

**REQUEST FOR CORRECTION OF INFORMATION  
DISSEMINATED BY THE ENVIRONMENTAL PROTECTION AGENCY  
REGARDING EMISSIONS FROM BIOMASS COMBUSTION  
IN THE INVENTORY OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS**

CENTER FOR BIOLOGICAL DIVERSITY  
351 California St., Ste. 600  
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Date: July 28, 2010

**INTRODUCTION**

In its recently released *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2008* (the “Inventory”), the U.S. Environmental Protection Agency (“EPA”) recognizes that the combustion of biomass and biofuels produces carbon dioxide (CO<sub>2</sub>) and other greenhouse gases. However, EPA declines to include these emissions in annual calculations of national greenhouse gas totals. According to EPA, “because biomass fuels are of biogenic origin, . . . [i]t is *assumed* that the carbon (C) released during the consumption of biomass is recycled as U.S. forests and crops regenerate, causing no net addition of CO<sub>2</sub> to the atmosphere.”<sup>1</sup> EPA’s blanket assumption that biomass combustion is “carbon neutral” is unsupported by credible science. Indeed, scientists have identified this assumption as the source of a critical error in the agency’s carbon accounting methodology.<sup>2</sup>

The Center for Biological Diversity seeks correction of the Inventory’s erroneous assumptions and accounting errors pursuant to the Data Quality Act (also known as the Information Quality Act), Section 515 of the Fiscal Year 2001 Treasury and General Government Appropriations Act (Public Law 106-554). The Data Quality Act requires that information shared by Federal agencies meet standards of “quality, objectivity, utility and integrity.” These standards have been defined in implementing guidelines as requiring accuracy, reliability, lack of bias and transparency regarding the source of the data used, the assumptions employed, and the analytic methods applied.<sup>3</sup> EPA’s dissemination of the Inventory—which contains erroneous assessments of the atmospheric impact of biomass combustion—violates these standards.

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<sup>1</sup> U.S. EPA, INVENTORY OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS 1990-2008, U.S. EPA # 430-R-10-006 (Apr. 2010) (“Inventory”), Ch. 3 (Energy) at 1 (emphasis added), *available at* <http://epa.gov/climatechange/emissions/usinventoryreport.html>.

<sup>2</sup> See Timothy Searchinger, et al., *Fixing a Critical Climate Accounting Error*, 326 SCIENCE 527 (2009).

<sup>3</sup> See Office of Management and Budget, *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal Agencies*, 67 Fed. Reg. 8452 (Feb. 22, 2002) (“OMB Guidelines”); U.S. Environmental Protection Agency (EPA) *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of*

As explained in detail below, EPA ignored current scientific evidence concerning greenhouse gas emissions from biomass combustion in preparing the Inventory. Furthermore, EPA failed to follow the public review procedures required by its own Quality Assurance/Quality Control Plan for Inventory preparation.<sup>4</sup> Consequently, EPA has failed to ensure that the influential information it disseminates is accurate, reliable and based upon sound science, as required by law. The Center therefore respectfully requests that EPA rescind and correct all statements and calculations in the Inventory containing or reflecting the erroneous assumption that biomass combustion is “carbon neutral.”

## **PETITIONER**

The Center for Biological Diversity (hereinafter “the Center”) is a nonprofit environmental organization dedicated to the protection of imperiled species and their habitats through science, education, policy, and environmental law. The Center has over 255,000 members and online activists throughout the United States. The goal of the Center’s Climate Law Institute is to reduce U.S. greenhouse gas emissions and other air pollution to protect biological diversity, the environment, and public health. Specific objectives include securing protections for species threatened by the impacts of global warming, ensuring compliance with applicable law in order to reduce greenhouse gas emissions and other air pollution, and educating and mobilizing the public on global warming and air quality issues. The Center submits this Request for Correction on its own behalf and on behalf of its members and staff with an interest in protecting the environment.

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## **BACKGROUND**

In fulfillment of its obligations as a signatory to the United Nations Framework Convention on Climate Change, the U.S. Environmental Protection Agency publishes an annual inventory of

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*Information Disseminated by EPA (“EPA Guidelines”), available at [http://www.epa.gov/quality/informationguidelines/.../EPA\\_InfoQualityGuidelines.pdf](http://www.epa.gov/quality/informationguidelines/.../EPA_InfoQualityGuidelines.pdf).*

<sup>4</sup> U.S. EPA, *Quality Assurance / Quality Control and Uncertainty Management Plan for the U.S. Greenhouse Gas Inventory: Procedures Manual for QA/QC and Uncertainty Analysis* (Jun. 16, 2002) (“QA/QC Procedures Manual”).

national greenhouse gas emissions and sinks.<sup>5</sup> In the preparation of the inventory, EPA seeks and obtains comments from technical experts and from the general public.<sup>6</sup>

On March 15, 2010, EPA published in the Federal Register a notice of document availability and request for comments on the EPA's draft Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2008 (the "Draft Inventory").<sup>7</sup> The Draft Inventory asserted, among other things, that "the carbon (C) released during the consumption of biomass is recycled as U.S. forests and crops regenerate, causing no net addition of CO<sub>2</sub> to the atmosphere" and that "[b]iofuels such as wood and ethanol are also considered to be C neutral; although these fuels do emit CO<sub>2</sub>, in the long run the CO<sub>2</sub> emitted from biomass consumption does not increase atmospheric CO<sub>2</sub> concentrations if the biogenic C emitted is offset by the growth of new biomass." Members of the public were instructed to submit comments on the Draft Inventory within 30 days of the date of appearance of the notice (i.e., by April 14, 2010), in order to "ensure [that] comments [were] considered for the final version of the document."<sup>8</sup>

Pursuant to the official notice and request for public comment, the Center for Biological Diversity, together with five other organizations (Biomass Accountability Project, Energy Justice Network, Global Alliance for Incinerator Alternatives, Green Berkshires, and Massachusetts Forest Watch) submitted comments to EPA on April 14, 2010. Those comments presented scientific studies that reveal errors in EPA's carbon accounting methodology. Specifically, the comments highlighted EPA's failure to account accurately for carbon emissions associated with combustion of biomass because of an erroneous assumption that biomass combustion is "carbon neutral."<sup>9</sup>

Less than twenty-four hours after the close of the public comment period, EPA issued its final Inventory. The Inventory did not respond or refer to the comments submitted by the Center and other organizations. Instead, the Inventory continued to reflect EPA's assumption that biogenic energy sources have no net effect on the atmosphere, despite acknowledged emissions of CO<sub>2</sub> and other greenhouse gases.

EPA thus continues to disseminate estimates of emissions from the energy sector that exclude emissions from biomass combustion. EPA is disseminating the final Inventory containing these inaccurate estimates and incorrect assumptions on the agency's website at <http://epa.gov/climatechange/emissions/usinventoryreport.html>.

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<sup>5</sup> Inventory at ES-2.

<sup>6</sup> *See id.* at iii.

<sup>7</sup> 75 Fed. Reg. 12,232 (Mar. 15, 2010) (attached as Ex. 1).

<sup>8</sup> *Id.*

<sup>9</sup> Biomass Accountability Project, Center for Biological Diversity, Energy Justice Network, Global Alliance for Incinerator Alternatives, Green Berkshires, and Massachusetts Forest Watch, *Comments Re: Inventory of U.S. Greenhouse Gas Emissions and Sinks* (April 14, 2010) (attached as Ex. 2). Notices from Regulations.gov confirming successful electronic submission of these comments are attached as Exhibit 3.

## ARGUMENT

### I. Legal Standards

The Data Quality Act requires that information shared by Federal agencies meet standards of “quality, objectivity, utility and integrity.”<sup>10</sup> To this end, the Act requires the Office of Management and Budget (OMB) to issue guidelines for Federal agencies to follow in “ensuring and maximizing the quality, objectivity, utility and integrity of information (including statistical information).”<sup>11</sup> The Act further requires OMB to “establish administrative mechanisms allowing affected persons to seek and obtain correction of information maintained and disseminated by the agency that does not comply with [OMB’s] guidelines.” Each Federal agency to which the OMB Guidelines apply is in turn responsible for issuing its own guidelines ensuring and maximizing the quality, objectivity, utility and integrity of information disseminated by the agency, and providing administrative mechanisms for correction of information failing to meet these standards.<sup>12</sup>

In 2002, OMB published *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal Agencies* (“OMB Guidelines”), implementing the Data Quality Act.<sup>13</sup> EPA also adopted agency-specific Data Quality Act guidelines in 2002.<sup>14</sup> Under the OMB and EPA Guidelines, “information” means “any communication or representation of knowledge such as facts or data, in any medium or form,” including information disseminated from a web page.<sup>15</sup> “Utility” denotes the usefulness of the information to the intended users, including the public.<sup>16</sup> “Objectivity” refers to both presentation and substance; information not only must be “accurate, reliable, and unbiased,” but also must be “presented in an accurate, clear, complete, and unbiased manner.”<sup>17</sup>

In the case of “influential scientific, financial or statistical information,” both OMB and EPA Guidelines specify that the quality of information, and the soundness and transparency of statistical and research methods, should be subject to a higher standard than that applied to “information that may not have a clear and substantial impact on important public policies or

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<sup>10</sup> Section 515(a), 114 Stat. 2763A-154.

<sup>11</sup> *Id.*

<sup>12</sup> Section 515 (b)(2)(A), (B).

<sup>13</sup> OMB Guidelines, 67 Fed. Reg. 8452 (Feb. 22, 2002).

<sup>14</sup> U.S. Environmental Protection Agency, *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by EPA*, 18 (Oct. 2002) (“EPA Guidelines”).

<sup>15</sup> OMB Guidelines, 67 Fed. Reg. at 8460; EPA Guidelines at 15.

<sup>16</sup> OMB Guidelines, 67 Fed. Reg. at 8459; EPA Guidelines at 15.

<sup>17</sup> OMB Guidelines, 67 Fed. Reg. at 8459; EPA Guidelines at 15. Under both the OMB and EPA Guidelines, “quality” is a broad term encompassing utility, objectivity, and integrity, while “integrity” refers to security of information, such as the protection of information from unauthorized access or revision, to ensure that information is not compromised through corruption or falsification. OMB Guidelines, 67 Fed. Reg. 8459-60; EPA Guidelines at 15.

private sector decisions.”<sup>18</sup> The EPA Guidelines emphasize the importance of ensuring that “analytic results for influential information have a higher degree of transparency regarding (1) the source of the data used, (2) the various assumptions employed, (3) the analytic methods applied, and (4) the statistical procedures employed.”<sup>19</sup>

The OMB Guidelines provide that “agencies shall establish administrative mechanisms allowing affected persons to seek and obtain, where appropriate, timely correction of information maintained and disseminated by the agency that does not comply with OMB or agency guidelines.”<sup>20</sup> The EPA Guidelines include a similar provision related to administrative mechanisms for correction of information.<sup>21</sup>

## **II. EPA’s GHG Inventory Violates the Data Quality Act and Applicable Guidelines**

EPA’s Inventory fails to meet Data Quality Act standards of quality, objectivity, integrity, and utility because it ignores both scientific data and public input. This failure is especially egregious because the Inventory constitutes “influential information” subject to OMB and EPA guidelines implementing the Data Quality Act. The Inventory provides scientific and statistical information that has “a clear and substantial impact on important public policies or private sector decisions,” particularly decisions concerning potential direct subsidies, inclusion in “renewable” energy portfolios, and other forms of governmental support and encouragement of biomass-fired energy generation. The soundness and transparency of the statistical and research methodology employed in EPA’s analysis thus must meet a higher standard. As shown below, however, the Inventory fails to meet even basic Data Quality Act standards, much less the higher standards applicable to influential information.

### **A. By Ignoring Scientific Evidence that Biomass Combustion Is Not “Carbon Neutral,” EPA Is Disseminating Inaccurate, Incomplete, and Unreliable Information on Biomass-Related Greenhouse Gas Emissions**

By publishing a final version of the Inventory that excludes emissions due to combustion of biomass and assumes all such emissions are completely reabsorbed through regeneration, the EPA has failed to ensure that the information it disseminates is of maximum quality and objectivity, as required under the Data Quality Act. In particular, EPA’s Inventory does not satisfy the standard for objectivity, which requires that information be accurate and reliable and presented in a complete manner.

#### **1. EPA’s Inventory Is Inaccurate**

As detailed in the comments timely submitted by the Center and other organizations (see Exhibit 2), EPA’s blanket assumption regarding the carbon-neutrality of biogenic energy sources ignores

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<sup>18</sup> 67 Fed. Reg. at 8459-60; EPA Guidelines, 20.

<sup>19</sup> EPA Guidelines, 20-21.

<sup>20</sup> 67 Fed. Reg. at 8459.

<sup>21</sup> EPA Guidelines, Section 8.

important fuel- and source-specific variation and contradicts numerous recent scientific studies.<sup>22</sup> For example, EPA fails to distinguish between types of biomass, which have significantly different lifecycle carbon emissions. EPA also fails to present any evidence that all biomass combustion actually displaces fossil fuel consumption rather than simply provided an additional source of energy.

The Inventory also ignores the global warming implications of the time lapse between current carbon dioxide emissions and anticipated future sequestration. The assumption that emissions from combustion today are fully offset by absorption through regeneration of biomass in the future fails to reflect the temporal relationship between short-term emissions and effects on global warming. Carbon emitted during biomass combustion may remain in the atmosphere for decades or centuries before being resequenced. For example, the time between harvest and complete reabsorption of lost carbon by a forest stand can extend into hundreds of years.<sup>23</sup> Short-term CO<sub>2</sub> emissions from woody biomass combustion are thus *significant*—not “neutral.” Because meeting (or exceeding) atmospheric CO<sub>2</sub> targets has a strong temporal element, the time that it takes for CO<sub>2</sub> released into the atmosphere today to be reabsorbed is of critical importance in assessing the climate impacts of carbon emissions, regardless of their “biogenic” origin. The greater the CO<sub>2</sub> levels, the greater the risk of exceeding the two degree Celsius warming threshold and triggering likely catastrophic climate changes.

## 2. EPA’s Inventory is Unreliable

EPA’s assessment of the impact of biogenic energy sources on the atmosphere relies on uncertain carbon accounting data from the land-use sector to capture the atmospheric impact of biomass. Rather than account for emissions from biomass combustion at the smokestack and tailpipe, where they can be measured to a high degree of accuracy, EPA’s Inventory includes only those biomass-related emissions or removals that are accounted for under land-use change, which is inherently less certain. For example, the statistical uncertainty in estimating emissions flux from forests and cropland greatly exceeds that in estimating emissions from fuel

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<sup>22</sup> Several studies published since the release of EPA’s final 2010 Inventory have reinforced Searchinger et al.’s conclusion that biomass combustion cannot be considered carbon neutral. A new report commissioned by the Massachusetts Department of Energy Resources found that the use of biomass to replace coal in power plants could actually increase carbon dioxide emissions. MANOMET CENTER FOR CONSERVATION SCIENCES, BIOMASS SUSTAINABILITY AND CARBON POLICY STUDY (Jun. 2010), *available at* [http://www.mass.gov/Eoeea/docs/doer/renewables/biomass/Manomet\\_Biomass\\_Report\\_Full\\_LoRez.pdf](http://www.mass.gov/Eoeea/docs/doer/renewables/biomass/Manomet_Biomass_Report_Full_LoRez.pdf). Another study published in June by Environmental Working Group revealed that combustion of woody biomass will cause a near-term surge in carbon releases while eroding forests’ ability to recapture emissions for decades. MARY S. BOOTH & RICHARD WILES, ENVIRONMENTAL WORKING GROUP, CLEARCUT DISASTER: CARBON LOOPHOLE THREATENS U.S. FORESTS (Jun. 2010), *available at* <http://static.ewg.org/pdf/EWG-clearcut-disaster.pdf>.

<sup>23</sup> Stephen R. Mitchell, et al., *Forest Fuel Reduction Alters Fire Severity and Long-Term Carbon Storage in Three Pacific Northwest Ecosystems*, 19 *ECOLOGICAL APPLICATIONS* 643, 652 (2009).

combustion.<sup>24</sup> In contrast, actual CO<sub>2</sub> emissions from energy-related fossil fuel combustion in 2008 may be only 1% below or 6% above EPA estimates.<sup>25</sup> EPA could provide more accurate information regarding the impact of biomass on the atmosphere if it measured direct emissions from combustion of biogenic fuels and then factored in any additional emissions and removals associated with specific fuel characteristics and related land use change, as scientists have proposed.<sup>26</sup>

The emissions associated with land use change vary depending on the end-use of harvested biomass. In the absence of a complete change in land use (e.g., conversion of a forest to another category), emissions associated with the loss of woody biomass can be measured only to the extent that an emissions analysis captures the decline in stand density.<sup>27</sup> Current EPA methods for estimating carbon emissions from land use change do not capture this data. Nor are these emissions included in energy sector totals, as discussed above. As a result, the true emissions associated with biomass combustion are not accurately reflected in the Inventory.

### **3. EPA's Inventory is Incomplete**

The net effect of biomass combustion on greenhouse gas emissions must be demonstrated on a project-specific basis, not simply assumed to be neutral. The EPA should revise its GHG inventory to take into account all emissions from the biomass lifecycle, including production, transport, processing, and combustion; all emissions and lost sequestration capacity associated with forest thinning and clearing operations; and actual analysis of fossil fuel displacement. Accurate and complete accounting is absolutely critical to determining whether smokestack emissions from biomass combustion can be treated as "carbon neutral" in the manner proposed by EPA.

For all of these reasons, the information on biomass that EPA is disseminating in the Inventory is neither accurate nor reliable, and it is not useful to public and private actors who look to the EPA to inform their decisions. Absent prompt correction, this incorrect information will continue to mislead policy-makers and the public about the true environmental costs of biomass energy.

#### **B. By Ignoring Public Comments, EPA Failed to Follow Its Own Data Quality Act and Quality Assurance Guidelines.**

Public comments on the Draft Inventory were due at midnight Eastern time on April 14, 2010. EPA released the final Inventory on April 15, 2010. EPA thus allowed itself less than 24 hours for incorporation of public comments on the draft Inventory. Unsurprisingly, EPA completely failed to address both serious concerns regarding the quality of EPA's information and voluminous research calling EPA's methodology and assumptions into question. By failing to

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<sup>24</sup> Inventory at 7-19, 7-30 (explaining that actual CO<sub>2</sub> emissions from forest lands and carbon stock changes in cropland may vary substantially from EPA estimates).

<sup>25</sup> *Id.*, at 3-22.

<sup>26</sup> See Searchinger, et al., *supra* note 2.

<sup>27</sup> Inventory at 7-6.

follow its own guidelines, EPA has failed to ensure that the information it disseminates is accurate, reliable and unbiased.

Under the EPA Guidelines, public review (including public comment periods and public meetings) contributes to information quality in accordance with the Data Quality Act.<sup>28</sup> In its QA/QC Procedures Manual, the EPA recognizes that public review enhances quality assurance and “is also essential for promoting the openness of the inventory development process and the transparency of the inventory data and methods.”<sup>29</sup>

To this end, EPA’s QA/QC plan expressly provides for a public review period prior to finalization of the GHG inventory. “Once comments [from technical experts outside the EPA during the Expert Review period] are received and addressed, a second draft of the document is released for public review by publishing a notice in the U.S. Federal Register and posting the document on the EPA Web site. The Public Review period allows for a 30 day comment period and is open to the entire U.S. public . . . . After the final revisions *to incorporate any comments from the Expert Review and Public Review periods*, EPA prepares the final National Inventory Report and the accompanying Common Reporting Format Reporter database.”<sup>30</sup> The incorporation of public review comments is consistently listed as an important, independent step in the inventory development process.

The schedule for completion of the annual inventory of US GHG emissions and sinks indicates that the agency will allow one month after the close of the public comment period for incorporation of public comments.<sup>31</sup> However, since 2003 (when the 1990-2001 inventory was published), EPA has not allowed sufficient time for incorporation of public comments as required in the agency’s QA/QC plan.<sup>32</sup> From 2004 to 2007, EPA allowed approximately two weeks for incorporation of public comments. This shrunk to about a week in 2008 and five days in 2009.<sup>33</sup> Finally, in 2010, the EPA published the final Inventory for 1990-2008 *mere hours* after the close of the public comment period. This year’s experience is not an isolated incident, but rather the latest indication that EPA has adopted an increasingly egregious pattern and practice of disregarding public comment on draft greenhouse gas inventory documents.

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<sup>28</sup> EPA Guidelines at 19. When EPA has sought public comment on information, including a draft document, the Agency “generally would not consider a complaint that *could have been* submitted as a timely comment in the rulemaking or other action but was submitted after the comment period.” *Id.* at 32 (emphasis added). Here, however, public comments *were* timely submitted. EPA simply failed to take them into consideration before finalizing the Inventory and distributing the substandard information therein.

<sup>29</sup> QA/QC Procedures Manual at 1-14.

<sup>30</sup> U.S. Environmental Protection Agency, *Quality Assurance/Quality Control and Uncertainty Management Plan for the U.S. Greenhouse Gas Inventory: Background on the U.S. Greenhouse Gas Inventory Process*, at 1-10 (Jun. 16, 2002) (emphasis added).

<sup>31</sup> *Id.*, Exhibit 4-2, at 16.

<sup>32</sup> See 68 Fed. Reg. 6450-51 (Feb. 7, 2003).

<sup>33</sup> See 69 Fed. Reg. 9623-24 (Mar. 1, 2004); 70 Fed. Reg. 9647 (Feb. 28, 2005); 71 Fed. Reg. 9821-22 (Feb. 27, 2006); 72 Fed. Reg. 8731-32 (Feb. 27, 2007); 73 Fed. Reg. 12,413 (Mar. 7, 2008); 74 Fed. Reg. 10,249 (Mar. 10, 2009).



EPA cannot meaningfully consider and incorporate public comments in the hours between midnight and morning, especially when its own quality assurance plan allocates 30 days for this task. As a result, EPA failed to review, address, and incorporate comments submitted by the Center and others on the Draft Inventory. Had EPA properly considered these comments, as required under its own quality assurance plans and procedures, it could have avoided disseminating a final Inventory document that fails to meet the standards of the Data Quality Act.

### **REQUEST FOR CORRECTION**

The Center seeks correction of the Inventory to ensure that EPA accurately accounts for emissions of CO<sub>2</sub> and other greenhouse gases from biomass production and combustion. Specifically, EPA should revise the Inventory to eliminate reliance on the assumption that biomass combustion is “carbon neutral” and adopt an accurate and comprehensive accounting methodology for biomass emissions that captures actual emissions from biomass combustion at the smokestack and tailpipe, as well as emissions and removals from associated land use change.

**The Center requests that EPA make the following corrections of material in the 1990-2008 Inventory, and ensure that these changes continue to be reflected in all subsequent inventories:**

- 1) Assumptions about the “carbon-neutrality” of biomass combustion should be abandoned.**
  - a. **EPA states that** “[t]he combustion of biomass and biomass-based fuels also emits greenhouse gases. CO<sub>2</sub> emissions from these activities, however, are not included in national emissions totals because biomass fuels are of biogenic origin. It is assumed that the carbon (C) released during the consumption of biomass is recycled as U.S. forests and crops regenerate, causing no net addition of CO<sub>2</sub> to the atmosphere. The net impacts of land-use and forestry activities on the C cycle are accounted for separately within the Land Use, Land-Use Change, and Forestry chapter. Emissions of other greenhouse gases from the combustion of biomass and biomass-based fuels are included in national totals under stationary and mobile combustion.”<sup>34</sup>

**The Center requests that EPA replace the above statement with the following:**

“The combustion of biomass and biomass-based fuels also emits greenhouse gases. CO<sub>2</sub> emissions from these activities and associated land-use change are included in national emission totals because short-term impacts of biomass combustion on the atmosphere may be significant, even if a portion of the CO<sub>2</sub> emitted is re-sequestered in the future. Some of the carbon (C) released during the consumption of biomass may be recycled as U.S. forests and crops regenerate. However, the net effect of biomass combustion on the atmosphere will vary depending on the source of the biomass, the future sequestration capacity of soils and vegetation, changes in the type or intensity of land use associated with

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<sup>34</sup> Inventory, Ch. 3 (Energy) at 1.

biomass production, and the time lapse between emission of greenhouse gases through combustion and sequestration through regeneration. Given the temporal relationship between present carbon emissions and future effects of global warming, an assessment of the impact of biomass consumption on the atmosphere must factor in the time it takes to reabsorb greenhouse gases emitted today, applying a discount rate that weights short-term emissions more heavily than longer-term emissions. Carbon emissions from energy produced with biogenic sources are accounted for in this chapter [the Energy chapter]. Additional greenhouse gas emissions and removals due to associated land-use change are accounted for in the Land Use, Land-Use Change and Forestry chapter.”

- b. **EPA states that** “[b]iofuels such as wood and ethanol are also considered to be C neutral; although these fuels do emit CO<sub>2</sub>, in the long run the CO<sub>2</sub> emitted from biomass consumption does not increase atmospheric CO<sub>2</sub> concentrations if the biogenic C emitted is offset by the growth of new biomass.”<sup>35</sup>

**The Center requests that EPA replace the above statement with the following:**

“Biofuels such as wood and ethanol are not assumed to be C neutral. These fuels emit CO<sub>2</sub> when combusted. Although some or all of the biogenic C emitted may be reabsorbed decades or centuries in the future through the growth of new biomass, the short-term increase in atmospheric CO<sub>2</sub> concentrations caused by the combustion of biofuels may affect efforts to achieve near-term greenhouse gas emission stabilization and reduction targets aimed at limiting the probability of a global mean temperature rise of more than 2 degrees.”

**2) Estimates of greenhouse gas emissions from the energy sector should include emissions from biomass.**

Table 3-1 of EPA’s Inventory, “CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O Emissions from Energy,” lists estimated annual emissions from “Wood Biomass and Ethanol Consumption” but explains that “these values are presented for informational purposes only and are not included or are already accounted for in totals.”<sup>36</sup>

The Center requests that EPA include specific values for CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O emissions from wood biomass and ethanol consumption in the greenhouse gas emission totals for the energy sector.

**3) Calculations must be revised.**

National aggregate emissions calculations and all analyses of data pertaining to emissions from energy generation and land use, land use change and forestry, should be corrected, consistent with the above requests (1) and (2), to accurately and comprehensively reflect emissions from biomass combustion as well as emissions and removals due to associated land use change.

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<sup>35</sup> Inventory, Ch. 3 (Energy) at 19.


<sup>36</sup> Inventory, Ch. 3 (Energy) at 1-2.

Correction of this information will benefit the Center, its staff and members in numerous ways. EPA's annual GHG inventory is highly influential with respect to national, state, and local policies related to renewable energy and climate change. Proposed biomass generation and biofuel projects routinely cite statements in EPA's annual inventory in support of assertions that biomass and biofuels are by definition "carbon neutral." These assertions are not only wrong, but also dangerous; construction of biomass facilities, without proper analysis of actual emissions, could result in increased greenhouse gas pollution during precisely the period when emissions most need to be curtailed. Construction of these facilities also could increase demand for fuel, causing tremendous landscape impacts.

Correction of the Inventory's errors, in contrast, would positively influence the decisions of private actors, including decisions regarding investment in the development of future energy infrastructure or agricultural and forestry activities. This would benefit the Center and its staff and members. The ecosystems and the species the Center, its staff, and its members seek to protect from extinction are all affected by climate change. These species thus depend on the EPA's dissemination of accurate and reliable information concerning greenhouse gas emissions, especially where—as here—that information is extremely influential in guiding national, state, and local energy and land use policies. By ensuring that the information it disseminates on greenhouse gas emissions is accurate, reliable, and useful, the EPA can better fulfill its mission to protect human health, safeguard the environment, and contribute meaningfully to reducing the greenhouse gases that cause climate change.

DATED: July 28, 2010

Respectfully submitted,



NIKKI REISCH



KEVIN BUNDY

For Petitioner

CENTER FOR BIOLOGICAL DIVERSITY

## EXHIBIT 1

The conference call agenda will focus on the Subcommittee's potential recommendations to the Agency on how to promote environmental stewardship.

**DATES:** The NACEPT Subcommittee on Promoting Environmental Stewardship will hold a public teleconference on Thursday, April 1, 2010 (1 p.m.–3 p.m. Eastern Standard Time).

**ADDRESSES:** The teleconference will be held in the U.S. EPA West Building, 1301 Constitution Ave., NW., Room 1144C, Washington, DC 20004.

**FOR FURTHER INFORMATION CONTACT:** Regina Langton, Designated Federal Officer, [langton.regina@epa.gov](mailto:langton.regina@epa.gov), (202) 566–2178, U.S. EPA Office of Policy, Economics, and Innovation (MC1807T), 1200 Pennsylvania Avenue, NW., Washington, DC 20460.

**SUPPLEMENTARY INFORMATION:** Requests to make oral comments or provide written comments to the NACEPT Subcommittee on Promoting Environmental Stewardship should be sent to Jennifer Peyser at (202) 965–6215 or [JPeyser@resolv.org](mailto:JPeyser@resolv.org) by March 18, 2010. Seating is limited and will be allocated on a first-come, first-served basis. Members of the public wishing to gain access to the conference room on the day of the meeting must contact Jennifer Peyser at (202) 965–6215 or [JPeyser@resolv.org](mailto:JPeyser@resolv.org) by March 18, 2010.

**Meeting Access:** For information on access or services for individuals with disabilities, please contact Jennifer Peyser at (202) 965–6215. To request accommodation of a disability, please contact Jennifer Peyser at least 10 days prior to the teleconference to give EPA as much time as possible to process your request.

Dated: March 9, 2010.

**Regina Langton,**

*Designated Federal Officer.*

[FR Doc. 2010–5597 Filed 3–12–10; 8:45 am]

**BILLING CODE 6560–50–P**

## ENVIRONMENTAL PROTECTION AGENCY

[FRL–9126–3]

### Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2008

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Notice of document availability and request for comments.

**SUMMARY:** The Draft Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2008 is available for public review. Annual U.S. emissions for the period of time from 1990 through 2008

are summarized and presented by source category and sector. The inventory contains estimates of carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFC), perfluorocarbons (PFC), and sulfur hexafluoride (SF<sub>6</sub>) emissions. The inventory also includes estimates of carbon fluxes in U.S. agricultural and forest lands. The technical approach used in this report to estimate emissions and sinks for greenhouse gases is consistent with the methodologies recommended by the Intergovernmental Panel on Climate Change (IPCC), and reported in a format consistent with the United Nations Framework Convention on Climate Change (UNFCCC) reporting guidelines. The Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2008 is the latest in a series of annual U.S. submissions to the Secretariat of the UNFCCC.

**DATES:** To ensure your comments are considered for the final version of the document, please submit your comments within 30 days of the appearance of this notice. However, comments received after that date will still be welcomed and be considered for the next edition of this report.

**ADDRESSES:** Comments should be submitted to Mr. Leif Hockstad at: Environmental Protection Agency, Climate Change Division (6207J), 1200 Pennsylvania Ave., NW., Washington, DC 20460, Fax: (202) 343–2359. You are welcome and encouraged to send an e-mail with your comments to [hockstad.leif@epa.gov](mailto:hockstad.leif@epa.gov).

**FOR FURTHER INFORMATION CONTACT:** Mr. Leif Hockstad, Environmental Protection Agency, Office of Air and Radiation, Office of Atmospheric Programs, Climate Change Division, (202) 343–9432, [hockstad.leif@epa.gov](mailto:hockstad.leif@epa.gov).

**SUPPLEMENTARY INFORMATION:** The draft report can be obtained by visiting the U.S. EPA's Climate Change Site at: <http://www.epa.gov/climatechange/emissions/usinventoryreport.html>.

Dated: March 5, 2010.

**Gina McCarthy,**

*Assistant Administrator, Office of Air and Radiation.*

[FR Doc. 2010–5595 Filed 3–12–10; 8:45 am]

**BILLING CODE 6560–50–P**

## ENVIRONMENTAL PROTECTION AGENCY

[EPA–HQ–ORD–2010–0202; FRL–9127–4]

### Board of Scientific Counselors, Executive Committee Meeting—April 2010

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Notice of meeting.

**SUMMARY:** Pursuant to the Federal Advisory Committee Act, Public Law 92–463, the Environmental Protection Agency, Office of Research and Development (ORD), gives notice of a public meeting (via conference call) of the Board of Scientific Counselors (BOSC) Executive Committee.

**DATES:** The conference call will be held on Thursday, April 1, 2010, from 11 a.m. to 1 p.m. eastern time, and may adjourn early if all business is finished. Requests for the draft agenda or for making oral presentations at the meeting will be accepted up to one business day before the meeting.

**ADDRESSES:** Participation in the conference call will be by teleconference only—meeting rooms will not be used. Members of the public may obtain the call-in number and access code for the calls from Greg Susanke, whose contact information is listed under the **FOR FURTHER INFORMATION CONTACT** section of this notice.

Submit your comments, identified by Docket ID No. EPA–HQ–ORD–2010–0202, by one of the following methods:

- <http://www.regulations.gov>: Follow the on-line instructions for submitting comments.

- *E-mail:* Send comments by electronic mail (e-mail) to: [ORD.Docket@epa.gov](mailto:ORD.Docket@epa.gov), Attention Docket ID No. EPA–HQ–ORD–2010–0202.

- *Fax:* Fax comments to: (202) 566–0224, Attention Docket ID No. EPA–HQ–ORD–2010–0202.

- *Mail:* Send comments by mail to: Board of Scientific Counselors, Executive Committee Meeting—February 2010 Docket, Mailcode: 2822T, 1301 Constitution Avenue., NW., Washington, DC 20004, Attention Docket ID No. EPA–HQ–ORD–2010–0202.

- *Hand Delivery or Courier.* Deliver comments to: EPA Docket Center (EPA/DC), Room 3334, EPA West Building, 1301 Constitution Avenue, NW., Washington, DC, Attention Docket ID No. EPA–HQ–ORD–2010–0202. Deliveries are only accepted during the docket's normal hours of operation, and special arrangements should be made for deliveries of boxed information.

## EXHIBIT 2

**BIOMASS ACCOUNTABILITY PROJECT • CENTER FOR BIOLOGICAL  
DIVERSITY • ENERGY JUSTICE NETWORK • GLOBAL ALLIANCE FOR  
INCINERATOR ALTERNATIVES • GREEN BERKSHIRES •  
MASSACHUSETTS FOREST WATCH**

April 14, 2010

Via email: [hockstad.leif@epa.gov](mailto:hockstad.leif@epa.gov) and [regulations.gov](http://regulations.gov)

Leif Hockstad  
Environmental Protection Agency  
Climate Change Division (6207J)  
1200 Pennsylvania Ave., NW  
Washington, DC 20460

**Re: Inventory of U.S. Greenhouse Gas Emissions and Sinks**

Dear Mr. Hockstad:

The undersigned organizations respectfully submit the following comments on the United States Environmental Protection Agency's ("EPA") Inventory of U.S. Greenhouse Gas Emissions and Sinks (the "Inventory").

EPA's inventory document repeats a pernicious assumption that has profound consequences for both the climate and the nation's forests: the assumption that biomass combustion is "carbon neutral." EPA recognizes, as it must, that the combustion of biomass and biofuels produces CO<sub>2</sub> and other greenhouse gases. Yet EPA declines to include these emissions in national totals "because biomass fuels are of biogenic origin."<sup>1</sup> According to EPA, "[i]t is *assumed* that the carbon (C) released during the consumption of biomass is recycled as U.S. forests and crops regenerate, causing no net addition of CO<sub>2</sub> to the atmosphere."<sup>2</sup>

As described in detail below, scientists have concluded that this assumption represents a critical error in EPA's climate accounting methodology. This error pervades all of EPA's biomass calculations, but it is especially glaring as applied to facilities that burn woody biomass from tree plantations, forest thinning projects, or fire salvage projects. Promotion of new and expanded biomass energy facilities predicated on this assumption is beginning to threaten both the ecology of the nation's forests and the stability of the world's climate. EPA thus should revise the Inventory to eliminate reliance on the "carbon neutrality" assumption and should adopt accounting methods that

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<sup>1</sup> U.S. EPA, Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2008; Public Review Draft (March 9, 2010), Ch. 3 (Energy) at 1.

<sup>2</sup> *Id.* (emphasis added).

accurately measure emissions from both biomass combustion and associated land use change on time scales relevant to climate protection efforts.

## **I. Scientists Have Identified Critical Errors in EPA’s Carbon Accounting Methods.**

Recent scientific work has identified a “critical climate accounting error” in the EPA’s inventory method: namely, its failure to account accurately for carbon emissions associated with biomass and biofuels in the land use sector.<sup>3</sup> Specifically, EPA’s accounting “erroneously treats all bioenergy as carbon neutral regardless of the source of the biomass, which may cause large differences in net emissions. For example, the clearing of long-established forests to burn wood or grow energy crops is counted as a 100% reduction in energy emissions despite causing large releases of carbon.”<sup>4</sup>

Energy generated from biomass reduces greenhouse gas emissions “only if the growth and harvesting of the biomass for energy captures carbon above and beyond what would be sequestered anyway.”<sup>5</sup> Scientists thus believe that the better solution is to focus first on carbon emissions from the smokestack, and then to factor in emissions and reductions associated with land use change. According to Searchinger, et al. (2009):

The straightforward solution is to fix the accounting of bioenergy. That means tracing the actual flows of carbon and counting emissions from tailpipes and smokestacks whether from fossil energy or bioenergy. 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 non-CO<sub>2</sub> greenhouse gases, and leakage emissions resulting from changes in land-use activities to replace crops or timber diverted to bioenergy.<sup>6</sup>

Such accounting also must include site-specific and regional analysis of energy generation, distribution, consumption, and demand trends sufficient to support any conclusion that biomass generation will actually offset fossil-fired generation. As discussed below, moreover, proper accounting also demands that the short-term impacts of biomass combustion be considered especially significant in light of the long time period required for resequestration of released carbon. Accurate accounting is absolutely critical to determining whether smokestack emissions from biomass combustion can be treated as “carbon neutral” in the manner proposed by EPA.

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<sup>3</sup> Timothy Searchinger, et al., *Fixing a Critical Climate Accounting Error*, 326 SCIENCE 527 (2009).

<sup>4</sup> *Id.* at 527. As described in more detail below, this error is not limited to situations where forests are cleared entirely or converted to energy crops; rather, this error also infects analysis of the carbon impacts of thinning existing forests for biomass fuels.

<sup>5</sup> *Id.* at 528.

<sup>6</sup> *Id.*



## II. The Carbon Neutrality Assumption Ignores the Critical Time Lapse Between Present Carbon Dioxide Emissions and Future Carbon Sequestration.

The claim that biomass combustion is “carbon neutral” because biomass is “biogenic” is both false and dangerous, primarily because it ignores the fact that carbon emitted during biomass combustion may remain in the atmosphere for decades or centuries before being resequenced. The claim thus ignores the critical temporal relationships between present carbon emissions and the future effects of global warming and climate change. In other words, because meeting (or exceeding) atmospheric CO<sub>2</sub> targets has a strong temporal element, the time that it takes for CO<sub>2</sub> released into the atmosphere today to be reabsorbed is of critical importance in assessing the climate impacts of carbon emissions, regardless of their “biogenic” origin.

Scientists agree that “[t]he amount of carbon sequestered by forest ecosystems plays an important role in regulating atmospheric levels of carbon dioxide.”<sup>7</sup> The removal and processing of forest biomass reduces storage in forest carbon pools and results in short-term emissions of greenhouse gases, even when some of that biomass remains sequestered for a period of time in commercial forest products.<sup>8</sup> According to recent studies, “[t]ypically 30–50% of the harvested C is lost in manufacturing and initial use, a loss that is larger than could be expected from even the most extreme forest fire.”<sup>9</sup> Where harvested biomass is combusted for energy, rather than processed into wood products, short-term emissions are necessarily far greater, and long-term sequestration in forest products is eliminated altogether.

Thinning and post-fire salvage operations reduce the future carbon sequestration potential of a given forest stand by removing trees that otherwise would have continued to draw CO<sub>2</sub> from the atmosphere.<sup>10</sup> This is true even for projects that are intended to reduce fuel loads in order to lessen the potential severity of future wildfires. One recent study concluded that “fuel removal almost always reduces C storage more than the additional C that a stand is able to store when made more resistant to wildfire. . . . [I]t is inefficient to remove large amounts of biomass to reduce the fraction by which other

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<sup>7</sup> Tara Hudiburg, et al., *Carbon Dynamics of Oregon and Northern California Forests and Potential Land-Based Carbon Storage*, 19 *ECOLOGICAL APPLICATIONS* 163, 163 (2009).

<sup>8</sup> *See id.* at 176-77 (discussing carbon storage reductions associated with shorter rotations and emissions caused by logging); *see also* Mark E. Harmon, et al., *Modeling Carbon Stores in Oregon and Washington Forest Products: 1900-1992*, 33 *CLIMATIC CHANGE* 521 (1996) (concluding that harvesting for sawtimber results in sequestration of only about 60% of carbon previously stored in forest pools).

<sup>9</sup> Mark E. Harmon, et al., *Effects of Partial Harvest on the Carbon Stores in Douglas-fir/Western Hemlock Forests: A Simulation Study*, 12 *ECOSYSTEMS* 777, 778 (2009).

<sup>10</sup> *See* Brooks M. Depro, et al., *Public Land, Timber Harvests, and Climate Mitigation: Quantifying Carbon Sequestration Potential on U.S. Public Timberlands*, 255 *FOREST ECOLOGY & MGMT.* 1122 (2008) (concluding that eliminating timber harvest on public lands would increase forest carbon storage capacity by roughly 40-50% over “business as usual”).

biomass components are consumed via combustion.”<sup>11</sup> Another recent study confirms that significant amounts of carbon remain sequestered in forest pools even following a high-intensity wildfire.<sup>12</sup> Surveys of the world’s most carbon-dense forests, including the moist temperate conifer forests of North America, have confirmed that the greatest accumulations of carbon biomass occur in the absence of human land-use disturbance.<sup>13</sup>

Removal of forest biomass also affects long-term carbon storage in forest soils. Thinning and harvesting operations can reduce carbon inputs to soils and stimulate soil respiration, resulting in both reduced soil sequestration and near-term emissions.<sup>14</sup> Some studies have shown that forests remain net sources of carbon emissions for more than a decade after logging operations, primarily due to increased soil respiration.<sup>15</sup> Fuel treatments that change the amount and composition of decomposing forest biomass can influence long-term below-ground carbon storage.<sup>16</sup>

The time between harvest and complete reabsorption of lost carbon by a forest stand can extend into hundreds of years. For example, one recent study concluded that even assuming perfect conversion of biomass to energy and a one-to-one displacement of fossil-fired generation, it still took from 34 to 228 years for western forests to reach carbon neutrality for biomass used directly for energy generation, and between 201 and 459 years if the biomass was converted to biofuels (the ranges depending upon the characteristics of the trees, forests and fire return intervals).<sup>17</sup> Accordingly, because forest biomass utilization is not carbon neutral in the near term, the near-term effects of carbon emissions associated with biomass combustion must be considered.

It is well established as a matter of science and policy that in order to avoid the worst impacts of global warming and climate change, global temperatures must not be allowed to exceed 2°C over pre-industrial levels.<sup>18</sup> Whether we exceed the 2°C threshold depends on the level at which atmospheric CO<sub>2</sub> levels are eventually stabilized. The greater the CO<sub>2</sub> levels, the greater the risk of exceeding this threshold and triggering

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<sup>11</sup> Stephen R. Mitchell, et al., *Forest Fuel Reduction Alters Fire Severity and Long-Term Carbon Storage in Three Pacific Northwest Ecosystems*, 19 *ECOLOGICAL APPLICATIONS* 643, 652 (2009); see also CHAD HANSON, *THE MYTH OF “CATASTROPHIC” WILDFIRE: A NEW ECOLOGICAL PARADIGM OF FOREST HEALTH* (2010).

<sup>12</sup> Garrett W. Meigs, et al., *Forest Fire Impacts on Carbon Uptake, Storage, and Emission: The Role of Burn Severity in the Eastern Cascades, Oregon*, 12 *ECOSYSTEMS* 1246 (2009).

<sup>13</sup> See Heather Keith, et al., *Re-evaluation of Forest Biomass Carbon Stocks and Lessons from the World’s Most Carbon-Dense Forests*, 106 *PROC. NAT’L ACADEMY OF SCI.* 11,635 (2009).

<sup>14</sup> Robert Jandl, et al., *How Strongly Can Forest Management Influence Soil Carbon Sequestration?*, 137 *GEODERMA* 253, 257-58 (2007).

<sup>15</sup> *Id.* at 258.

<sup>16</sup> Mitchell 2009 at 652.

<sup>17</sup> Mitchell 2009 at 651.

<sup>18</sup> J. Hansen, et al., *Target Atmospheric CO<sub>2</sub>: Where Should Humanity Aim?*, 2 *OPEN ATMOS. SCI. J.* 217 (2008).

likely catastrophic climate changes. The probability of overshooting 2°C is as follows according to Hare and Meinshausen (2006)<sup>19</sup>:

85% (68-99%) at 550 ppm CO<sub>2</sub> eq (= 475 ppm CO<sub>2</sub>)  
47% (26-76%) at 450 ppm CO<sub>2</sub> eq (=400 ppm CO<sub>2</sub>)  
27% (2-57%) at 400 ppm CO<sub>2</sub> eq (= 350 ppm CO<sub>2</sub>)  
8% (0-31%) at 350 ppm CO<sub>2</sub> eq

According to these scientists, “[o]nly scenarios that aim at stabilization levels at or below 400 ppm CO<sub>2</sub> equivalence (~350 ppm CO<sub>2</sub>) can limit the probability of exceeding 2°C to reasonable levels.”<sup>20</sup> But in order to achieve stabilization levels that avert the worst impacts of climate change, emissions must peak by about 2015, and must decline very rapidly thereafter.<sup>21</sup>

In short, minimizing CO<sub>2</sub> emissions in the *next few years* is critically important to meeting climate targets, even if some of all of that CO<sub>2</sub> might in theory be reabsorbed from the atmosphere in the decades or centuries to come. The science makes clear that the time frame for resequestration of CO<sub>2</sub> emitted from forest biomass combustion is on the order of decades or centuries, not years. Indeed, in evaluating carbon emissions from other biofuels, independent scientists have begun to develop strategies for evaluating the carbon impacts of biofuels in relation to the high social and environmental cost of short-term emissions.<sup>22</sup> Even EPA has begun to recognize the importance of this temporal analysis in other contexts.<sup>23</sup> Short-term CO<sub>2</sub> emissions from woody biomass combustion are thus *significant*—not “neutral”—in the context of efforts to avoid the worst impacts of climate change, and should be treated as such in both environmental analysis and air permitting decisions. EPA’s failure to acknowledge this fact in the context of the annual emissions inventory is arbitrary and unsupported.

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<sup>19</sup> B. Hare & M. Meinshausen, *How Much Warming Are We Committed To and How Much Can Be Avoided?*, 75 CLIMATIC CHANGE 111 (2006).

<sup>20</sup> *Id.* at 137.

<sup>21</sup> See IAN ALLISON, ET AL., THE COPENHAGEN DIAGNOSIS: UPDATING THE WORLD ON THE LATEST CLIMATE SCIENCE 9 (2009); see also M. den Elzen & N. Höhne, *Reductions of greenhouse gas emissions in Annex I and non-Annex I countries for meeting concentration stabilisation targets*, 91 CLIMATIC CHANGE 249 (2008).

<sup>22</sup> See M. O’Hare et al., *Proper Accounting for Time Increases Crop-Based Biofuels’ Greenhouse Gas Deficit Versus Petroleum*, 4 ENVTL. RESEARCH LETT. 024001 (2009) (applying discount rate to account for importance of early emissions).

<sup>23</sup> See U.S. EPA, *EPA Lifecycle Analysis of Greenhouse Gas Emissions from Renewable Fuels* (2009) (“[T]he time horizon over which emissions are analyzed and the application of a discount rate to value near-term versus longer-term emissions are critical factors”).

### **III. Logging for Biomass Combustion Is Potentially More Harmful to the Climate and the Forest than Natural Fire.**

Although EPA does not specifically mention it, another common justification for treating forest biomass as “carbon neutral” is that if not removed and burned for energy, wood is likely to burn up in forest fires, resulting in both uncontrolled carbon emissions and substantial ecological damage. Once again, recent scientific analysis has shown this premise to be false in terms of both carbon accounting and forest ecology.

Combustion of trees, brush, and litter in forest fires releases carbon emissions. Yet the emissions from fires may be far lower (and far fewer live trees may be killed) than previously believed, depending upon forest type and fire intensity.<sup>24</sup> Carbon lost in fires also may rapidly be resequenced by early successional species following disturbance.<sup>25</sup> Furthermore, recent scientific studies call into question the entire enterprise of removing (and burning) biomass in order to avoid carbon emissions associated with wildfire:

[F]uel removal almost always reduces C storage more than the additional C that a stand is able to store when made more resistant to wildfire. Leaves and leaf litter can and do have the majority of their biomass consumed in a high-severity wildfire, but most of the C stored in forest biomass (stem wood, branches, coarse woody debris) remains unconsumed even by high-severity wildfires. For this reason, it is inefficient to remove large amounts of biomass to reduce the fraction by which other biomass components are consumed via combustion.<sup>26</sup>

Accordingly, it is not accurate to assume that carbon emissions from biomass combustion would have occurred in the forest anyway, on the same time scales and to the same degree, as a result of fire. Indeed, biomass energy generation ensures that forest biomass is converted into carbon dioxide on a very short time scale, whether or not similar emissions would have occurred as a result of fire, and regardless of whether logging is as effective as natural succession in facilitating sequestration of those emissions. Once again, these detailed questions must be answered before any particular biomass energy project can claim to be “carbon-neutral.”

Current scientific work also indicates that fire, even the high-intensity variety, is a natural event that we should accept and encourage, not attempt to forestall through speculative, intensive, and destructive logging projects aimed at “forest cleaning” or “fuel reduction.”<sup>27</sup> The dead trees left standing after a high-intensity fire provide critical wildlife habitat as well as soil nutrients that encourage rapid growth of early successional species. Moreover, unlike emissions produced in biomass energy facilities, carbon in standing dead trees and forest floor pools remains sequestered for a long time following

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<sup>24</sup> See, e.g., Meigs 2009.

<sup>25</sup> See *id.* at 1260-61.

<sup>26</sup> Mitchell 2009 at 652.

<sup>27</sup> See generally Hanson 2010.

even a high-intensity fire, and decays slowly into the atmosphere even as new plant growth recolonizes a burned area. The eventuality of forest fire cannot be used as an excuse for wholesale logging and burning of forests to create energy.

Finally, the demand for wood created by large-scale construction of biomass energy facilities is likely to be more than our forests can sustain, and thus may have very significant cumulative impacts on biodiversity, water quality, and forest health.<sup>28</sup> In addition, if each of these facilities were to claim “carbon neutrality,” in the absence of any evidence or analysis, the result could be a dramatic and uncontrolled overall increase in near-term CO<sub>2</sub> emissions during precisely the time period when emissions most need to be curtailed.

#### **IV. Conclusion**

The “carbon neutrality” assumption is just that—an assumption, not a fact. “Carbon neutrality,” if it exists at all, must be demonstrated on a project-specific basis, taking into account all emissions from biomass production, transport, processing, and combustion, all emissions and lost sequestration capacity associated with forest thinning and clearing operations, and actual analysis of fossil fuel displacement. In the absence of such a demonstration, the actual emissions from biomass combustion must be counted in EPA’s annual emissions inventory. EPA must revise the Inventory to eliminate reliance on the “carbon neutrality” myth, and must replace it with an accurate and comprehensive accounting methodology for biomass emissions.

Thank you for your consideration of our comments. Please feel free to contact Kevin Bundy at (415) 462-9683 x313 with any questions.

Sincerely,

Kevin P. Bundy  
Senior Attorney  
Center for Biological Diversity

Margaret E. Sheehan, Esq.  
Director  
The Biomass Accountability Project, Inc.

Mike Ewall  
Founder and Director  
Energy Justice Network

Ananda Lee Tan  
North American Program Coordinator  
Global Alliance for Incinerator Alternatives

Eleanor Tillinghast  
President  
Green Berkshires, Inc.

Chris Matera  
Founder  
Massachusetts Forest Watch

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<sup>28</sup> See, e.g., V.A. Sample, *Summary/synthesis: What Role Will Forests Play in America’s Long-Term Energy Future?* (2009) at 16-17.

## References Cited

- Ian Allison, et al., *The Copenhagen Diagnosis, 2009: Updating the world on the Latest Climate Science* (2009).
- Brooks M. Depro, et al., *Public Land, Timber Harvests, and Climate Mitigation: Quantifying Carbon Sequestration Potential on U.S. Public Timberlands*, 255 *FOREST ECOLOGY & MGMT.* 1122 (2008).
- M. den Elzen & N. Höhne, *Reductions of greenhouse gas emissions in Annex I and non-Annex I countries for meeting concentration stabilisation targets*, 91 *CLIMATIC CHANGE* 249 (2008).
- James Hansen, et al., *Target Atmospheric CO<sub>2</sub>: Where Should Humanity Aim?*, 2 *OPEN ATMOS. SCI. J.* 217 (2008).
- Chad Hanson, *The Myth of "Catastrophic" Wildfire: A New Ecological Paradigm of Forest Health* (2010).
- B. Hare & M. Meinshausen, *How Much Warming Are We Committed To and How Much Can Be Avoided?*, 75 *CLIMATIC CHANGE* 111 (2006).
- Mark E. Harmon, et al., *Effects of Partial Harvest on the Carbon Stores in Douglas-fir/Western Hemlock Forests: A Simulation Study*, 12 *ECOSYSTEMS* 777, 778 (2009).
- Mark E. Harmon, et al., *Modeling Carbon Stores in Oregon and Washington Forest Products: 1900-1992*, 33 *CLIMATIC CHANGE* 521 (1996).
- Tara Hudiburg, et al., *Carbon Dynamics of Oregon and Northern California Forests and Potential Land-Based Carbon Storage*, 19 *ECOLOGICAL APPLICATIONS* 163, 163 (2009).
- Robert Jandl, et al., *How Strongly Can Forest Management Influence Soil Carbon Sequestration?*, 137 *GEODERMA* 253, 257-58 (2007).
- Heather Keith, et al., *Re-evaluation of Forest Biomass Carbon Stocks and Lessons from the World's Most Carbon-Dense Forests*, 106 *PROC. NAT'L ACADEMY OF SCI.* 11,635 (2009).
- Garrett W. Meigs, et al., *Forest Fire Impacts on Carbon Uptake, Storage, and Emission: The Role of Burn Severity in the Eastern Cascades, Oregon*, 12 *ECOSYSTEMS* 1246 (2009).
- Stephen R. Mitchell, et al., *Forest Fuel Reduction Alters Fire Severity and Long-Term Carbon Storage in Three Pacific Northwest Ecosystems*, 19 *ECOLOGICAL APPLICATIONS* 643, 652 (2009).
- M. O'Hare et al., *Proper Accounting for Time Increases Crop-Based Biofuels' Greenhouse Gas Deficit Versus Petroleum*, 4 *ENVTL. RESEARCH LETT.* 024001 (2009).

V.A. Sample, *Summary/synthesis: What Role Will Forests Play in America's Long-Term Energy Future?* (2009).

Timothy Searchinger, et al., *Fixing a Critical Climate Accounting Error*, 326 SCIENCE 527 (2009).

U.S. EPA, *EPA Lifecycle Analysis of Greenhouse Gas Emissions from Renewable Fuels* (2009).

## EXHIBIT 3



## Submit a Comment

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Comment Tracking Number: 80ad7915

### Thank you for submitting a comment on the following NOTICES

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