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**By Electronic Mail**

Environmental Protection Agency
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1200 Pennsylvania Ave., NW
Washington, DC, 20460
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Attention Docket ID No. EPA-HQ-OAR-2009-0517

Dear Administrator Jackson:

As expressed in comments submitted today by various environmental and public health organizations, in which we have joined, Clean Air Task Force ("CATF") strongly supports the tremendous effort that EPA has undertaken in moving forward to regulate greenhouse gas ("GHG") emissions under the Clean Air Act ("CAA" or "the Act").[1] EPA confirms in its Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the CAA ("Final Endangerment Finding") what the overwhelming weight of scientific evidence has compellingly shown – that "[w]arming of the climate system is unequivocal" and that increased anthropogenic emissions of GHGs are the very likely cause.[2] The Final Endangerment Finding details the numerous currently observed, negative impacts caused by climate change pollution, which present serious risks to public health and welfare in the United States and globally.[3] Indeed without effective regulations, these impacts and the dangers they present are

[1] Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean Air Act, 74 Fed. Reg. 66,496 (Dec. 15, 2009) ("Final Endangerment Finding"); Mandatory Monitoring Greenhouse Gases Rule, 74 Fed. Reg. 56260 (Oct. 30, 2009) ("Mandatory GHG Reporting Rule"); Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule, 74 Fed. Reg. 55,292 (Oct. 27, 2009) ("Proposed Tailoring Rule"); Proposed Rulemaking To Establish Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards74 Fed. Reg. 49,454 (Sep. 28, 2009) ("Proposed GHG Motor Vehicle Emissions Standards").

[2] Final Endangerment Finding, 74 Fed. Reg. at 66,517.

[3] *See, e.g.*, *id.* at 66,524 (finding increased frequency and intensity of hot days and heatwaves and noting that heat is already the leading cause of weather-related deaths in the U.S.), 66532 (finding that climate change "has very likely increased the size and number of wildfires, insect outbreaks, and tree mortality" in the U.S. and that "climate change

only likely to get worse.[4] EPA has thus properly emphasized the need to take action in the near-term:

> There continues to be no reason to expect that, without substantial and near-term efforts to significantly reduce emissions, atmospheric levels of greenhouse gases will not continue to climb, and thus lead to ever greater rates of climate change. Given the long atmospheric lifetime of the six greenhouse gases, which range from roughly a decade to centuries, future atmospheric greenhouse gas concentrations for the remainder of this century and beyond will be influenced not only by future emissions but indeed present-day and near-term emissions.[5]

Therefore, EPA should avail itself of every opportunity to reduce GHG emissions and reduce the threats posed by climate change as effectively and as quickly as possible.

For these reasons, CATF writes separately to address EPA's treatment of two important short-lived climate forcers, methane and black carbon, and to suggest how EPA should treat biogenic carbon dioxide emissions ("biogenic $CO_2$") emissions in the context of implementing the Clean Air Act's Prevention of Significant Deterioration ("PSD") program. First, we discuss why EPA should adopt in the final Tailoring Rule regulations a global warming potential ("GWP") that more accurately reflects methane's short atmospheric lifetime and its heat-trapping potency, in order to achieve greater, and badly needed, near-term reductions in emissions. Second, we address the current scientific evidence showing that black carbon is a potent climate forcer and why EPA must act swiftly to regulate black carbon emissions by issuing a positive endangerment and contribution finding followed by appropriate emissions standards. Third, we explain why EPA should take the opportunity presented by the final rule implementing the Tailoring Rule requirements for GHGs to clarify that biogenic emissions of $CO_2$ must be evaluated on par with all other $CO_2$ emissions and thus should not be exempted from the best available control technology ("BACT") requirements of the Act. Further, recognizing that, with

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has already altered, and will likely continue to alter, the water cycle, affecting where, when, and how much water is available for all uses), & 66,533 (finding that sea levels are rising and coastal wetlands are being lost as a result of climate change).

[4] *Id.* at 66,524 ("The Administrator finds that the public health of current generations is endangered and that the threat to public health for both current and future generations will likely mount over time as greenhouse gases continue to accumulate in the atmosphere and result in ever greater rates of climate change.") & 66,535 ("The risk and the severity of adverse impacts on public welfare are expected to increase over time.").

[5] *Id.* at 66,518-19.

proper policies in place, biomass combustion may have climate benefits, we recommend that EPA either in guidance or regulations address the conditions when permitting authorities could determine on a case-by-case basis that a given type of biomass constitutes a "clean fuel" within the meaning of BACT.

Finally, we discuss why EPA may want to consider further tailoring the proposed applicability threshold in its final regulations implementing the Tailoring Rule. EPA correctly recognizes that when application of the literal requirements of a statute would be infeasible, it may adjust the requirements in a manner as refined as possible to ensure that they are administrable, while still fulfilling Congress's expressed intent. As EPA's own Technical Support Document accompanying the Proposed Tailoring Rule shows, administering the 100 ton per year ("TPY") threshold established in 42 U.S.C. § 7479(1) for the 28 listed source categories would be within EPA's and other permitting authority's capacity and would conform to Congressional intent as expressed in the statute's terms. Therefore, we recommend that EPA consider a PSD applicability threshold for these 28 source categories of 100 TPY to more closely accord with the statute.

**1. GWP of Methane**

CATF is concerned by EPA's continued reliance on the 100-year GWP of 21 $CO_2e$ for methane in the Final Endangerment Finding,[6] the Proposed GHG Motor Vehicle Emissions Standards,[7] and finally in the Proposed Tailoring Rule[8]. As we have noted in previous comments on these rules, reliance on this metric significantly underestimates methane's climate forcing impacts relative to the other regulated GHGs and could prevent attainment of significant near-term emissions reductions.

As EPA notes in the Proposed Tailoring Rule, while it may not redefine the "air pollutant" subject to regulation for purposes of the PSD Program, it may nevertheless modify the metric –

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[6] *Id.* at 66,499.

[7] Proposed GHG Motor Vehicle Emissions Standards, 74 Fed. Reg. at 49,525.

[8] Proposed Tailoring Rule, 74 Fed. Reg. at 55,351(proposed 40 C.F.R. § 51.166(d)(58) (stating that GWPs of the regulated GHGs should be calculated in accordance with EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks, which provides a 100-year GWP of 21 $CO_2e$ for methane).

that is, a GHG's $CO_2e$ – when regulating GHG emissions from stationary sources.[9] For the reasons described below, EPA should modify this metric in the final Tailoring Rule by adopting a GWP for methane that accurately reflects its short atmospheric lifetime and its heat trapping potential.

Most of the other GHGs included in EPA's Final Endangerment Finding have long atmospheric lifetimes, ranging from 100 years for carbon dioxide to 10,000 to 50,000 years for perfluorocarbons.[10] The long atmospheric lifetimes of these gases justify use of the standard 100-year GWP to calculate their $CO_2e$. Methane, however, has an atmospheric lifetime of approximately only one decade, as EPA recognizes.[11] Given this much shorter atmospheric lifetime, regulations based on a 100-year GWP are likely to significantly underestimate methane's heat-trapping potency. [12] For instance, the International Panel on Climate Change ("IPCC") has established a 20-year GWP of 72 $CO_2e$. [13]

In contrast to the 100-year GWP, a GWP that accurately accounts for methane's heat-trapping potency and short atmospheric lifetime could result in significant, short-term reductions and thus more rapid climate benefits. As the U.S. Global Change Research Program recently noted, "[r]educing emissions of some shorter-lived greenhouse gases, such as methane . . . would begin to reduce the warming influence within weeks to decades."[14] We therefore recommend that EPA avail itself of this opportunity to drive deep methane emissions reductions that will realize near- and long-term climate benefits.

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[9] *Id.* at 55,329 ("[W]e believe that the definition of 'air pollutant' for PSD and title V purposes provides for sufficient flexibility that the form of the standard – that is, the metric – that EPA adopts for PSD purposes may differ from the form that EPA adopts for purposes of regulation under CAA § 202(a).")

[10] Final Endangerment Finding, 74 Fed. Reg. at 66,517 n.18.

[11] *Id.*

[12] We also note that regulating gases on a 20-year GWP may be appropriate for other short-lived gases included in the Final Endangerment Finding, in particular HCF-134a, which has an atmospheric lifetime of 14 years. *Id.*

[13] S. Solomon et al. (eds.), IPCC, *Climate Change 2007 – The Physical Science Basis*, Contribution of Working Group I to Fourth Assessment Report of the IPCC, 212 (2007).

[14] *See* T. Karl et al. (eds.), U.S. Global Change Research Program, *Global Climate Change Impacts in the United States*, 23 (2009).

**2. Black Carbon Regulation**

We agree with EPA's decision to exclude black carbon as a component of the air pollutant for purposes of this Final Endangerment Finding. Nonetheless, the scientific evidence overwhelmingly shows that black carbon is a potent climate forcer and contributes significantly to climate change. Because black carbon is a short-lived climate forcing agent (like methane), reducing these emissions is among the most effective strategies to mitigate global warming in the immediate future and could, in particular, play a major role in slowing Arctic warming.[15] In fact, a draft report co-authored by several of EPA's own scientists confirms this. That report concludes that black carbon may be exerting a significant anthropogenic warming effect and that "mitigation of [black carbon] emissions therefore has the potential to slow the rate of warming in the Arctic in the next few decades."[16]

There is no dispute that black carbon emissions have a positive radiating effect by absorbing incoming sunlight and increasing surface albedo.[17] A recent study published in *Atmospheric Chemistry and Physics* also confirms that black carbon may be the most important climate forcing agent, second only to carbon dioxide.[18] With respect to projected summertime warming over the course of the 21st century in the United States, the Technical Support Document for the Final Endangerment Finding ("TSD for the Final Endangerment Finding") notes that simulations show that changes in short-lived climate forcing agents (including black carbon) "could be

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[15] M. Jacobson, Testimony for the Hearing on Black Carbon and Arctic, House Committee on Oversight and Government Reform United States House of Representatives, Oct. 18, 2007, available at http://oversight.house.gov/documents/20071018110606.pdf (concluding that control of black carbon "appears to be the fastest method of slowing global warming for a specific period"); *see also* T. Bond, Testimony for the Hearing on Black Carbon and Climate Change, Oversight and Government Reform Committee, U.S. House of Representatives (Oct. 18, 2007), *available at* http://oversight.house.gov/documents/20071018110647.pdf.

[16] M. Sarofim et al., *Current Policies, Emission Trends and Mitigation Options for Black Carbon in the Arctic Region*, Draft Working Paper of the Ad Hoc Working Group, unpublished, 2 (2009).

[17] U.S. EPA, Technical Support Document for Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean Air Act, 25 (Dec. 7, 2009) ("TSD for the Final Endangerment Finding").

[18] *See, e.g.*¸ P.K. Quinn et al., *Short-lived pollutants in the Arctic: their climate impact and possible mitigation strategies*, 9 ATMOS. CHEM. PHYS. 1723, 1724 (observing that "the goal of constraining the length of the melt season [in the Arctic] . . . may best be achieved by targeting shorter-lived climate forcing agents, especially those that impose a surface forcing that may trigger regional scale climate feedbacks pertaining to sea ice melting").

responsible for up to 40%" of that warming.[19] However, the analysis by the CCSP of those simulations, upon which the TSD for the Final Endangerment Finding relies, significantly understates the role that aerosol emissions will play in the future warming of the United States. The CCSP stated that, based on uncertainty with respect to future emissions controls, the report did not draw a definite conclusion regarding "the duration, magnitude, or even sign (warming or cooling) due to future levels of the short-lived gases and particles[.]"[20] The regulatory reality, however, does not justify this wholesale discounting of the potential warming effects. Without immediate action by EPA to reduce black carbon emissions, particularly from mobile sources, those emissions rates are unlikely to be abated in the near-term and may, in fact, increase.[21]

The climate forcing impacts of black carbon are particularly important with respect Arctic warming and sea ice melt. Curiously, the TSD for the Final Endangerment Finding omits any express discussion of the role of black carbon in Arctic warming. This omission is inexcusable because it ignores the most current scientific understanding of the impact of black carbon emissions on this vulnerable region. Some model outputs show that black carbon emissions are responsible for perhaps half of the observed Arctic warming, second only in contribution to carbon dioxide.[22] Deposition of black carbon from sources in North America and Europe alone are estimated to have possibly resulted in an Arctic surface warming trend of as much as 0.5 to 1 degree Celsius.[23]

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[19] TSD for the Final Endangerment Finding at 72 (citing *Climate Projections Based on Emissions Scenarios for Long-Lived and Short-Lived Radiatively Active Gases and Aerosols.* A Report by the U.S. Climate Change Science Program and the Subcommittee on Global Change Research H. Levy II, D.T. Shindell, A. Gilliland, M.D. Schwarzkopf, L.W. Horowitz (eds.). Department of Commerce, Washington, DC, USA, 100 pp ("CCSP 2008d")).

[20] *Id*. (citing CCSP 2008d) (internal quotations omitted).

[21] *See infra* note 29.

[22] P.K. Quinn et al., *Short-lived pollutants in the Arctic: their climate impact and possible mitigation strategies*, 9 ATMOS. CHEM. PHYS. at 1728.

[23] M. Flanner, M. G. et al., *Present-day Forcing and Response from Black Carbon in Snow*, JOURNAL OF GEOPHYSICAL RESEARCH 112, D11202 (2007) (Ex 28); M.M. Holland et al., *Future Abrupt Reductions in the Summer Arctic Sea Ice*, GEOPHYSICAL RESEARCH LETTERS 33: L23503 (2006).

EPA has correctly emphasized that reducing emissions of climate forcers in the near-term is essential to both the current and future protection of public health and welfare.[24] Moving swiftly to reduce black carbon emissions from both mobile and stationary sources would go a long way toward achieving meaningful, near-term reductions.[25] Further, the scientific evidence makes clear that black carbon emissions meet all of the requirements of the endangerment and contribution tests under Section 202(a) of the CAA. As discussed above, there is no doubt that black carbon is a potent climate forcer and contributes significantly to dangerous climate change. In addition, Section 202(a) sources undoubtedly contribute significantly to atmospheric levels of black carbon and, thus, the imminent threats posed by climate change. Recent studies demonstrate that, combined, onroad and non-road motor vehicles are the largest source of black carbon emissions - well over 50% - in North America.[26] On a global level, onroad and nonroad motor vehicles contribute approximately 20% of all black carbon emissions, with other significant emissions resulting from the residential sector and open burning.[27] Therefore, EPA must fulfill its statutory mandate[28] and issue a separate, positive endangerment and cause or contribute finding for black carbon based on the most current scientific evidence and proceed to establish appropriate regulations for black carbon emissions.[29] We urge EPA to take such action as soon as possible.

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[24] Final Endangerment Finding, 74 Fed. Reg. at 66,518-19.

[25] While EPA need not make this endangerment and cause or contribute finding pursuant to Section 202(a), a finding under that section could expedite regulation of emissions from mobile sources, which are significant sources of black carbon.

[26] T. Bond et al., *A Technology-Based Global Inventory of Black and Organic Carbon emissions from Combustion*, 109 JOURNAL OF GEOPHYSICAL RESEARCH D14203, doi:10.1029/2003JD003697, at 29 & 30 (Figure 4) (2004). Estimates are based on fuel use statistics for the year 1996. *Id.* at 27.

[27] *Id.* at 29.

[28] *See generally Massachusetts v. EPA*, 549 U.S. 497 (2007) (making clear that regulation of GHGs falls within the mandate of Section 202(a) requiring EPA to issue emissions standards when the endangerment and cause or contribution tests are met).

[29] Contrary to suggestions by EPA in the proposed Mandatory GHG Reporting Rule, 74 Fed. Reg. 16,448, 16,465 (Apr. 10, 2009), and the final Mandatory GHG Reporting Rule, 74 Fed. Reg. at 56,270, however, current regulatory regimes addressing black carbon emissions from section 202(a) sources – namely, the Highway Diesel Rule and the Nonroad Diesel Rule – are not adequate to achieve the emissions reductions necessary to protect public health and welfare. The timeframe in which those rules will become effective seriously limits their efficacy in achieving the rapid climate change mitigation that is otherwise possible: Many of the standards in those rules do not become fully effective until 2015. Additionally, because of the slow turnover of older engines, their benefits will accrue only over

### 3. Biogenic $CO_2$ Emissions

This section explains why EPA should clarify in the final Tailoring Rule that biogenic $CO_2$ emissions trigger the BACT statutory requirements.[30] First, we summarize the scientific evidence refuting the notion that biomass combustion is categorically carbon neutral. Second, we explain why, per its terms, the Proposed Tailoring Rule does not exempt biogenic $CO_2$ emissions from the BACT requirements. Third, this section discusses why, in any event, exemption of biogenic $CO_2$ emissions from the BACT requirements would violate the provisions of the CAA. This section then recommends that EPA should, in its final Tailoring Rule, direct facilities to calculate emissions of biogenic $CO_2$ in accordance with the Mandatory GHG Reporting Rule. Finally, recognizing that biomass may play an important role in combating climate change, we recommend that EPA, either in regulations or in a guidance document, develop a policy addressing when biomass may constitute a "clean fuel" within the meaning of BACT.

Biogenic $CO_2$ Emissions are Not Inherently Carbon Neutral

Replacement of fossil fuels with biomass does not automatically reduce $CO_2$ emissions. Whether used in a car or in a boiler, the $CO_2$ emissions from biomass combustion are approximately the same per unit of energy as fossil fuels.[31] The concept of biomass "carbon neutrality" is based on the assumption that "over the full lifecycle of the fuel, the $CO_2$ emitted from biomass-based fuels combustion does not increase atmospheric $CO_2$ concentrations, assuming the biogenic carbon emitted is offset by the uptake of CO2 resulting from the growth

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long periods of time. Thus, additional action by EPA pursuant to its authority under Section 202(a) is needed immediately to address black carbon emissions from mobile sources.

[30] For purposes of these comments, "biogenic $CO_2$" refers to the definition contained in the Mandatory GHG Reporting Rule. *See* 74 Fed. Reg. 56260, 56384 (40 C.F.R. § 98.6) (Oct. 30, 2009) (defining "biogenic $CO_2$" as $CO_2$ emitted from the combustion of biomass). Similarly, for purposes of these comments "biomass" means non-fossilized and biodegradable organic material originating from plants, animals or micro-organisms, including products, by-products, residues and waste from agriculture, forestry and related industries as well as the non-fossilized and biodegradable organic fractions of industrial and municipal wastes, including gases and liquids recovered from the decomposition of nonfossilized and biodegradable organic material. *Id.* at 56,384 (40 C.F.R. § 98.6) (defining biomass as the same).

[31] *See* U.S. Energy Information Administration, *Voluntary Reporting of Greenhouse Gases Program: Fuel and Energy Source Codes and Emissions Coefficients* (compare bituminous coal with wood and waste), *available at* http://www.eia.doe.gov/oiaf/1605/coefficients.html.

of new biomass."[32] The scientific evidence to date (including studies by EPA), however, conclusively refutes the concept that combustion of biomass is categorically carbon neutral. Rather, authorities agree that an accurate accounting of $CO_2$ emissions from biomass must include all direct and significant indirect emissions that occur over the lifecycle of the fuel. The IPCC has concluded that "[t]o avoid underreporting, therefore, any changes in biomass stocks on lands . . . resulting from production of biofuels would need to be included in the accounts."[33] UN-Energy has concluded that "[t]o assess the GHG balance associated with different forms of bioenergy, it is essential to consider emissions throughout the full-lifecycle," and "[i]n some countries today, biomass is considered 'carbon neutral' because assessments fail to account for upstream emissions."[34] In addition, the work of a number of prominent scientists continues to demonstrate that a proper accounting of GHG emissions associated with biomass must take into account direct and significant indirect emissions.[35]

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[32] Regulation of Fuels and Fuel Additives: Changes to Renewable Fuel Standard Program (Proposed Rule), 74 Fed. Reg. 24,904, 25,040 (May 26, 2009) ("Proposed RFS-2") .There is no dispute, however, that combustion of biomass does result in net emissions of $N_2O$ and methane, *id.* at 25040, and thus these emissions should be included in determining whether combustion of biomass triggers the BACT requirement.

[33] R. Watson et al., *Land Use, Land-Use Change, and Forestry*, 6.3.2.3 (IPCC, Cambridge Univ. Press, Cambridge, 2000), *available at* http://www.grida.no/publications/other/ipcc_sr/?src=/Climate/ipcc/land_use/index.htm. We recognize that the UNFCCC reporting framework, which is based on IPCC reporting guidelines, does not require inclusion of biogenic $CO_2$ emissions in the national GHG emissions inventories. Nonetheless, that reporting framework does include consideration of emissions and sinks from land, land-use change, and the forestry sector. *See* U.S. EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2007*, 7-1 (2009), *available at* http://www.epa.gov/climatechange/emissions/downloads09/GHG2007entire_report-508.pdf.

[34] UN-Energy, *Sustainable Bioenergy: A Framework for Decisionmakers*, 48-49 (Apr. 2007) ("*Sustainable Bioenergy*"), *available at* http://esa.un.org/un-energy/pdf/susdev.Biofuels.FAO.pdf.

[35] J. Melillo et al., *Indirect Emissions from Biofuels: How Important?* 326 SCIENCE 1,397, 1,397 (2009) (Missing in many analyses "is how to address the full dynamic accounting of biofuel carbon intensity (CI), which is defined for energy as the GHG emissions per megajoule of energy produced, that is, the simultaneous consideration of the potential of net carbon uptake through enhanced management or poor or degraded lands, nitrous oxide ($N_2O$) emissions that would accompany increased use of fertilizer, environmental effects on terrestrial carbon storage . . ., and consideration of the economics of land conversion. The estimation of emissions related to global land-use change . . . requires an approach to attribute effects to separate land uses."); D. Tilman et al., *Beneficial Biofuels – The Food, Energy, and Environmental Trilemma*, 325 SCIENCE 270, 271 (2009) ("*Beneficial Biofuels*") ("Accounting rules should consider the full lifecycle of biofuels production, transformation, and combustion."); J. Fargione et al., *Land Clearing and the Biofuel Carbon Debt*, SCIENCEXPRESS, 10.1126/science.1152747, 2 (2008) ("*The Biofuel Carbon Debt*") ("To accurately incorporate the costs of carbon emissions in market signals, emerging policy approaches to GHG emissions must be extended to the full life-cycle of biofuels including their net GHG emission or sequestration from land-use change.") T. Searchinger et al., *Fixing a Critical Climate Accounting Error*, 326 SCIENCE 527, 528 (2009) ("Instead of an assumption that all biomass offsets energy emissions, biomass should receive credit to the extent that its use results in additional carbon from enhanced plant growth or from the use of residues or biowastes. Under any crediting system, credits must reflect net changes in carbon stocks, emissions of

This makes perfect sense. If biomass is afforded $CO_2$ "credits" for the uptake of $CO_2$ during the cultivation process, it would be arbitrary and scientifically indefensible to stop the lifecycle analysis there and not to account for other emissions associated with the fuel's full lifecycle. For these reasons, Congress wisely included in the Energy Independence and Security Act of 2007 ("EISA 2007," codified at amendments to 42 U.S.C. § 211(o)) a requirement that EPA conduct a lifecycle assessment of the GHG emissions associated with a given type of biofuel, which includes significant indirect emissions from land use change.[36] In sum, the net impact of combustion of a given type of biomass on atmospheric $CO_2$ concentrations must be assessed on a case-by-case basis over the lifecycle of the fuel and must include significant indirect emissions. The following paragraphs highlight three potentially significant sources of GHG emissions related to biomass production that would be excluded without a full lifecycle analysis.[37] Importantly, while most of the studies to date have focused on biofuels produced for the transportation sector, the impacts are similar for biomass that is produced for electricity generation or other types of combustion.

*Cultivation Emissions:* A number of cultivation practices can result in significant GHG emissions. Of the most important is the potential for emissions associated with direct land use changes. Conversion of existing forests, savannahs, and other types of land for bioenergy production can increase atmospheric GHG concentrations because $CO_2$ is released from the soils and vegetation that would otherwise remain sequestered, and the attendant loss of biomass results in foregone sequestration.[38] If biomass is treated as inherently carbon neutral, economics will favor large-scale land conversion to meet the demand, regardless of actual net GHG emissions.[39] One study estimates that a policy assuming that biomass is carbon neutral with a

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non-$CO_2$ greenhouse gases, and leakage emissions resulting from changes in land-use activities to replace crops or timber diverted to bioenergy.").

[36] 42 U.S.C. § 211(o)(1)(H).

[37] The discussion is not meant to be exhaustive; the analysis accompanying the proposed regulations to implement EISA 2007 provide a comprehensive discussion of emissions that should be assessed in a lifecycle GHG assessment. *See* Proposed RFS-2, 74 Fed. Reg. at 25,027-40.

[38] T. Searchinger et al., *Fixing a Critical Climate Accounting Error*, 326 SCIENCE at 528.

[39] *Id.* and authorities cited therein; *see also* D. Tilman et al., *Beneficial Biofuels*, 325 SCIENCE at 271 ("Sometimes, the most profitable way to get land for biofuels is to clear the land of its native ecosystem, be it rainforest, savanna, or grassland. The resulting release of carbon dioxide from burning or decomposing biomass and oxidizing humus can negate any greenhouse-gas benefits of biofuels for decades to centuries.").

global target of 450 ppm $CO_2$ would cause an expansion of biocrops that displaces virtually all the world's natural forests and savannahs by 2065, releasing up to 37 gigatons (GT) of $CO_2$ per year, which is comparable to total human $CO_2$ emissions today.[40] Along the same lines, a study by J. Melillo et al. predicts that bioenergy could displace approximately 59% of the world's natural forest cover by 2050.[41] Because of emissions associated with this land conversion, the authors conclude that "no net greenhouse gas reductions will be realized from biofuel until 2045."[42] H. Gibbs et al. estimates that "[e]xpansion of contemporary feedstocks into tropical forests will lead to net carbon emissions for ~40-120 years with the most productive biofuel crops, and for ~300-1500 years with lower yielding biofuel crops, such as maize and soybeans."[43] Finally, even limited harvesting of existing forests that leaves carbon stocks unchanged will negatively impact atmospheric GHG emissions.[44] Conversely, policies that encourage bioenergy production only on unproductive land or practices that increase biomass growth rates may have a potential climate benefit.[45]

Emissions of nitrous oxide ("$N_2O$") resulting from fertilizer application also present a potentially significant source GHGs. Consideration of these emissions is particularly important

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[40] M. Wise et al., *Implications of Limiting CO2 Concentrations for Land Use and Energy*, 324 SCIENCE 1183, 1184 (Figure 2(c) (scenario in which a carbon tax is applied to fossil fuel and industrial emissions but not to terrestrial carbon emissions) (2009); *see also* T. Searchinger et al., *Fixing a Critical Climate Accounting Error*, 326 SCIENCE at 528.

[41] J. Melillo et al., *Unintended Environmental Consequences of a Global Biofuels Program* (MIT Joint Program Report Series, Massachusetts Institute of Technology, Cambridge, MA 2009)), 6 (Table 1 (Deforestation Scenario)) *available at* http://globalchange.mit.edu/files/document/MITJPSPGC_Rpt168.pdf; *see also*, J. Melillo et al., *Indirect Emissions from Biofuels: How Important?* 326 SCIENCE at 1398 (certain case studies showing that over the 21st century, $N_2O$ emissions will become larger than carbon emissions from land use).

[42] *Id.* at 7 (deforestation scenario).

[43] H. Gibbs et al., *Carbon Payback Times for Crop-based Biofuel Expansion in the Tropics: The Effects of Changing Yield and Technology*, 3 ENVIRON. RES. LETT. 1, 8 (2008) ("*Carbon Payback Times*") *available at* http://www.iop.org/EJ/article/1748-9326/3/3/034001/erl8_3_034001.pdf?request-id=b65d5b16-97d2-4937-adf6-37581f529d28.

[44] T. Searchinger et al., *Fixing a Critical Climate Accounting Error*, 326 SCIENCE at 528.

[45] *Id.*; J. Melillo et al., *Indirect Emissions from Biofuels: How Important?* 326 SCIENCE at 1397 (noting that the carbon intensity analysis of biomass should include consideration of "the simultaneous consideration of the potential of net carbon uptake through enhanced management of poor or degraded land"). Given the potential impacts from direct land use change, Congress in EISA 2007 wisely limited the direct land use impacts that could occur from the increased renewable fuel requirements in the transportation sector. *See* 42 U.S.C. § 211(o)(1)(I).

because $N_2O$ has a GWP 310 times greater than that of carbon dioxide.[46] For common bioenergy feedstocks, P.J. Crutzen et al. found that when $N_2O$ emissions are considered, there is actually a relative climate warming effect when compared to $CO_2$ "saved" from the replacement of fossil fuels, although emissions may be lower for other types of biomass feedstocks, including lingo-cellulosic plants.[47] For these reasons, this study concludes that "the relatively large emission of $N_2O$ exacerbates the already huge challenge of getting global warming under control."[48]

*ILUC emissions*: In the analysis accompanying the proposed regulations to implement EISA 2007 ("Proposed RFS-2"), EPA correctly recognized that increased demand for biofeedstocks will result in indirect land use changes, both domestically and internationally.[49] EPA included domestic land use changes using the FASOM model in the analysis that accompanied the proposed rule, however it was unable to model the amount of forest that would be converted to cropland as a result of the increased renewable fuel requirements.[50] EPA expects to include such modeling in the final RFS-2 and importantly predicts:

> As we incorporate the forestry component [of FASOM] for the final rule analysis, we would expect to see more interaction between the forestry and agricultural sector such that there may be conversion of forest to agriculture based on additional cropland needed. *While we do not know if forest will be converted to cropland or the extent to which this might occur, if domestic forests were converted to cropland, we would expect domestic GHG emissions to increase.* [51]

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[46] U.S. EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2007*at ES-3.

[47] P.J. Crutzen et al., *$N_2O$ Release from Agro-biofuel Production Negates Global Warming Reduction by Replacing Fossil Fuels*, 8 ATMOS. CHEM. PHYS. 389, 392 (2008) (biofuels from maize and rapeseed).

[48] *Id.* at 393.

[49] Proposed RFS-2, 74 Fed. Reg. at 25,024. ("There is a direct relationship between [the] shifts in the agriculture market as a consequence of the increased demand for biofuels in the U.S. Increased U.S. demand for biofuel feedstocks diverts these feedstocks from other competing uses [food consumption], and also increases the price of the feedstock, thus spurring production. To the extent feedstocks like corn and soybeans are traded internationally, this combined impact of lower supply from the U.S. and higher commodity prices encourages international production to fill the gap.")

[50] *Id.* at 25,030.

[51] *Id*. (emphasis added).

In addition, EPA also modeled the impacts of international indirect land use changes. EPA properly recognized that, "[i]t would be arbitrary and capricious to assign the indirect emissions to the domestic renewable fuels but not to assign the identical indirect emissions that occur overseas to an imported product."[52] With respect to biofuels, EPA's modeling leaves no doubt that such emissions are significant.[53] Similarly, UN-Energy has concluded that "[t]he ability of various bioenergy types to reduce greenhouse gas emissions varies widely, and where forests are cleared to make way for new energy crops, *the emissions can be even higher than those from fossil fuels.* Unless new policies are enacted . . ., *the environmental and social damage could in some cases outweigh the benefits.*"[54] Finally, the Joint Research Centre of the European Commission found that "[i]ndirect land use change could potentially release enough greenhouse gas to negate the savings from conventional EU biofuels."[55]

Biogenic $CO_2$ Emissions Trigger the BACT Requirement in the Proposed Tailoring Rule

Under the proposed GHG regulatory framework, biogenic $CO_2$ emissions will be subject to BACT.[56] First, in the Final Endangerment Finding, EPA has defined the "air pollutant" that will be subject to regulation for purposes of the PSD Program as the basket of the six well-mixed GHGs, including $CO_2$.[57] This definition is unqualified with regard to the type of material or process resulting in the emission of the air pollutant and thus should be read as including biogenic $CO_2$ emissions.[58] Similarly, the definition of "Greenhouse Gas" in the Proposed

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[52] *Id.* at 25,024.

[53] *See id.* at 25,042-47.

[54] UN-Energy, *Sustainable Bioenergy* at 5 (emphasis added).

[55] R. Edwards et al., *Biofuels in the European Context: Facts and Uncertainties*, 11 (JRC European Commission 2008), *available at* http://ec.europa.eu/dgs/jrc/downloads/jrc_biofuels_report.pdf.

[56] The fact that biogenic emissions are not calculated in determining whether a facility meets the reporting thresholds in the Mandatory GHG Reporting Rule, while scientifically dubious, is nonetheless irrelevant. EPA promulgated the stationary source GHG reporting requirements pursuant to its authority under Section 114 of the CAA, which provides the Administrator great discretion in establishing monitoring and reporting programs. *See* 42 U.S.C. § 7414(a)(1). In contrast, the PSD program contains specific statutory mandates that EPA has no discretion to ignore. *See, e.g.*, 42 U.S.C. §7475(a)(4) (requiring application of BACT to the emission of each air pollutant subject to regulation).

[57] Final Endangerment Finding, 74 Fed. Reg. at 66,536-37.

[58] *Id.*

Tailoring Rule is unqualified and should be read as treating emissions of $CO_2$ uniformly.[59] The proposed regulations provide that "[t]he applicable GWPs and guidance on how to calculate a source's GHG emissions in tpy $CO_2e$ can found in EPA's 'Inventory of U.S. Greenhouse Gas Emissions and Sinks,' which is updated annually under existing commitment under the United Nation's Framework Convention on Climate Change (UNFCCC)."[60] We recognize that under the reporting framework established in the UNFCCC, biogenic $CO_2$ emissions are not reported as part of a country's net GHG emissions.[61] This fact, however, is irrelevant. First, "the air pollutant subject to regulation" includes $CO_2$ without qualification. Second, the regulations in the Proposed Tailoring Rule refer to EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks for purposes of *calculation* of a source's emissions in $CO_2e$ (i.e., the relevant GWP for each GHG) – not to its *reporting*, much less its pollution control, obligations. Moreover, the EPA U.S. GHG Inventory does contain methods of calculation – albeit unsophisticated and incomplete – for biogenic $CO_2$ emissions from certain types of biomass.[62] Thus, the plain language of the proposed regulations does not by its terms exclude biogenic emissions of $CO_2$. Accordingly, biogenic $CO_2$ emissions are properly treated on par with other $CO_2$ emissions and will trigger BACT if they meet or exceed the applicable threshold. Finally, the reporting requirements of the UNFCCC have no relevance to national reporting obligations as those must be governed by the provisions Mandatory GHG Reporting Rule and any other requirements of the CAA. Therefore, we propose that EPA clarify that biogenic $CO_2$ emissions trigger the BACT requirements if they meet or exceed, in combination with the emission of other GHGs, the established thresholds in both the preamble to the final rule and the final regulations.

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[59] *See, e.g.*, Proposed Tailoring Rule, 74 Fed. Reg. at 55,329 & 55,351 (proposed 40 C.F.R. §51.66(b)(57) (defining GHG)).

[60] *See, e.g.*, *id.* at 55,351 (Proposed Amended 40 C.F.R. §51.66(b)(58)).

[61] U.S. EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks* at 3-59.

[62] *Id.* at 3-59; *see also id.* at 3-60-61 (describing the calculation methodology for woody biomass (wood and wood waste) and ethanol). Below, we suggest that EPA in the final Tailoring Rule direct that sources calculate their biogenic emissions in accordance with the Mandatory GHG Reporting Rule.

Exclusion of Biogenic $CO_2$ Emissions from the BACT Requirements Would Be Unlawful

Even if the Proposed Tailoring Rule is read to exclude biogenic $CO_2$ emissions from the BACT applicability determination, this categorical exemption would contradict the plain language of the CAA and EPA's traditional approach to the BACT analysis. As explained above, the GHGs that will become the air pollutant "subject to regulation" include $CO_2$ without exception. The purpose of the BACT requirement is to reduce emissions of dangerous air pollutants – in this case, GHGs including $CO_2$ – directly from major emitting facilities. Accordingly, the CAA makes clear that the only emissions relevant for purposes of the BACT applicability determination are the "end of the stack emissions": "the proposed facility is subject to the best available control technology for each pollutant subject to regulation under this chapter *emitted from, or which results from, such facility.*"[63] Therefore, to determine whether BACT applies to a given emissions, only two questions need to be answered[64]: 1) Is the substance in question an air pollutant subject to regulation? 2) If so, is it being emitted from or does it result from the facility in question? In the case of biogenic $CO_2$ emitted from major emitting facilities, the answer to both questions is unequivocally "yes".

Because the purpose of the BACT requirement is to reduce emissions directly from major emitting facilities, the applicability analysis has not traditionally included a lifecycle assessment of a fuel's environmental impacts. In the case of $CO_2$, there is no reason or authority to deviate from this approach. In fact, exclusion of biogenic $CO_2$ emissions could have disastrous consequences, including significantly increased GHG atmospheric concentrations as a result of both direct and indirect land use changes. Given this potential, blanket exclusion of biogenic $CO_2$ emissions would fly in the face of the precautionary nature of the CAA.[65] Indeed, EPA in the Final Endangerment Finding stressed that the "air pollution" that is anticipated to endanger human health and welfare is the *currently* elevated and unprecedented atmospheric levels of the

[63] 42 U.S.C. §7475(a)(4) (emphasis added).

[64] Provided that established thresholds are met.

[65] *See, Lead Indus. Ass'n v. EPA*, 674 F.2d 1130, 1152 (D.C. Cir. 1980); *Am. Lung Ass'n v. EPA*, 134 F.3d 388, 389 (D.C. Cir. 1998); *Ethyl Corp. v. EPA*, 541 F.2d 1, 13 (D.C. Cir 1976).

six well-mixed GHGs, which in turn are causing the current observed effects of climate change.[66] Therefore, EPA's focus should be on reducing these already elevated air pollution levels despite any attendant marginal climate benefits of a given fuel. Thus as both a matter of law and policy, biogenic $CO_2$ emissions must be treated the same as any other "air pollutant" for purposes of whether BACT applies.

EPA Should Require that Biogenic CO2 Emissions Be Calculated in Accordance with the Mandatory GHG Reporting Rule

Pursuant to the Mandatory GHG Reporting Rule, a facility may generally exclude biogenic $CO_2$ emissions in determining whether it meets or exceeds GHG emissions thresholds.[67] If a facility otherwise meets those thresholds, however, it must monitor and report its biogenic $CO_2$ emissions.[68] Accordingly, the Mandatory GHG Reporting Rule contains detailed and well-vetted calculation methodologies.[69] In the final Tailoring Rule, EPA should direct facilities to calculate their biogenic $CO_2$ emissions in accordance with that rule for two reasons. First, the methodologies contained in the US EPA GHG Inventory, to which the proposed regulations currently refer, are unsophisticated and incomplete. By requiring biogenic $CO_2$ emissions to be calculated in accordance with the methodologies contained in the Mandatory GHG Reporting Rule, EPA will gain better emissions data than under the proposed rule from sources that may not meet the threshold for reporting under the Mandatory GHG Reporting Rule (because of the exclusion of biogenic $CO_2$), but nonetheless must calculate their biogenic $CO_2$ emissions to determine whether they meet or exceed the threshold for the PSD and Title V programs. Second, reporting emissions in a uniform manner will reduce administrative burdens on facilities that would otherwise be required to employ two calculation methods to determine the amount of biogenic $CO_2$ emissions.

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[66] Final Endangerment Finding, 74 Fed. Reg. at 66,517 ("The latest assessment of the USGCRP, as summarized in EPA's TSD, confirms the evidence presented in the Proposed Findings that current atmospheric greenhouse gas concentrations are now at elevated and essentially unprecedented levels as a result of both historic and current anthropogenic emissions."); *see also id.* ("Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level.")

[67] Mandatory GHG Reporting Rule, 74 Fed. Reg. at 56,378 (40 C.F.R. § 98.2(b)&(c)).

[68] *See, e.g.*, *id.* at 56,267-68.

[69] *See id.* at 56,402 (40 C.F.R. §98.33(e)) & 56,409 (Table C-1 to Subpart C of Part 98 – Default $CO_2$ Emission Factors and High Heat Values for Various Types of Fuel).

EPA Should Establish a Methodology for Determining on a Case-By-Case Basis Whether a Biofeedstock May Qualify as a "Clean Fuel"

Replacement of fossil fuels with biomass as a combustion source may further efforts to combat climate change and thus EPA should develop guidance or regulations addressing when biomass may constitute a "clean fuel".[70] We first give a brief history of the treatment of "clean fuels" and describe why this historical treatment is not applicable to biomass. We then describe the factors that EPA should consider in developing regulations or policy guidance on when biomass may constitute a clean fuel.

The term "clean fuels" was added to the definition of BACT in the 1990 Amendments to the CAA. EPA policy "has for a long time required that the permit writer examine the inherent cleanliness of the fuel" in the BACT analysis.[71] Administrator Jackson has only very recently confirmed that clean fuels must be considered and that the onus is on the applicant to show why use of particular clean fuel is inappropriate at a given facility.[72] There is little EPA guidance or case law defining what constitutes a "clean fuel". Generally, the focus has been on whether the chemical composition of the fuel itself renders it "inherently" "clean" or "cleaner," thus reducing emissions at the stack in comparison with other fuels.[73] Common examples are coal with a naturally lower sulfur content[74] and natural gas[75]. For this reason, the determination of whether a

[70] 42 U.S.C. § 7479(3) (BACT includes "clean fuels").

[71] *In re. Inter-power of New York*, 5 E.A.D. 130, 134 & n.7 (1994) ("*In re. Inter-power*").

[72] *In re. Cash Creek Generation, LLC*, Order Responding to Issues Raised in January 31, 2008 and February 13, 2008 Petitions, and Denying In Part and Granting In Part Requests for Objection to Permit, Permit No. Title V/PSD #V-07-017, 7-9 (Dec. 15, 2009) ("*Cash Creek Order*").

[73] *See* Letter from William G. Rosenberg, Assistant Administrator for Air and Radiation, EPA to Henry A. Waxman, Chairman, Subcommittee on Health and Environment, House Committee on Energy and Commerce (Oct. 17, 1990) (reproduced in full at 136 Cong. Rec. S16,895, S16,916-17 (daily ed. Oct. 27, 1990)).

[74] *Id.*; s*ee also In re. Inter-power*, 5 E.A.D. at 137; 136 Cong. Rec. S3,814, S3,820 (Apr. 3, 1990) (statement of Sen. Simpson (sponsor of the amendment) ) ("The addition of the term 'clean fuels' indicates to the EPA Administrator that he may consider the use of very clean fuels in meeting the BACT requirement. . . . The amendment was meant to apply to a very narrow range of circumstances where very clean coals could result in the same emission rate as the use of technology. This amendment would not result in any increase in emissions in the west or any other part of the United States. It was my sole intention to allow the use of clean fuels only where the emissions rate would approximate that which would be required under a technology requirement.").

fuel is "clean" has not traditionally involved a lifecycle assessment of air emissions associated with the fuel.

Biomass, however, is not "inherently cleaner" than fossil fuels in this sense because both fuels emit approximately the same amount of $CO_2$ per unit of energy generated.[76] Nonetheless, because biomass has the potential to play a role in combating climate change, EPA should develop regulations or guidance addressing when biomass may be treated as a "clean fuel". This will necessitate assessment of several lifecycle factors on a case-by-case basis. In general, however, EPA policy should emphasize the following principles:

- *Case-by-Case Basis*: Any determination that biomass constitutes a "clean fuel" must be made on a case-by-case basis as required by the CAA.

- *Limit Direct Land Use Changes*: EPA policy should provide that any biofeedstock from converted forests, grasslands, or other productive lands does not qualify as a clean fuel, particularly from high-carbon density terrestrial sinks such as tropical forests.[77] The definition of "renewable biomass" in EISA 2007 goes a long way to achieving this goal.[78] However, where the biomass production has resulted in net carbon uptake on poorly managed or otherwise degraded land, this could point in favor of the biomass constituting a "clean fuel".[79]

- *Consider encouraging utilization of waste, residue, and materials at the end of their useful life*: Energy use of manure or crop and timber residues may have increased climate benefits, and EPA policy should encourage sustainable use of

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[75] *See Cash Creek Order* at 7-9. The other definitions of BACT confirm that determination of whether a fuel is "clean" is generally measured at the level of the emissions unit in comparison with emissions from other fuels or the fuel without treatment. 42 U.S.C. § 7479(3) (BACT also includes "fuel cleaning" or "treatment" or "innovative combustion techniques").

[76] *See* U.S. Energy Information Administration, *Voluntary Reporting of Greenhouse Gases Program: Fuel and Energy Source Codes and Emissions Coefficients* (compare bituminous coal with wood and waste).

[77] *See* H. Gibbs et al., *Carbon Payback Times*, 3 ENVIRON. RES. LETT. at 4 & 8.

[78] *See* 42 U.S.C. § 211(o)(1)(I).

[79] D. Tilman.et al., *Beneficial Biofuels*, 325 SCIENCE at 270; J. Fargione et al., *The Biofuel Carbon Debt*, SCIENCEXPRESS, 10.1126/science.1152747, at 2; H. Gibbs et al., *Carbon Payback Times*, 3 ENVIRON. RES. LETT. at 4.

these materials. [80] In addition, EPA should encourage the conversion of biowastes destined for landfills to biogas to avoid their decomposition and release of methane.[81] Finally, studies have shown that converting biofeedstock to a useful material (such as plastic) and subsequently using that material for energy production at the end of its useful life may have significantly greater $CO_2$ reduction benefits than use of biomass alone.[82]

- *Encourage sustainable cultivation practices*: EPA policy should encourage improvements in nitrogen uptake efficiency by plants to reduce emissions of $N_2O$ associated with fertilizer use[83] and other practices that improve crop yields without increasing GHG emissions[84]. In addition, EPA should encourage the use of lingo-cellulosic plants and perennial grasses, which result in lower $N_2O$ emissions.[85] With respect to managed plantations, EPA should ensure that sustainable forestry practices are followed and that harvest rates do not deplete carbon stocks.[86]

- *Discourage ILUC Emissions*: In general, EPA should discourage ILUC by accounting for the emissions associated with the conversion of cropland used for food and other types of land as a result of bioenergy demand. As with direct land use change, EPA should consider the type of land being converted and may wish to acknowledge that cultivation of unproductive or degraded land may have climate benefits.

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[80] *See* D. Tilman et al., *Beneficial Biofuels*, 325 SCIENCE at 270.

[81] UN-Energy, *Sustainable Bioenergy* at 49.

[82] *Id*.

[83] *See generally* P.J. Crutzen et al., *$N_2O$ Release from Agro-biofuel Production Negates Global Warming Reduction by Replacing Fossil Fuels*, 8 ATMOS. CHEM. PHYS. at 392.

[84] H. Gibbs et al., *Carbon Payback Times*, 3 ENVIRON. RES. LETT. at 6.

[85] *See generally* P.J. Crutzen et al., *$N_2O$ Release from Agro-biofuel Production Negates Global Warming Reduction by Replacing Fossil Fuels*, 8 ATMOS. CHEM. PHYS. at 392.

[86] T. Searchinger et al., *Fixing a Critical Climate Accounting Error*, 326 SCIENCE at 528.

- *Discourage significant emissions from transportation:* The transportation emissions associated with a given biofeedstock should be taken into account, and EPA should encourage feedstocks with the lowest emissions.

- *Timeframe Issues*: The timeframe over which net GHG emissions are calculated is of critical importance in determining whether and when, if any, climate benefits from biomass occur.[87] EPA has recognized that "one advantage of using a shorter time period is that it is more 'conservative' from a climate policy perspective" and that it involves less uncertainty.[88] Environmental organizations [89] have recommended that EPA use a timeframe of not longer than 20 to 30 years when implementing EISA 2007. Shorter timeframes (of as little as one year) have been suggested as a means to reduce uncertainty and to account for the potential substantial short term penalties resulting from the use of biomass.[90]

- *Encourage Combined Heat Power ("CHP") Projects*: Studies suggest that use of biomass in CHP projects can substantially reduce GHG emissions in the near future.[91] Therefore, EPA and permitting authorities should encourage development of these projects.

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[87] Proposed RFS-2, 74 Fed. Reg. at 25,033-37; *see also* J. Melillo et al., *Indirect Emissions from Biofuels: How Important?* 326 SCIENCE at 1,397-98 (analyzing one case study showing a negative climate impact through 2050 but a climate benefit by 2100).

[88] Proposed RFS-2, 74 Fed. Reg. at 25,035.

[89] These comments were submitted on behalf of the following ten environmental organizations: CATF, Environment America, Environmental Working Group, Friends of the Earth, National Wildlife Federation, Natural Resources Defense Council, Sierra Club, Union of Concerned Scientists, The Wilderness Society, World Resources Institute**.** They are available at http://www.regulations.gov/search/Regs/home.html#home (Docket ID. No. EPA-HQ-OAR-2005-0161).

[90] J. Melillo et al., *Indirect Emissions from Biofuels: How Important?* 326 SCIENCE at 1,399 (analyzing one case study showing a climate negative impact through 2050 but a climate benefit by 2100); J. Fargione et al., *The Biofuel Carbon Debt*, Sciencexpress at 1 ("We call the amount of CO2 released during the first 50 years of this process the 'carbon debt' of land conversion. Over time, biofuels from converted land can repay this carbon debt if their production and combustion has net GHG emissions that are less than the life-cycle emissions of the fossil fuels they displace.")

[91] UN-Energy, *Sustainable Bioenergy* at 49.

We recognize that other factors will influence the case-by-case lifecycle analysis. We also recognize that establishing this type of guidance will be complex. Nevertheless, given the potentially disastrous consequences of an undirected or less clearly defined biomass policy, EPA should rise to the challenge.

**4. Further Tailoring**

Section 169(1) of the CAA establishes thresholds defining when a facility constitutes a "major emitting facility" for purposes of the PSD Program: it sets a 100 TPY threshold for 28 expressly listed source categories ("28 listed source categories") and a threshold of 250 TPY or more for "any other source."[92] The CAA thus expressly singles out the 28 listed source categories as particularly important in terms of pollution prevention and control.[93]

As expressed in comments filed today by CATF and other nongovernmental organizations, CATF agrees that EPA has met its "heavy burden"[94] of showing that literal application of both the 100 TPY and the 250 TPY thresholds would be administratively infeasible. Nevertheless, as EPA recognizes, an agency's "tailoring" of the literal requirements of a statute to meet its administrative needs must be "in as refined a manner as possible" and must "still achiev[e] Congress's overall intent."[95]

To more closely conform with Congress's intent, EPA should consider further tailoring the final regulations to apply the statutory 100 TPY applicability threshold to the 28 listed source categories called out in Section 169(1) of the CAA, while maintaining its proposed 25,000 TPY $CO_2e$ applicability threshold for all other sources during the first phase of implementing the PSD and Title V programs for GHGs. As EPA's Technical Support Document for Greenhouse Gas Emissions Threshold Evaluation accompanying the proposed rule shows, the 28 listed source categories contain relatively few numbers of existing sources and nearly all are "significant" emitters in that they would meet the proposed 25,000 TPY $CO_2e$ threshold.[96] Moreover, for

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[92] 42 U.S.C. §169(1).

[93] *See id.*

[94] *Al. Power v. Costle*, 636 F.2d 323, 359 (D.C. Cir. 1980).

[95] Proposed Tailoring Rule, 74 Fed. Reg. at 55312; *see also Envt'l Def. Fund v. EPA*, 636 F.2d 1267, 1284-85 (D.C. Cir. 1980).

[96] *See, e.g.*, U.S. EPA, TSD for GHG Thresholds (July 7, 2009) at 10, (noting that fossil fuel-fired steam electric plants with heat input greater than 250 mmBtu/hr heat input are one of the 28 listed sources and that $CO_2$ potential to

many of the 28 listed source categories, EPA does not expect new sources to come online.[97] Because the vast majority of these sources not only trigger the 100 TPY PSD applicability threshold for GHGs, but also the 25,000 TPY applicability threshold that EPA has proposed for Title V, there would be no additional Title V program-related burden from this further tailored approach for these source categories, beyond that related to a 25,000 TPY threshold. Thus, application of the statutory 100 TPY threshold to the 28 listed source categories could occur with minimal, if any, additional administrative burdens, under either the PSD or the Title V program. More importantly, however, application of the 100 ton per year threshold would ensure that all facilities that Congress expressly considered a priority in terms of pollution prevention and regulation would be covered.[98] Thus, EPA's further "tailoring" along these lines would ensure that EPA conforms as closely as possible to the statutory command in issuing this first phase of the rule.

**Conclusion**

In closing, CATF strongly supports EPA's watershed proposal to regulate GHG emissions from stationary sources and urges EPA to finalize these regulations as soon as possible. Given the grave threats posed by climate change, EPA should also avail itself of all opportunities to promulgate regulations that will most effectively mitigate the current and future impacts of climate change. Specifically, EPA in the final regulations implementing the first phase of the PSD and Title V programs for GHGs should adopt a GWP for methane that

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emit for all facilities of this size from combustion alone is 225,000 TPY), 23 (Cement Production – Table 19 (same number of sources (107) at the 100 TPY and the proposed thresholds)), 37 (Iron and Steel Production – Table 25 (130 sources at 100 TPY threshold and 123 at the proposed threshold)), 38 (Lead Production – Table 38 (17 sources at 100 TPY threshold and 13 at the proposed threshold)), 39 (Lime – Table 39 (89 sources at the 100 TPY threshold and 86 at the proposed threshold)), 42 (Nitric Acid Production – Table 42 (45 sources at the 100 TPY threshold and 44 at the proposed threshold)), & 46 (Petroleum Refineries – Table 48 (150 sources at the 100 TPY threshold and 146 sources at the proposed threshold)).

[97] *See, e.g.*, *id.* at 23 (Cement Production – Table 19 (no expected new sources)), 37 (Iron and Steel Production – Table 25 (same)), 38 (Lead Production – Table 38 (same)), 39 (Lime – Table 39 (same)), 42 (Nitric Acid Production – Table 42 (same)), & 46 (Petroleum Refineries – Table 48 (same)).

[98] We note that once a facility in these 28 source categories is considered "major" for PSD purposes, the next question about applicability becomes what constitutes a "major modification" of that source, such that PSD review and the application of BACT are required. *See* 40 C.F.R. 52.21(b)(23). We recommend that EPA set the threshold for GHG major modifications of major sources in the 28 source categories at the same significance level, which is 10,000 TPY, recommended as the threshold for all source categories, for the reasons described in the joint comments we filed today.

accurately reflects its potency and shorter atmospheric lifetime so as to achieve the near-term reductions in this pollutant that are greatly needed. In addition, EPA should move swiftly to reduce emissions of black carbon by issuing a separate endangerment and contribution finding and subsequently promulgating appropriate emissions standards. Given the potential for increased demand of biomass to result in significant increases in GHG emissions, we recommend that EPA clarify in the final rule and regulations that biogenic $CO_2$ emissions are not exempt from the requirements of BACT and that EPA develop guidance or regulations addressing when biomass may constitute a "clean fuel" as opposed to fossil fuels. Finally, we urge EPA to consider further tailoring the thresholds in the final Tailoring Rule to apply the statutory 100 TPY threshold for the 28 listed source categories because it could do so with minimal administrative burden under the PSD or the Title V program and such tailoring would ensure that the rule more closely comports with the statutory requirements.

Sincerely,

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