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EPA Docket Center
U.S. Environmental Protection Agency
Mail Code 28221T
1200 Pennsylvania Ave., NW
Washington, DC 20460
Attn: Docket ID No. EPA-HQ-OAR-2013-0603

Re: **Comments of Clean Air Task Force** on Carbon Pollution Standards for Modified and Reconstructed Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. 34,960 (June. 18, 2014)

Clean Air Task Force ("CATF") respectfully submits these comments on the U.S. Environmental Protection Agency's ("EPA" or "Agency") proposed modified and reconstructed source performance standards ("MRSPS") for carbon dioxide ("CO_2") emissions from electric utility generating units ("EGUs"). CATF also joins the comments submitted today by Sierra Club, Environmental Defense Fund, Natural Resources Defense Council, and Earthjustice ("Joint Environmental Comments").

Founded in 1996, CATF works to help safeguard against the worst impacts of climate change by catalyzing the rapid global development and deployment of low carbon energy and other climate-protecting technologies through research and analysis, public advocacy leadership, and partnership with the private sector.

CATF congratulates EPA on proposing a suite of historic carbon pollution standards for EGUs, including the MRSPS.[1] In 2012, fossil fuel consumption for electricity generation accounted for over 37 percent of United States' CO_2 emissions.[2] Those emissions increased by 12.5 MMT in 2013.[3] The global climate is changing, "primarily due to human activities, predominantly the burning of fossil fuels."[4]

As the Third National Climate Assessment found:

> Human-induced climate change means much more than just hotter weather. Increases in ocean and freshwater temperatures, frost-free days, and heavy downpours have all been documented. Global sea level has risen, and there have been large reductions in snow-cover extent, glaciers, and sea ice. These changes and other climatic changes

[1] On January 8, 2014, EPA proposed Standards of Performance for Greenhouse Gas Emissions from New Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. 1,430 (Jan. 8, 2014); and coinciding with the MRSPS, the Agency proposed Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. 34,830 (June 18, 2014).
[2] U.S. EPA, *Inventory of U.S. Greenhouse Gases and Sinks: 1990 – 2012*, at Table ES-2: Recent Trends in U.S. Greenhouse Gas Emissions and Sinks (Tg or million metric tons CO2 Eq.) (Apr. 2014).
[3] U.S. EPA, *Greenhouse Gas Reporting Program 2013*, http://www.epa.gov/ghgreporting/ghgdata/reported/powerplants.html.
[4] Melillo, Jerry M., Terese (T.C.) Richmond, and Gary W. Yohe, Eds., *Climate Change Impacts in the United States: The Third National Climate Assessment*. U.S. Global Change Research Program, at 15 (2014) doi:10.7930/J0Z31WJ2 [hereinafter "2014 NCA"] (Ex. 1).

> have affected and will continue to affect human health, water supply, agriculture, transportation, energy, coastal areas, and many other sectors of society, with increasingly adverse impacts on the American economy and quality of life.[5]

While EPA does not expect a significant number of affected units to undergo modifications or reconstruction, the MRSPS is needed to ensure that the relationship between EPA's Clean Air Act section 111(d) Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units ("ESPS") and EPA's section 111(b) Standards of Performance for Greenhouse Gas Emissions from New Stationary Sources: Electric Utility Generating Units ("CO_2 NSPS") is clarified.[6] And, if an existing source is reconstructed or is modified in a way that would increase its emissions, this rule must ensure that the source will "install the latest available control technology," while remaining within the ambit of the CAA section 111(d) CO_2 standards.[7]

EPA currently has sufficient information to set performance standards for subcategories of modified and reconstructed sources, based in part on partial carbon capture and storage ("CCS") retrofit, as we lay out below. CCS retrofit technology is available in many circumstances (and enhanced oil recovery ("EOR") sequestration can be cost-effective as a CO_2 pollution control). Indeed for modified and reconstructed subpart Da sources,[8] retrofit partial CCS must be among the best systems of emission reduction ("BSER") supporting the proposed and final standard, at least for a subcategory of modified sources within 80 miles of EOR opportunities, and for reconstructed sources.

I. Statutory Background

The CAA's explicit purpose is "to protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population."[9] To this end, the CAA authorizes the EPA to set new source performance standards (NSPS) for listed categories of industrial sources.[10] In 1979, the Agency listed EGUs and stationary gas turbines as sources which in the Agency's judgment cause, or contribute significantly to, air pollution, which may reasonably be anticipated to endanger public health or welfare, and section 111(b) performance standards for conventional air pollutants have long been promulgated.

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[5] 2014 NCA (Ex. 1) at 9. *See generally* Walsh, J., D. *et al*., Ch. 2: Our Changing Climate. *Climate Change Impacts in the United States: The Third National Climate Assessment*, J. M. Melillo, Terese (T.C.) Richmond, and G. W. Yohe, Eds., U.S. Global Change Research Program, 19-67. doi:10.7930/J0KW5CXT (describing climate change's wide range of effects across the United States).
[6] 79 Fed. Reg. at 34,964.
[7] *Portland Cement Ass'n v. Ruckelhaus*, 486 F.2d 375, 391 (D.C. Cir. 1973) (*quoting* S. Rep. No. 9-1196, 91st Cong., 2d Sess. 16 (1970)), *cert. denied*, 417 U.S. 921 (1974) (discussing the Congressional intent of 42 U.S.C. § 7411).
[8] The Joint Environmental Comments contain CATF's comments with respect to the standards for subpart KKKK modified and reconstructed sources.
[9] 42 U.S.C. § 7401(b)(1).
[10] 42 U.S.C. § 7411.

In the course of setting NSPS for listed sources, EPA is authorized to create subcategories, based on class, type and size of the source.[11] EPA has considered "geographical location" an appropriate basis for subcategorization under CAA section 111 since 1975.[12] Because "'[c]lass' is an ambiguous term…[which] could hardly be more flexible,"[13] courts have deferred to the Agency's determination whether it is reasonable for EPA to subcategorize based on location.[14] Establishing a subcategory based on the modified source's distance from EOR storage opportunities is reasonable in this situation.

On January 8, 2014, EPA proposed CO_2 NSPS for subpart Da and subpart KKKK EGUs.[15] The subpart Da emission limit is based on partial implementation of CCS as the BSER.[16] The subpart KKKK emission limit is based on modern, efficient natural gas combined cycle technology as the BSER.[17] EPA is now proposing to add section 111(b) standards for existing sources that undergo modification, or reconstruction.[18] These comments specifically address the standards associated with subpart Da.[19]

EPA observes that CAA section 111 defines "new source" to include "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 [CAA § 111] which will be applicable to such a source."[20] And EPA has long interpreted the statutory definition of "construction" to incorporate "reconstruction,"[21] which the regulations define as a

> replacement of components of an existing facility to such an extent that: (1) The fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility, *and* (2) It is technologically and economically feasible to meet the applicable standards set forth in this part.[22]

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[11] 42 U.S.C. § 7411(b)(2).
[12] 40 Fed. Reg. 53,340, 53,341 (Nov. 15, 1975).
[13] *Northeast Med. Waste Disposal Auth. v. EPA*, 358 F.3d 936, 947 (D.C. Cir. 2004) (discussing identical subcategorization language in 42 U.S.C. § 7429(a)(2)). *See also Davis County Solid Waste Mgmt. v. EPA*,101 F.3d 1395, 1405 (D.C. Cir. 1996) (finding under identical language in 42 U.S.C. § 7429(a)(2) that "there is nothing in the text…that would prevent EPA from subcategorizing…on the basis of the units' location…).
[14] *Northeast Med. Waste Disposal Auth,* at 947.
[15] 79 Fed. Reg. at 1,433.
[16] *Id.*
[17] *Id.*
[18] 42 U.S.C. § 7411(a)(1). The CAA requires standards of performance 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 nonair quality health and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated."
[19] CATF's comments regarding subpart KKKK are contained in the Joint Environmental Comments.
[20] 42 U.S.C. § 7411(a)(2) (emphasis added).
[21] "Proposed Rules: Standards of Performance for New Stationary Sources: Modification, Notification and Reconstruction," 39 Fed. Reg. 36,946 (Oct. 15, 1974). "An existing facility, upon reconstruction, becomes an affected facility [for purposes of NSPS], irrespective of any change in emission rate."
[22] 40 C.F.R. § 60.15(b) (emphasis added).

The CAA further requires EPA to "establish standards of performance for existing sources for [certain] air pollutants…[if] a standard of performance[23] under [CAA section 111] would apply if such existing source were a new source."[24] An "existing source" is "any stationary source other than a new source."[25] The section 111(d) emissions limitations are implemented by the states, under the statutory and regulatory scheme: "[e]ach state [is required] to…adopt and submit to the Administrator…a plan for the control of the designated pollutant to which the [existing source standard] guideline document applies."[26] The plan must "include emission standards and compliance schedules" and in turn, the "emission standards shall apply to all designated facilities within the state."[27] On June 18, 2014, EPA proposed the CO_2 ESPS for subparts Da and KKKK sources, which includes state-specific, emission rate-based goals requiring state implementation plans.[28]

Because "new sources" include modified and reconstructed sources and the proposal of any new source standard triggers the duty to establish existing source standards, these proposed modified and reconstructed source standards for EGU CO_2 emissions provide an additional trigger for EPA's duty to establish CO_2 standards of performance for existing sources for EGUs under section 111(d).[29]

II. EPA's Determination that an Existing Source that Undergoes an NSPS Modification or Reconstruction Remains Subject to the ESPS as well as the MRSPS is Reasonable and Consistent with the Statutory Framework.

Congress enacted CAA section 111 as part of the 1970 Clean Air Act Amendments.[30] At that time, Congress recognized that there were three categories of air pollutants: 1) those emitted by a diverse set of mobile and stationary sources, that can be detected by monitoring systems in the ambient air –national ambient air quality standards are set for these "criteria pollutants;" 2) those which are hazardous (toxic in acute or chronic form) to human health – CAA section 112 standards are set for these "hazardous air pollutants;" and 3) pollutants that are neither hazardous pollutants nor criteria pollutants for which ambient standards are set – section 111(d) of the Act was enacted to authorize EPA to control existing sources for emissions of these "designated pollutants."[31]

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[23] The CAA requires standards of performance 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 nonair quality health and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated." 42 U.S.C. § 7411(a)(1).
[24] 42 U.S.C. § 7411(d)(1).
[25] 42 U.S.C. § 7411(a)(6).
[26] 40 C.F.R. § 60.23(a)(1); *See also* 42 U.S.C. § 7411(d)(1)("each state shall submit to the Administrator a plan" establishing the standards of performance).
[27] 40 C.F.R. § 60.24(a), (b)(3).
[28] 79 Fed. Reg. 34,830.
[29] *Id*. at 34,853.
[30] Clean Air Act Amendments of 1970, Pub. L. No. 91-604 (1970).
[31] S. Rep. No. 91-1196, at 18 (1970). *See also* 40 Fed. Reg. 53,340, 53,341-42 (Nov. 17, 1975). "Section 111(d) of the Act was specifically designed to require control of pollutants which are not presently considered 'hazardous' within the meaning of section 112 and for which ambient air quality standards have no been promulgated. Health and welfare effects from these designated pollutants often cannot be quantified or are of such a nature that the

As a matter of logic, and under the statutory scheme described above, if an existing source modifies or reconstructs it becomes something other than an "existing source" – by the statutory definition it becomes a "new source." However, the statute and regulations are silent regarding whether and how an existing source of designated pollutants, with CAA section 111(d) obligations, that subsequently undergoes modification or reconstruction triggering the need to comply with CAA section 111(b), must continue to comply with its CAA section 111(d) obligations. This silence represents an ambiguity, which is especially evident in light of the congressional design within which CAA section 111(d) addresses existing sources of otherwise unregulated designated pollutants.

EPA's interpretation that "all existing sources that become modified or reconstructed sources which are subject to a CAA section 111(d) plan at the time of the modification or reconstruction, will remain in the CAA section 111(d) plan and remain subject to any applicable regulatory requirements in the plan, in addition to being subject to regulatory requirements under CAA section 111(b)," is not only consistent with the statute, but also is reasonable as it ensures the integrity of the ESPS.[32] Because the CAA is silent regarding the continuation of CAA section 111(d) plan obligations after a source modifies or reconstructs "the question…is whether the agency's answer is based on a permissible construction of the statute."[33] An agency's interpretation is reasonable if it is not only a logical construction of the specific provision but also gives effect to the statute as a whole.[34]

When considering the structure of the statute, in particular how Congress organized section 111, it becomes clear that EPA's direction that a source or unit will continue to comply with its obligations under CAA section 111(d) after reconstruction or modification best gives effect to the statutory scheme. If CAA section 111(d) requirements ceased upon a unit's modification or reconstruction, state plans that relied on the source or unit meeting the 111(d) emission standards could become unworkable and would require revision. If the modified source standards were less stringent than the state plan, the plan would need to ensure more pollution reductions from the other sources remaining within that plan, making planning difficult because the state's actual emissions rate could increase above the target rates in unpredictable ways.[35] So, for example, if a source had a very strict section 111(d) emissions limit imposed by the state (a scenario well within a state's authority to require), and the section 111(b) MRSPS emissions limit was less stringent, EPA's MRSPS rule, absent some clarity, could create an incentive for the owner of the unit to modify or reconstruct, in order to evade its section 111(d) emissions limit.

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effects are cumulative and not associated with any particular ambient level…Congress specifically recognized the need for control of a third category of pollutants."

[32] 79 Fed. Reg. at 34,963.

[33] *Chevron v. NRDC*, 467 U.S. 837, 843-44 (1984).

[34] *See Robinson v. Shell Oil Co.,* 519 U.S. 337, 341 (1997); *Ass'n of Tex. v. Timbers of Inwood Forest Assoc.,* 484 U.S. 365, 371 (1988) "Statutory construction is a holistic endeavor. A provision that may seem ambiguous in isolation is often clarified by the remainder of the statutory scheme."

[35] *See* 79 Fed. Reg. at 34,837 (EPA proposed state-specific rate-based goals that state plans must be designed to meet).

Congress designed section 111 to ensure "that [performance] standards reflect 'the greatest degree of emissions control which the Secretary determines to be achievable through application of the latest available control technology, processes, operating methods, or other alternatives.'"[36] Should a state participate in a mass-based allowance trading system with other states, keeping modified and reconstructed sources within the 111(d) frame (particularly under our proposed revisions to the MRSPS, which requires more emissions reductions than under EPA's proposal) could be the basis of more rapid achievement of the overall 111(d) goals.[37]

a. Existing EGUs that Burn Biomass Must Remain Subject to CAA section 111(d) Regardless of Whether They Undergo Modifications or Reconstructions that Affect the Amount of Fossil Fuel Utilized.

EPA expresses concern that CAA section 111(d) might cease to apply to existing EGUs that combust or gasify biomass when those units are reconstructed or modified in ways that cause the heat input they derive from fossil fuel to fall below the 10 percent threshold for applicability.[38] The Agency suggests two new methodologies for determining applicability; it appears[39] that these methodologies are at least partly designed to address EPA's interest in ensuring that "existing boiler and IGCC facilities would continue to be included in CAA section 111(d) state programs regardless of their actual … fossil fuel use."[40]

EPA has placed a pair of memoranda in the MRSPS docket that describe how the Agency might amend the proposed CO_2 standards for new EGUs in order to govern the application of those emission standards to reconstructed and modified sources:

- The first memoranda, titled *Amended Regulatory Text (Proposed Applicability)* [hereinafter *Proposed Applicability Memo*], illustrates the changes that would be made to the regulatory text at C.F.R. §§60.46 (Subpart Da) and 60.4305 (Subpart KKKK), as well as to the as-yet-uncodified regulatory text for Subpart TTTT.[41]

- The second memoranda, titled *Amended Regulatory Text (Broad Applicability)* [hereinafter *Broad Applicability Memo*], shows how applicability of the proposed standards could be based solely on design characteristics (*e.g.*, whether the unit was constructed for the purpose of supplying more than 219,000 MWh as net electric sales on an annual basis) instead of both design characteristics and operating parameters (*e.g.*, whether the unit combusts fossil fuel for more than 10% of its heat input).[42]

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[36] *Portland Cement Ass'n v. Ruckelhaus*, 486 F.2d 375, 391 (D.C. Cir. 1973) (*quoting* S. Rep. No. 9-1196, 91st Cong., 2d Sess. 16 (1970)), *cert. denied*, 417 U.S. 921 (1974).
[37] *See Robinson* and *Ass'n of Tex. supra* note 34.
[38] 79 Fed. Reg. at 34,979/2-3.
[39] EPA has not clearly explained the relationship between its concern at 79 Fed. Reg. at 34,979/2-3 and the applicability memoranda included in the docket, but CATF assumes the memoranda are at least partly designed to address the Agency's concern about the continuing application of CAA section 111(d).
[40] *Id.*
[41] U.S. EPA, "Amended Regulatory Text (Proposed Applicability)" (June 2014) Docket No. EPA-HQ-OAR-2013-0603-0044.
[42] U.S. EPA, "Amended Regulatory Text (Broad Applicability)" (June 2014) Docket No. EPA-HQ-OAR-2013-0603-0047.

CATF shares EPA's interest in ensuring that the CO_2 standards issued pursuant to CAA section 111(d) continue to apply to existing EGUs when those EGUs modify or reconstruct in ways that cause the units to derive 10 percent or less of their heat input from fossil fuel. Allowing EGUs that commence reconstruction or modification after June 16, 2014 to escape 111(d) applicability would undermine the robustness and coherence of the proposed 111(d) regulatory system.

CATF disagrees, however, that new applicability methodologies are necessary to ensure continuous application of CAA section 111(d) to biomass-fueled EGUs that modify or reconstruct. As noted above (*see supra* Sec. II), EPA correctly determined that "*all* existing sources that become modified or reconstructed sources, which are subject to a CAA section 111(d) plan at the time of the modification or reconstruction, will remain in the CAA section 111(d) plan and remain subject to any applicable regulatory requirements in the plan, in addition to being subject to regulatory requirements under CAA section 111(b)."[43]

Consequently, EPA's plan to "delet[e] the criteria to be considered an EGU,"[44] is superfluous and could potentially undermine future regulatory efforts. Under EPA's proposal, all existing affected EGUs that commence modification or reconstruction after June 16, 2014 (including units that utilize more biomass) will remain subject to CAA section 111(d), regardless of how those modifications or reconstructions might affect their electricity sales, or other operating parameters that are used to determine applicability in other contexts. The approaches described in the General Applicability Memo and the Broad Applicability Memo are therefore unnecessary to ensure the continuous application of 111(d).

Also, the Broad Applicability Memo is particularly problematic because it purports to change the applicability provisions for *all* affected or designated units—including *new* units—by eliminating the electricity sales and fossil fuel use criteria.[45] In addition to being unnecessary, the changes described in the memorandum have the potential to complicate the development of future emission standards under CAA section 111 for biomass-burning facilities. We therefore urge EPA to reject the approach described in the Broad Applicability Memo.

III. CATF's Proposal: The MRSPS Must Rely on Partial CCS as the BSER for Modified Sources within 80 Miles of Enhanced Oil Recovery Sequestration Opportunities and for all Reconstructed Sources, Based on the Availability for Retrofit on Modified and Reconstructed Units.

CATF strongly recommends that EPA strengthen its performance standards using its authority to subcategorize the industry to reflect the potential for retrofit CCS technologies to achieve deep, near-term emissions reductions in CO_2 from modified and reconstructed sources based on the availability of EOR sequestration opportunities. CCS is available as a BSER to at

[43] 79 Fed. Reg. at 34,963 (emphasis added).
[44] 79 Fed. Reg. 34,979/2.
[45] *See* Broad Applicability Memo at 2.

the very least support emissions rates for modified subpart Da sources within 80 miles of EOR opportunities, and for all reconstructed subpart Da sources, as set forth below.[46]

The IEA concludes that "[f]or the foreseeable future, fossil fuel-fired power plants will provide a significant portion of electricity in the U.S."[47] Therefore, to "meet demand projections, grid reliability requirements and [CO_2] emissions goals, [CCS] will be necessary for many power generation facilities."[48] CCS separates CO_2 from power plant emissions, compresses it and injects it underground for permanent storage. It is the only technology currently available that allows subpart Da power plants to operate without emitting CO_2. IEA found that "[i]f CCS is removed from the list of emissions reduction options in the electricity sector, the capital investment needed to meet the same emissions constraint is increased by 40 [percent]."[49] In fact, if CCS is not included in such a list, the ability to achieve target levels *ever*, is reduced by 0.5°C.[50]

a. CCS technologies are available for retrofit on existing fossil-fueled power plants.

In January 2014, EPA recognized that "CCS technology has been adequately demonstrated, and its implementation costs are reasonable," and based the CO_2 NSPS emissions rates for new, subpart Da, fossil fuel-fired utility boilers and IGCC units on a BSER including partial CCS.[51] However, even though modified and reconstructed sources are included in the statutory definition of "new source," EPA did not, in that proposed rule, address partial CCS as a BSER and basis for standards of performance for modified and reconstructed subpart Da sources.[52]

However, as demonstrated most recently by the SaskPower Boundary Dam CCS retrofit,[53] and as described extensively in the Technical Appendix to these comments, partial carbon capture is "available" and in use now on coal-fired power plants in the U.S., as well as in

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[46] Partial CCS may also be an option for modified subpart KKKK units within 80 miles of EOR opportunities and reconstructed subpart KKK units, but consistent with the NSPS proposal, our comments focus on subpart Da sources.

[47] U.S. EIA, *Annual Energy Outlook*, at 2 (2014) (Ex. 2). In 2040, natural gas accounts for 35% of total electricity generation, while coal accounts for 32%.

[48] Elizabeth Burton, *et al*., *California's Policy Approach to Develop and Carbon Capture, Utilization and Sequestration as a Mitigation Technology*, 37 ENERGY PROCEDIA 7639, 7645 (2013) (Ex. 3).

[49] IEA, *Technology Roadmap: Carbon Capture and Storage*, at 8 (2013) (Ex. 4); *See also generally* Krishna Priya G.S. *et al*., *Power system planning with emission constrains: Effects of CCS retrofitting*, XX PROCESS & SAFETY ENVTL. PROT. XXX (2014) (Article in press) (Ex. 5) (finding that allowing CCS retrofit of existing plants reduces costs significantly).

[50] Gunnar Luderer *et al*., *Economic mitigation challenges: how further delay closes the door for achieving climate targets,* 8 ENVTL. RESEARCH LETTERS 034033 at 7 (2014) (Ex. 6) (finding that existing sources have already consumed much of the 2.0°C target and delaying comprehensive emissions reductions another 15 years may push the target out of reach). Ruth Nataly Echevarria Huaman and Tian Xiu Jun, *Energy related CO2 emissions and progress on CCS projects: A review*, 31 RENEWABLE AND SUSTAINABLE ENERGY REVIEW 368, 369 (2014) (Ex. 7) (each year of delay will result in a global cost of $500 billion in terms of mitigation costs from 2014 to 2030).

[51] 79 Fed. Reg. at 1,439.

[52] *Id*. at 1,433.

[53] *See* Suzanne Goldenberg, "Canada switches on world's first carbon capture plant," THE GUARDIAN (Oct. 1, 2014) available at: http://www.theguardian.com/environment/2014/oct/01/canada-switches-on-worlds-first-carbon-capture-power-plant. *See also* Technical Appendix at Sec. III.a.

industrial uses here and abroad in similar contexts that support technology transfer.[54] Incidental sequestration ("storage") at EOR sites, which helps offset the costs of partial CCS, is an option – that is, located within 80 miles of the source, as we describe below—for many existing sources. EPA has authority to "distinguish among classes" of modified sources for the purpose of setting standards, including by defining a subcategory of sources based on locational proximity to sequestration options.[55] EPA therefore, should create a subcategory of modified subpart Da sources, which are within 80 miles of EOR and base the performance standard on a partial CCS BSER. The Agency additionally must base the reconstructed subpart Da sources performance standards on a partial CCS BSER, or the construction of an NGCC, consistent with CAA section 111(b) standards proposed in January 2014.

b. CCS must be included in the BSER for a MRSPS for reconstructed sources.

The owner of an existing source, who considers whether or not to undertake reconstruction of that source, is embarking on a significant economic investment in plant approaching the decision to build a greenfield source. The decision to reconstruct an existing source is by definition one to expend resources equivalent to 50 percent or more of the replacement cost of the facility.[56] It is that level of investment, approaching the investment for a greenfield source, that as a policy matter and consistent with the statutory framework, supports performance standards reflecting the "best" controls for all regulated pollutants, including designated pollutants. Therefore, part of the decision as to whether to "reconstruct" a source, rather than "modify" it, must be whether or not the source will be able to meet the pollution control requirements implicit in the new source standards. In other words, this is the kind of large investment the Congress understood to be the appropriate time to significantly update pollution controls at a source.

For these reasons, and because the problem of CO_2 emissions from the subpart Da source category represents more than a third of U.S. anthropogenic CO_2 emissions, the BSER for the CAA section 111(b) reconstructed source performance standards must reflect partial CCS technology (or the construction of an NGCC), just as is the case for the new source section 111(b) standards—put differently, reconstructed sources must meet the proposed 111(b) standards published by the Agency in January 2014, as finalized. As we describe in the Technical Appendix, carbon capture is available and EOR sequestration is widely available, particularly near existing coal-fired subpart Da sources. The CO_2 NSPS standards proposed on January 8, 2014, must apply to both subpart Da reconstructed sources and reconstructed subpart KKKK sources.

Although CCS retrofit capability may be limited for some sources due to site-specific issues such as access to CO_2-EOR storage,[57] EPA promulgated the two part test in the reconstruction provisions in order "to discourage the perpetuation of a facility instead of replacing it at the end

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[54] *Lignite Energy Council v. EPA*, 198 F.3d 930 at 934, n.3 (D.C. Cir. 1999) (EPA may extrapolat[e]…a technology's performance in other industries," and look beyond domestic facilities to those used abroad).
[55] 42 U.S.C. § 7411(b)(2).
[56] 40 C.F.R § 60.15(b)(1).
[57] Mathieu Lucquiaud and Jon Gibbons, *Effective Retrofitting of post-combustion CO_2 capture to coal-fired power plants and insensitivity of CO_2 abatement costs to base plant efficiency*, 5 INT'L J. OF GREENHOUSE GAS CONTROL 427 (2011) (App. Ex. 6).

of its useful life with a newly constructed affected facility."[58] So if "reconstruction" level investment is to be made in an existing source, EPA's longstanding rules require that it must meet the NSPS for that source category.

c. CCS retrofits are the BSER for the NSPS for certain modified sources within 80 miles of EOR sequestration.

Modified sources automatically trigger the NSPS if "any physical or operational change to an existing facility which results in an increase in the emission rate to the atmosphere of any pollutant to which a standard applies"[59] However, EPA has the authority to "distinguish among classes….within categories of new sources for the purpose of establishing…standards."[60] The word "class" can include the location of the source, if relevant to the availability of more effective pollution control options at certain locations. CATF recommends that EPA exercise its authority to define a subcategory of modified sources based on the proximity of sequestration opportunities to sources in the subcategory. By sequestration opportunities, we mean existing pipelines, operational EOR fields, or existing production fields with EOR potential. For that subcategory of sources, the CO_2 performance standard would be based in part on partial CCS technology. A modified source subcategory based on proximity to EOR sequestration is justified by the potential for retrofitted sources to offset the costs of partial CCS retrofits with sale of captured CO_2 to an EOR operator for use and long-term containment in depleted oil or gas fields. We suggest that a distance of 80 miles to such EOR opportunities can define the extent of this subcategory. We have seen actual evidence that an 80 mile +/- distance from EOR resources can provide the financial incentive to apply retrofit carbon capture and sequestration. The Petra Nova Carbon Capture Project is a retrofit in Texas currently under construction.[61] There, NRG Energy is installing and transporting captured CO_2 by an 82-mile long pipeline for EOR utilization and sequestration.[62]

The court in *Sierra Club* found reasonable an industry subcategory based on the sulfur content of local fuel, stating that location-specific considerations are relevant to the question of what is the "best" system of emission reduction to form the basis for a 111(b) standard:

> …an efficient water intensive technology capable of 95 percent removal efficiency might be "best" in the East where water is plentiful, but environmentally disastrous in the water-scarce West where a different technology capable of only 80 percent reduction efficiency might be "best."[63]

Similarly, where partial CCS may be part of the BSER for a performance standard for existing modified sources with access to EOR storage for the captured, compressed CO_2, so too it may not be reasonable to include it in assessing the BSER supporting performance standards for

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[58] 40 C.F.R. § 60.15(b). 39 Fed. Reg. at 36,948.
[59] 40 C.F.R. § 60.14(a).
[60] 42 U.S.C. § 7411(b)(2).
[61] Global CCS Institute, "Petra Nova Carbon Capture Project (formerly NRG Energy Parish CCS Project)" http://www.globalccsinstitute.com/project/petra-nova-carbon-capture-project.
[62] *Id*.
[63] *Sierra Club v. Costle*, 657 F.2d 298, 330 (D.C. Cir. 1981).

modified sources at a further distance from EOR or other sequestration resources. A subcategory of modified sources based on proximity to CO_2-EOR sequestration opportunities promotes the purposes of the CAA, which was designed "to assure the use of available technology and to stimulate the development of new technology"[64] as well as to require achievement of the maximum degree of emission reduction possible, while encouraging the development of innovative technological means of achieving equal or better degrees of control.[65] As discussed in the Technical Appendix, partial CCS retrofits are adequately demonstrated and available. Further, basing the BSER for subpart Da sources on partial CCS spurs newer kinds of technology that can enable near zero carbon emissions from modified and reconstructed fossil fuel-burning plants. As discussed above, that goal is well within EPA's authority to consider in setting these technology-forcing, forward-looking standards. Where proximity to CO_2-EOR storage may preclude application of partial CCS, it is reasonable to subcategorize based on this factor rather than simply to deem partial CCS infeasible for all modified and reconstructed sources.

d. Modified subpart Da sources outside of 80 miles from sequestration opportunity must comply with EPA's proposed MRSPS and partial CCS must be considered during any PSD permitting process.

CATF encourages EPA to finalize co-proposed "Alternative #1" for modified subpart Da sources outside of 80 miles from an EOR opportunity. Alternative #1 would require a source to meet a unit-specific emission limit determined by the unit's best historical annual CO2 emissions rate plus an additional 2 percent emission reduction.[66] As noted *supra* at Sec. II, such sources would continue to be responsible for their CAA section 111(d) obligations as well. States have authority to set source specific emission limits and there is no guarantee that a modified source's obligations under CAA section 111(d), alone, will be sufficient to address the increased emissions associated with a "modification."[67]

Further, while a modified source may be further than 80 miles from an EOR resource, partial CCS may still be available and the appropriate place to consider it is during the CAA section 165 Prevention of Significant Deterioration ("PSD") best available control technology ("BACT") analysis.[68] During that process the permit issuing authority determines an achievable emissions limitation for each pollutant subject to regulation under the CAA from any proposed major modification "on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs."[69] BACT is required for "greenhouse gases emitted by sources otherwise subject to PSD review."[70] Therefore, the feasibility of CCS must be evaluated on a case-by-case basis when an EGU undergoes a major modification.

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[64] S.Rep.No.127 at 171.
[65] *Sierra* Club, at 346 n.174
[66] 79 Fed. Reg. 34,960 at 34,987.
[67] 40 C.F.R. § 60.14(a).
[68] 42 U.S.C. § 7475(a)(4).
[69] 40 C.F.R. § 52.21(b)(12).
[70] *Util. Air Regulatory Group v. EPA*, 134 S. Ct. 2427, 2448 (2014).

e. A modified and reconstructed standard based on partial CCS is a logical outgrowth of the rule as proposed.

CATF's proposed changes to EPA's MRSPS, namely, to include a subcategory of modified sources with a more stringent standard based on the availability of retrofit CCS with EOR sequestration, and to apply the CAA section 111(b) standard to reconstructed sources, is a logical outgrowth of EPA's proposal.[71] EPA's MRSPS proposal provides sufficient detail about partial CCS as a potential BSER, and seeks comment on all aspects of the proposal.[72] CAA section 307 requires EPA to make its proposal available for public comment along with a statement of basis, which includes the factual data and methodology the proposal rests upon along with the Agency's legal and policy determinations.[73] However, EPA is not required to adopt a final rule that is identical to the proposed rule.[74] To the extent that EPA has sought comment and received it on a particular aspect of the proposal, as here where EPA evaluated partial CCS as BSER for all modified and reconstructed sources,[75] the Agency is well within its authority to finalize a rule including a performance standard relying in part on partial CCS as the BSER for a subcategory of the regulated industry.[76] The purpose of a comment period is to gather information and "[a]genies, are free – indeed, they are encouraged – to modify proposed rules as a result of comments they receive."[77] Thus, a final rule may be a logical outgrowth of a proposal if interested parties "should have anticipated" comments on the subject during the notice-and-comment period.[78] Here, EPA has more than placed the issue of partial CCS as BSER in the record – it has based its earlier proposed section 111(b) NSPS for new sources in part on the availability of partial CCS for newly constructed sources. Moreover, the Agency notes its view that modified and reconstructed sources are included in the definition of "new sources," and specifically discuss the issue in the modified and reconstructed source proposal.[79] It therefore is unnecessary for EPA to re-propose the MRSPS in order to finalize a MRSPS rule including CATF's recommendations.

Respectfully submitted,

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[71] 79 Fed. Reg. at 34,982. *See also Northeast Med. Waste. Disposal Auth.*, at 951-52 (there the court determined that removing an municipal waste ESPS subcategory in the final rule was a logical outgrowth of the proposal).
[72] 79 Fed. Reg. at 34,982.
[73] 42 U.S.C. § 7607(d)(3).
[74] *Northeast Med. Waste. Disposal Auth., at* 951-52.
[75] 79 Fed. Reg. at 34,982 (emphasis added).
[76] *Northeast Med. Waste. Disposal Auth.*, at 951-52.
[77] *Ariz. Pub. Serv. Co. v. EPA*, 211 F.3d 1280, 1300 (D.C. Cir. 1994).
[78] *Id.*
[79] 79 Fed. Reg. at 1433.