reduce costs and encourage the use of market-based instruments, performance standards, and other regulatory flexibilities.[36]

EPA is in the process of developing this proposal to meet the President's June 2014 deadline. In October and November of this year, EPA held eleven listening sessions across the country, which took place at each EPA regional office.[37] The purpose was "to solicit ideas and input from the public and stakeholders about the best Clean Air Act approaches to reducing carbon pollution from existing power plants."[38]

II. ANALYSIS OF THE WHITFIELD-MANCHIN BILL

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[30] N.Y. COMP. CODES R. & REGS. tit. 6, § 251.3; WASH. REV. CODE § 80.80.040 (2011); WASH. ADMIN. CODE § 194-26-020 (2013).

[31] MONT. CODE ANN. § 69-8-421(8) (2007).

[32] U.S. Environmental Protection Agency, *GHG Performance Standards NPRM*, at 1436.

[33] Environment Canada, *Reduction of Carbon Dioxide Emissions from Coal-Fired Generation of Electricity Regulations* (Jun. 25, 2013) (online at www.ec.gc.ca/default.asp?lang=En&n=5C4438BC-1&news=D375183E-0016-4145-A20B-272BDB94580A).

[34] Energy Act, 2013, c. 32, § 57 (U.K.) (online at legislation.gov.uk/ukpga/2013/32/pdfs/ukpga_20130032_en.pdf).

[35] President Barack Obama, *Presidential Memorandum – Power Sector Carbon Pollution Standards* (Jun. 25, 2013) (online at www.whitehouse.gov/the-press-office/2013/06/25/presidential-memorandum-power-sector-carbon-pollution-standards).

[36] *Id.*

[37] U.S. Environmental Protection Agency, *Carbon Pollution Standards; Public Listening Sessions* (online at www2.epa.gov/carbon-pollution-standards/public-listening-sessions).

[38] *Id.*

The following is a brief summary of the bill.

A. Summary of the Bill

Section 2 of the bill prohibits the EPA Administrator from issuing, implementing, or enforcing any rule under section 111 of the Clean Air Act establishing greenhouse gas (GHG) emission standards for new fossil fuel-fired electric utility generating units unless specified conditions are met. Any such standards must be set separately for coal and natural gas units. Also, no standard may be established for new coal-fired units unless the standard has already been achieved for 12 continuous months by at least six U.S. generating units, which are located at different generating stations, collectively represent the operating characteristics of electric generation at different locations in the U.S., and are each operated for the entire 12-month period on a commercial basis. Section 2 establishes similar requirements for GHG emission standards for new units that burn lignite coal, which must also be subject to separate GHG emission standards.

In establishing emission standards for lignite and non-lignite coal-fired units, section 2 prohibits the Administrator from relying on the results of demonstration projects. Section 5 of the bill defines a demonstration project as any "project to test or demonstrate the feasibility of carbon capture and storage technologies that has received government funding or financial assistance." The term "government funding or financial assistance" is not further defined.

Section 3 of the bill prevents EPA from establishing any GHG emission standard for modified, reconstructed, or existing fossil fuel-fired generating units unless Congress passes a federal law to implement the standard. Section 3 further requires the EPA Administrator to submit a report to Congress that includes the standard's text, its projected economic impact, and its projected GHG emissions reduction relative to overall global GHG emissions.

Section 4 of the bill nullifies all proposed or final EPA rules and guidelines issued prior to enactment of the bill that propose or set GHG emissions standards for fossil fuel-fired generating units.

B. Issues Raised by the Bill

This legislation raises several major issues. At the November 2013 Energy and Power Subcommittee hearing on the bill, David Hawkins, Director of Climate Programs at the Natural Resources Defense Council, testified that the bill would "render useless" the CAA provisions needed to curb carbon pollution from the nation's largest source of this pollution: fossil fuel-fired power plants. In summary, the bill would effectively prevent EPA from ever requiring coal-fired power plants to control carbon pollution to any significant degree, absent adoption of new law.

For new coal-fired power plants, the bill reverses decades of Clean Air Act precedent and practice to bar EPA from requiring pollution controls if such controls have not already been broadly adopted by the industry without any government financial assistance in any form. For

example, EPA Acting Assistant Administrator Janet McCabe testified at the Subcommittee hearing that the bill's requirements are contrary to the longstanding Clean Air Act approach used to require industry to adopt new pollution controls such as scrubbers, which have improved public health for millions of Americans and were not in widespread use before EPA required them. Despite such successes, the bill reverses course and turns the rationale for government regulation of pollution on its head. Economists view pollution as a classic "market failure," in which every firm has an incentive to pollute, even though the combined effects of such pollution make society as a whole worse off. Controlling pollution reduces profits, or at best diverts resources that otherwise could be more profitably deployed. Thus, as a general matter, competitive firms do not control their pollution absent non-market incentives, such as government regulation or financial assistance.

This bill bars EPA from establishing a standard for carbon pollution from coal-fired power plants until such a standard has been met by at least six plants, which represent "the operating characteristics of electric generation at different locations in the United States" (and any standard for lignite coal-fired plants would have to have been met by at least three plants meeting the same conditions). None of the plants referenced may have "received government funding or financial assistance," a phrase so broad that it may well preclude plants that receive local tax breaks or take advantage of any federal tax incentives for capital investments. It appears highly unlikely that a standard requiring substantial reductions in carbon pollution from new coal-fired power plants could ever be adopted by EPA under this bill. In fact, it appears that EPA could not even require all new plants to control pollution to the levels achieved by the state of the art conventional coal-fired power plants, termed "ultra-supercritical" plants. This technology is now common in China, but there is only one such plant in the United States.

For existing coal-fired power plants, the requirement for enactment of a new federal law before a standard can become effective, as a practical matter, blocks any such standard (no matter how minimal) in the near term, and perhaps much longer. At the Subcommittee hearing, EPA Acting Assistant Administrator McCabe testified that she does not believe the proposed bill provides an effective and workable approach to regulating carbon pollution from power plants.