# Deferral for $CO_2$ Emissions from Bioenergy and Other Biogenic Sources under the Prevention of Significant Deterioration (PSD) and Title V Programs

## Summary of Public Comments and Responses

U.S. Environmental Protection Agency
Office of Air and Radiation
Washington, DC 20460

June 28, 2011

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## Acronyms and Abbreviations

| | |
|---|---|
| ARRA | American Recovery and Investment Act of 2009 |
| BACT | Best available control technology |
| BAU | Business as usual |
| CAA | Clean Air Act |
| CARB | California Air Resources Board |
| CFI | Call for Information |
| CFR | Code of Federal Regulations |
| C/LNG | Compressed/liquefied natural gas |
| $CH_4$ | Methane |
| CO | Carbon monoxide |
| $CO_2e$ | Carbon dioxide equivalent |
| DOE | U.S. Department of Energy |
| EDF | Environmental Defense Fund |
| EGU | Electrical Generating Unit |
| EIA | Energy Information Administration |
| EIS | Environmental Impact Statement |
| EPA | U.S. Environmental Protection Agency |
| EU(-ETS) | European Union (Emission Trading Scheme) |
| FIA | Forest Inventory & Analysis |
| FIP | Federal Implementation Plan |
| FLRA | Federal Labor Relations Authority |
| FSC | Forest Stewardship Council |
| FR | Federal Register |
| FTC | Federal Trade Commission |
| GHG | Greenhouse gas(es) |
| GWP | Global warming potential |
| IPCC | Intergovernmental Panel on Climate Change |
| lb | Pound(s) |
| LCFS | Low Carbon Fuel Standard |
| LFG(TE) | Landfill gas (to energy) |
| LLHWP | Long-lived harvested forest products |
| LMOP | Landfill Methane Outreach Program |
| LULUCF | Land use change and forestry |
| MACT | Maximum achievable control technology |
| MM | Million |

| | |
|---|---|
| MMSCFD | Million metric standard cubic feet per day |
| MSW | Municipal Solid Waste |
| MW(H) | Megawatt (hour) |
| NAAQS | National ambient air quality standards |
| NAFO | National Alliance of Forest Owners |
| NAICS | North American Industrial Classification System |
| NCASI | National Council for Air and Stream Improvement, Inc. |
| NMOC | Non-methane organic compound(s) |
| $NO_X$ | Nitrogen oxides |
| $N_2O$ | Nitrous oxide |
| NRDC | National Resources Defense Council |
| NSPS | New source performance standards |
| NSR | New Source Review |
| OMB | Office of Management & Budget |
| PM | Particulate matter |
| POTW | Publicly Owned Treatment Works |
| PSD | Prevention of Significant Deterioration |
| RES | Renewable Energy Standard |
| RFS(2) | Renewable Fuel Standard (2) |
| RGGI | Regional Greenhouse Gas Initiative |
| RPS | Renewable Portfolio Standard |
| SAB | Science Advisory Board |
| SIP | State Implementation Plan |
| $SO_2$ | Sulfur dioxide |
| TDF | Tire-derived fuel |
| UNFCCC | United Nations Framework Convention on Climate Change |
| USDA | United States Department of Agriculture |
| USFS | United States Forest Service |
| USGCRP | United States Global Change Research Program |
| VOC | Volatile Organic Compound(s) |
| WTE | Waste to energy |

# 1.0 Introduction

This document provides responses to public comments on the U.S. Environmental Protection Agency's (EPA's) March 21, 2011 proposed "Deferral for $CO_2$ emissions from Bioenergy and Other Biogenic Sources under the Prevention of Significant Deterioration (PSD) and Title V Programs" (76 FR 15249). EPA received comments on this proposal via mail, e-mail, facsimile, and the web site at http://www.regulations.gov. Additionally, EPA conducted a public hearing to allow the public to provide oral testimony on the proposed rule. Copies of the public hearing transcript and all comment letters submitted to the docket are available at the EPA Docket Center Public Reading Room, or electronically through http://www.regulations.gov by searching Docket ID EPA-HQ-OAR-2011-0083.

In light of the large number of comments received and the significant overlap between comments, this document does not respond to each comment individually. Rather, EPA summarizes and provides a single response to each significant argument, assertion, and question contained within the totality of comments. Within each comment summary, EPA provides in parentheses one or more Docket ID numbers for commenters who raised particular issues. However, the list of commenter ID numbers is not meant to be exhaustive. EPA does not individually identify each and every commenter who made a certain point in all instances, particularly in cases where multiple commenters express essentially identical arguments. Table 1 includes a list of commenters whose comments were included in the comment summaries.

In some cases the same comment was submitted by multiple commenters (e.g., by submittal of a form letter prepared by an organization or by the commenter incorporating the comments in another comment letter). Rather than repeat all of these comments, EPA has included the comment only once and provided a list of all the commenters who submitted similar comments in Appendix A of this document. The general comments listed in Appendix A fit within the context of the significant comment excerpts included in the body of this document. Appendix B contains examples of the form letters.

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**Table 1. List of Commenters for Which Summaries are Provided**

| Docket No. EPA-HQ-OAR-2011-0083- | Commenter Name | Affiliation |
|---|---|---|
| 0014.1 | David Reed | Individual |
| 0015.1 | Kathryn Merritt-Thrasher | Individual |
| 0022 | Thierry Sam Tamers | Director, Beta Analytic Inc. |
| 0023A | Roger Martella | Law Firm of Sidley Austin |
| 0023B | Chris Bliley | Growth Energy |
| 0023C | Dave Tenny | National Alliance of Forest Owners (NAFO) |
| 0023D | Matthew Thomas | Coalition for Biomass Generation |
| 0023E | Navis Bermudez | Southern Environmental Law Center (SELC), Clean Air Task Force, Conservation Law Foundation, Natural Resources Council of Maine |
| 0023F | Robert Cleaves | California Biomass Energy Alliance |
| 0023G | Jamie Consuegra | Natural Resources Defense Council (NRDC) |
| 0023H | Carl Ross | Save America's Forests; Buckeye Forest Council; Biowatch |
| 0023I | Richard Wiles | Partnership for Policy Integrity (PFPI) |
| 0023J | Paula Hamel | Dominion Resources Services, Inc. |
| 0023K | Cynthia Finley | National Association of Clean Water Agencies (NACWA) |
| 0029 | Tom Kruzen | Missouri Water Sentinels |
| 0030 | Ann Rogers | Individual |
| 0032 | Nathan McClure | Georgia Forestry Commission |
| 0033.1 (duplicate of 0044.1) | Teresa Marks | Arkansas Department of Environmental Quality (ADEQ) |
| 0037.1 | Eddie Terrill | Oklahoma Department of Environmental Quality |
| 0038.1 | Michael Halpin | Florida DEQ |
| 0039.1 | Barry Carpenter | National Meat Association |
| 0042.1 | Richard Lewis | Forest Resources Association |
| 0043.1 | Michael Goergen | Society of American Foresters (SAF) |

| Docket No. EPA-HQ-OAR-2011-0083- | Commenter Name | Affiliation |
|---|---|---|
| 0045 | Tyson Miller | Green Press Initiative |
| 0046 | Dan Fink | Clackamas Tree Farm Manager, Longview Timberlands LLC |
| 0047.1 | Leonard Peters | Kentucky Energy and Environment Cabinet |
| 0048.1 | Lara Norkus-Crampton | Individual |
| 0049.1 | Louise Gorenflo | Tennessee Chapter of the Sierra Club |
| 0050.1 | Jeffrey Miller | Treated Wood Council (TWC) |
| 0051.1 | Kevin Igli | Tyson Foods, Inc. |
| 0052.1 | Traylor Champion | Georgia-Pacific (GP) |
| 0053.1 | Jacqueline Kepke | California Wastewater Climate Change Group (CWCCG) |
| 0054.1 | David Buff | Florida Sugar Industry (FSI) |
| 0055.1 | Francesco Cherubini, et al. | Norwegian University of Science and Technology |
| 0056.1 | Jim Gillingham | Valero |
| 0057.1 | Adrian Miller | Longview Timber Corporation |
| 0058.1 | Andrew Ginsburg | Oregon DEQ |
| 0059.1 | John Skinner | Solid Waste Association of North America (SWANA) |
| 0060 | Kristin Palecek | Flambeau River Biofuels |
| 0062.1 (duplicate of 0088.1) | Kerry Kelly | Waste Management (WM) |
| 0063.1 | John Hendricks | American Electric Power (AEP) Company |
| 0064.1 | Paul Perlwitz | Nippon Paper Industries USA Co., Ltd. |
| 0065.1 (duplicate of 0067.1) | Nevena Djurdjevic | The Wilderness Society |
| 0066 | Shirley Nixon | Individual |
| 0069.1 | Anne Gobin | Connecticut Department of Environmental Protection (CTDEP) |
| 0070.1 | Pamela Faggert | Dominion Resources Services, Inc. |

| Docket No. EPA-HQ-OAR-2011-0083- | Commenter Name | Affiliation |
|---|---|---|
| 0071.1 | Mark Doumit | Washington Forest Protection Association (WPFA) |
| 0072.1 | Mike Draper | Forest Products Industry National Labor Management Committee |
| 0073.1 (duplicate of 0134.1) | Alabama Forestry Association, et al. | Alabama Forestry Association, Arkansas Forestry Association, Empire State Forest Products Association, Florida Forestry Association, Forest Landowners Association, Louisiana Forestry Association, Oregon Forest Industries Council, Washington Forest Protection Association |
| 0074.1 | David Tenny | National Alliance of Forest Owners (NAFO) |
| 0075.1 | Robert Bendick | The Nature Conservancy |
| 0077.1 | Mark Dopp | American Meat Institute |
| 0078.1 | Robert Glowinski | American Wood Council (AWC) |
| 0079.1 | Shannon Broome | Air Permitting Forum (APF) |
| 0080.1 | Edward Repa, Ph.D. | National Solid Wastes Management Association (NSWMA) |
| 0082.1 | Sara Schreiner Kendall | Weyerhaeuser Company |
| 0083.1 | Chris Hobson | Southern Company |
| 0084.1 | Peter Wyckoff | Corn Refiners Association (CRA) et al. |
| 0085 | Ed Wilusz | Wisconsin Paper Council |
| 0086.1 | Bob Dinneen | Renewable Fuels Association (RFA) |
| 0087.1 | Paul Noe | American Forest & Paper Association (AF&PA) |
| 0089.1 | Robert Hunzinger | Gainesville Regional Utilities (GRU) |
| 0090.1 | Cathy Woollums | MidAmerican Energy Holdings Company |
| 0091.1 | Angela Marconi | Delaware Solid Waste Authority (DSWA) |
| 0092 | Leonard Ornstein | Mount Sinai School of Medicine |
| 0093.1 | Gregg Morris | Green Power Institute |
| 0094.1 | James Capp | Georgia Environmental Protection Division (GAEPD) |

| Docket No. EPA-HQ-OAR-2011-0083- | Commenter Name | Affiliation |
|---|---|---|
| 0095.1 | Norman Fichthorn & Allison Wood | Hunton & Williams LLP on behalf of Utility Air Regulatory Group (UARG) |
| 0096.1 | Tom Martin | American Forest Foundation (AFF) |
| 0099.1 | Ray Arthur | Fresno-Clovis Regional Wastewater Reclamation Facility (RWRF) |
| 0100.1 | Sam Phillips | Louisiana Department of Environmental Quality (LDEQ) |
| 0101.1 | Kenneth Kimmell | Massachusetts Department of Environmental Protection (Mass DEP) |
| 0102.1 | Frank Kohlasch | Minnesota Pollution Control Agency |
| 0103 | Doug Duncan | Duncan Tree Farm, LLC |
| 0104.1 | Meleah Geertsma, et al. | Natural Resources Defense Council |
| 0105.1 | James Colman | Massachusetts Department of Environmental Protection (Mass DEP) |
| 0106.1 | Georgia Murray | Appalachian Mountain Club |
| 0107.1 | Sarah Amick | Rubber Manufacturers Association (RMA) |
| 0108.1 | Richard Hamilton | Ceres, Inc., et al. |
| 0109.1 | John Melby Jr. | Wisconsin Department of Natural Resources (WDNR) |
| 0110 | Therese Vick | Blue Ridge Environmental Defense League (BREDL) |
| 0111.1 | Joseph Seymour | Biomass Thermal Energy Council (BTEC) |
| 0112 | Henry Warchol | Individual |
| 0114.1 | Alice Edwards | Alaska Department of Environmental Conservation (ADEC) |
| 0115.1 | Ingrid Brostrom | Center on Race, Poverty & the Environment (CRPE) |
| 0116.1 | John Holladay | Local Government Coalition for Renewable Energy |
| 0117.1 | Cynthia Finley | National Association of Clean Water Agencies (NACWA) |
| 0118.1 | Larry Edwards | Greenpeace |

| Docket No. EPA-HQ-OAR-2011-0083- | Commenter Name | Affiliation |
|---|---|---|
| 0119.1 | Scot Quaranda | Dogwood Alliance |
| 0120.1 | Jeff Jahnke | National Association of State Foresters (NASF) |
| 0121.1 | Ernie Shea | 25x'25 National Steering Committee |
| 0122.1 | Rick Holley | Plum Creek Timber Company |
| 0123.1 | Carol Whitman | National Rural Electric Cooperative Association (NRECA) |
| 0124.1 | Myra Reece | South Carolina Department of Health and Environmental Control (SC DHEC) |
| 0125.1 | Gary Reed | Arizona Chemical |
| 0126.1 | Frederick Eames | Hunton & Williams on behalf of Coalition for Biomass Generation (CBG) |
| 0128.1 | Stacy Brown | National Wildlife Federation (NWF) |
| 0129.1 | Niki Wuestenberg | Republic Services, Inc. |
| 0130.1 | William Gupton | Peaks & Vistas |
| 0131.1 | Bryan Bird | WildEarth Guardians |
| 0132.1 | Louis Zeller | Blue Ridge Environmental Defense League |
| 0135.1 | Michael Krancer | Pennsylvania Department of Environmental Protection |
| 0136.1 | Dave Robertson | Portland General Electric Company |
| 0137.1 | Frank Rambo & David Carr | Southern Environmental Law Center (SELC); On behalf of Georgia ForestWatch & Wild Virginia |
| 0138.1 | Mary Booth and Richard Wiles | Partnership for Policy Integrity (PFPI) |
| 0139.1 | Jay O' Laughlin | University of Idaho – Moscow |
| 0140.1 | Richard McMahon, Jr. | Edison Electric Institute (EEI) |
| 0141 | Cara Beth Jones | Concerned Citizens of Crawford County, Indiana |
| 0142.1 | Joshua Marting | Environmental Paper Network |
| 0143.1 | Rachel Smolker | Biofuelwatch/Energy Justice Network, et al. |
| 0144.1 | Michael Cashin | Minnesota Power (MP) |

| Docket No. EPA-HQ-OAR-2011-0083- | Commenter Name | Affiliation |
|---|---|---|
| 0145.1 | Margaret Sheehan | Biomass Accountability Project |
| 0146 (form letter) | Various | Resource Management Service, LLC<br>Mass comment campaign (32) |
| 0147 (form letter) | Various | Mass comment campaign: organization unknown (129) |
| 0148 (form letter) | Various | Mass comment campaign: organization unknown (33) |
| 0149 (form letter) | Various | Mass comment campaign: NRDC (10,262) |
| 0150.1 | William Moomaw | Tufts University |
| 0166 (form letter – Moratorium) | Various | Various (see Appendix A) |
| 0182 | Karen Dorrough | Individual |
| 0216 | John Miller | Individual |
| 0260 (form letter – Biofuelwatch) | Various | Various (see Appendix A) |
| 0269 | Gretchen Brewer | PT AirWatchers |
| 0275 | Ellen Moyer | Individual |
| 0319 | Jess Sand | Re-nourish |
| 0332 | Ned Stowe | Environmental and Energy Study Institute |
| 0350.1 | Ann Brewster Weeks | Clean Air Task Force on behalf of Center for Biological Diversity et al. |
| 0351 | Joseph Wasserman | CT Coalition of Environmental Justice |
| 0354.1 | Lorraine Krupa | American Chemistry Council (ACC) |
| 0355 | David Mears | Vermont Department of Environmental Conservation (DEC) |

Shaded rows indicate comments from the public hearing transcript (EPA-HQ-OAR-2011-0083-0023). A letter code is added to the commenter number (e.g., 0023A) to delineate individual speakers at the public hearing.

# 2.0 Carbon Cycle Dynamics Background and Conclusions

## 2.1 Cycling of Carbon Between Plants and the Atmosphere

**Comment:** Commenter 0032 requested that text on Page 15252, Section II.A.1 of the proposal be clarified. According to the commenter, "Plants contain…roughly 50% carbon by weight" is not entirely accurate. Plants are roughly 50% carbon by dry weight; plants are roughly 25% carbon by green weight.

**Response:** Within the literature, percent carbon by weight is typically reported on the dry weight basis. The preamble language, "Plants contain…roughly 50% carbon by weight" within the Page 15252 Section II.A.1 of the proposed rule follows this approach, and refers to carbon content in dried plant material. However, to prevent confusion, dry versus wet weight carbon content will be clarified, where appropriate.

## 2.2 Carbon Neutrality of Biomass

**Comment:** Multiple commenters (0015.1, 0023D, 0056.1, 0063.1, 0064.1, 0071.1, 0074.1, 0082.1, 0083.1, 0086.1, 0087.1, 0090.1, 0091.1, 0093.1, 0095.1, 0121, 0107.1, 0111.1, 0126.1, 0139.1, 0140.1, 0144.1, 0332) supported the conclusion that biomass is carbon neutral based on the premise that biomass is part of the natural carbon cycle, and does not add additional carbon to the atmosphere. Plants absorb $CO_2$ from the atmosphere and combustion of this plant material as a feedstock merely returns this same $CO_2$ back to the atmosphere. According to commenter 0144.1, it is reasonable to categorize biomass utilization as a net benefit to the balance of GHG over the 100-year time horizon identified by the Intergovernmental Panel on Climate Change (IPCC) for climate change policy. Several commenters (0074.1, 0332, 0144.1) also suggested that the use of biogenic fuels may actually reduce atmospheric concentrations of GHG and net global warming potential (GWP) because:

- Such fuels are carbon neutral and displace use of fossil fuels;
- Use of such fuels precludes methane ($CH_4$) emissions if the feedstock goes unused (i.e., undergoes decomposition which can release GHG with additional GWP, such as $CH_4$); and
- Use of biogenic fuels promotes expansion of forest lands by creating higher demand for forest products and providing market incentives to retain and expand land -use options which sequester carbon.

Commenter 0090.1 noted that the direct firing of biomass may also be one of the most carbon-neutral renewable generation technologies that is suitable for baseload generation operations.

Other commenters (0032, 0095.1, 0126.1) specifically focused on the carbon neutrality of forest-based fuel sources. As stated by 0126.1, if wood-producing land is continually being reforested for feedstocks, then each year, the atmosphere sees a net carbon emission of zero across the wood-producing region because the "emissions" associated with the harvest and combustion of one area are offset by the uptake of carbon occurring in new growth in other areas. In addition, commenters 0095.1 and 0032 supported carbon neutrality of forest fuels on the national scale by citing current congressional policy on sustainable forest management practices (0095.1) and

referenced reports and data that demonstrate and predict the stability or increase of carbon stocks in U.S. forests during the past and into the future. Commenter 0095.1 went on to emphasize that carbon neutrality assessments at scales smaller than the national scale "are flawed and based on an overly narrow interpretation". To support this statement, the same commenter (0095.1) referenced the Massachusetts Department of Energy Report (presumably the Manomet study) that focused on the status of specific trees on specific plots, and stated that the Report erroneously concluded that net $CO_2$ emissions have increased because specific plots were not replanted. According to commenter 0095.1, the Massachusetts study included an apparent unrealistic assumption that absent the demand for biogenic fuels in the state, plots would not be harvested for other purposes.

In direct contrast, multiple commenters supported the conclusion that biomass is not carbon neutral (0045, 0065.1, 0148, 0048, 0049.1, 0055.1, 0132.1, 0147, 0166, 0138.1, 0104.1, 0023G, 0023I, 0131.1, 0023H, 0147, 0148, 0045, 0142.1, 0149, 0150.1, 0143.1, 0269). As stated by commenter 0055.1, $CO_2$ molecules spend time in the atmosphere before being recaptured by biomass growth, and therefore contribute to global warming. In addition, many commenters stressed long time delays as a main reason for the lack of carbon neutrality. Commenters (0065.1, 0104.1) highlighted the difference in time span between natural decay processes which may not return $CO_2$ to the atmosphere for decades or centuries versus combustion which accelerates the return of $CO_2$. Numerous commenters (0023G, 0023I, 0131.1) referenced the Manomet study to state that wood as a fuel will not be carbon neutral in a timeframe that is important in addressing climate change. "In Massachusetts, it would take 40 years of re-growth for the net-carbon emissions from biomass to achieve parity with emissions from burning coal for those same 40 years." (0023I). Other commenters (0023H, 0023I, 0147, 0148, 0143.1, 0182, 0275, 0065.1) cited multiple references (e.g., Manomet study, Fixing A Critical Climate Accounting Error) and stated that biomass is not carbon neutral because biomass combustion can release higher amounts of $CO_2$ than coal combustion per unit electricity generated. Commenter 0150.1 specifically outlined that biomass electricity is less efficient (carbon emission from biomass, at the time of burning, are approximately 50% greater than coal per unit electricity produced) because:

- the heat of combustion of wood per unit of carbon is substantially less than that of coal (or natural gas);
- wood burning cannot reach the temperatures of coal or gas, and hence boiler efficiency is lower; and
- much wood is burned wet or green.

Several commenters (0023I, 0104.1, and 0049.1) also expressed a concern that biomass combustion, which will require harvesting and burning of whole trees which is not carbon neutral. According to several commenters, it is inappropriate for the EPA to create incentives to burn biomass indiscriminately without safeguards in place (0142.1), and incentives to remove trees from the landscape have no place in policy designed to reduce GHG emissions (0023I). One of the most important actions to reduce global warming change would be to encourage more forest growth (0023H). Similarly, commenter 0065.1 states that claims of carbon neutrality often overlook the carbon lost when land is converted from a natural forest to an energy plantation. If left alone, living and growing trees continue to absorb carbon from the atmosphere (0131.1, 0149, and 0049.1). In addition, the harvesting and burning of whole trees would also result in

the loss of other important forest services including wildlife habitat, fresh air, clean water and places to hike and camp (0106.1, 0131.1, and 0149).

Multiple commenters (0142.1, 0065.1, 0147, 0148, 0149, 0132.1, 0150.1, 0045.1, and 0049.1) disputed the carbon neutrality of biomass combustion based on the science, assumptions and methods behind carbon accounting systems. Commenter 0142.1 disagreed with EPA's decision to ignore scientific input from the Call for Information (CFI); they believe this disregard is arbitrary and capricious. The commenter attached a long list of scientific studies to support their claims. One commenter (0132.1) also expressed a concern regarding the assumption that electric power produced by the combustion of biomass would displace electric power produced by coal-fired and nuclear power plants, and that biomass electric power emissions could count as a credit against the emissions from the biomass fuel production. As posed by the commenter (0132.1), if the emissions of the biomass system are as large as or larger than those from a fossil-fueled plant, where is the benefit?

Commenter 0150.1 noted that the IPCC methodology that accounts for carbon in the Land Use/Land Use Change and Forestry (LULUCF) Sector and not in the Energy Sector is recognized correctly in the register, but in practice carbon emissions are not credited to either harvesting or combustion, and therefore, biogenic carbon is assumed carbon neutral. The commenter stressed that many scientists, including those that developed the IPCC rules, were concerned with the misuse of the IPCC rules and science. Commenters 0045.1 and 0142.1 urge the EPA to use scientifically sound carbon accounting principles to measure biogenic emissions. Commenter 0269 also urges EPA not to allow industries to redefine biomass combustion categories so that burning tires can be considered beneficial debris clearing, or eliminating entire forests is to reduce risk of forest destroying fires, or clearing the youngest and oldest trees first is for the "good of the forest."

Multiple commenters (0032, 0075.1, 0030, 0062.1, 0136.1, and 0319) supported carbon neutrality of biomass in certain circumstances. More specifically, commenter 0032 encouraged the EPA to avoid broad regulations that do not recognize regional differences in forest and ecosystem types, forest product markets, management techniques, climate, and other forest demographics that have significant impacts on the viability and carbon neutrality of various biomass feedstocks. Commenters requested that the EPA account for biomass-to-energy pathways that emit more $CO_2$ than the fossil-fuel-generated energy that they would replace (0075.1), and to investigate the variability of biomass feedstocks on the net carbon cycle (providing Arundo donaxs as an example of a type of feedstock with the potential to positively impact the carbon cycle if used for biomass energy production) (0136.1). Commenter 0108.1 stated that closed loop biomass, defined as any organic material from a plant that is planted exclusively for the purpose of being used for bioenergy, is carbon neutral and should be exempted. The commenter provided the example of perennial crops like switchgrass. Commenter 0062.1 also recognized that although some forms of biomass may not be carbon neutral, energy from municipal solid waste combustion results in net greenhouse reductions or is carbon neutral; municipal solid waste combustion does not post land-use change or carbon stock changes. Commenter 0108.1 suggested that EPA develop a strategy in which the PSD and Title V programs take into consideration the sources of biogenic $CO_2$ emissions and the following additional factors: 1) what would have otherwise happened to the biomass had it not been

combusted, 2) how and why the biomass was grown or cultivated in the first place, and 3) how and what biomass is re-grown after the initial biomass harvest takes place.

**Response:** EPA recognizes the complexity of accounting for net atmospheric impact of biogenic emissions considering the carbon cycle. Although plants can sequester $CO_2$ from the atmosphere relatively rapidly, carbon absorbed by the plants may be returned to the atmosphere at different rates depending on factors such as plant type and carbon pool (ie, soil C or aboveground biomass). Therefore, issues raised by commenters, including the time delays between sequestration from and release to the atmosphere, differences between feedstocks, influence of spatial scale, and differences in combustion efficiencies are important in the development of accounting methodologies and will be considered during the scientific review that will take place during the three-year deferral period. EPA will consider these issues in order to account for biogenic $CO_2$ emissions from stationary sources in ways that are scientifically sound and manageable in practice.

## 2.3 Treatment of Biogenic Carbon Emissions in the U.S. GHG Inventory

**Comment:** Multiple commenters (0082.1, 0063.1, and 0086.1) agreed with the treatment of biogenic carbon emissions in the U.S. GHG Inventory. Commenter 0063.1 stated that EPA's inventory is prepared in accordance with the IPCC guidelines, and that these guidelines treat $CO_2$ emissions from biomass combustion as neutral. There is no reason to deviate from these well-established and internationally accepted accounting principles.

Another commenter (0082.1) stated that because $CO_2$ emissions from combustion of trees/wood are accounted for and tracked by the national inventory in the LULUCF Sector inventory, counting or regulating biogenic $CO_2$ as an emission for PSD or Best Available Control Technology (BACT) will, in effect, double count the $CO_2$ emissions from wood. Commenter 0086.1 responded to the proposal's discussion of the incompatibility of the retrospective U.S. GHG Inventory with forward looking construction and permitting programs, stating that the Inventory's tracking of carbon stock trends in the LULUCF Sector provides a periodic assessment of atmospheric $CO_2$ levels attributable to use of biomass for energy. Commenter 0086.1 also noted the proposal's recognition of this use of the Inventory under discussion of the "contingent exclusion." In addition, commenter 0086.1 took exception to EPA's characterization of the rationale for not including biogenic $CO_2$ at the point of fuel combustion in the Inventory and stated that this convention is more than just to avoid double-counting. It is useful for showing the carbon neutrality of biomass combustion on a national scale.

However, a commenter (0119.1) expressed concerns regarding the treatment of biogenic carbon emissions in the U.S. GHG Inventory. More specifically, the commenter stated that accounting for the biomass-derived carbon impact in the LULUCF Sector and not in the Energy Sector of the U.S. GHG Inventory fails to distinguish between very different activities with very different carbon implications. Furthermore, the commenter emphasized that placing the accounting in the LULUCF Sector removes accountability from an arena where there is regulatory control and experience (air quality) and places it in an arena lacking in regulatory power and the expertise (land use).

**Response:** During the three-year deferral period, various accounting methods for the treatment of biogenic carbon dioxide emissions (including that used in the U.S. GHG Inventory) will be

reviewed by the EPA and an independent scientific panel, and issues raised by the commenters will be considered during this review.

## 2.4 Accounting for Carbon Stocks on Land in the U.S. GHG Inventory

**Comment:** Commenters 0082.1 and 0032 supported the accounting of carbon stocks on land in the U.S. GHG Inventory. Commenter 0082.1 concurred with EPA's stated direction in its 2010 GHG inventory that land use categories such as forestry should apply over the entire national land base and that the national land base should look at the balance of flux in greenhouse gas emissions and carbon sequestration across all land uses. The commenter stated that these principles align with EPA's Endangerment Finding where EPA specifically determined the geographic scope of the endangerment finding to be the entire U.S. Another commenter (0032) stated that Section II.A.3. of the proposal should specify that long-lived harvested forest products (LLHWP) are included in the accounting of carbon flux in plant biomass in the national GHG inventory and that temporary decreases in forest carbon stocks that result from sustainable harvest are not considered emissions on a one-to-one basis because LLHWP count as a carbon sink.

Multiple commenters (0064.1, 0082.1, and 0139.1) had specific comments regarding forest carbon stock estimates. According to commenter 0082.1, forest carbon stocks, forest volume and harvested wood products in the U.S. have increased steadily for over 50 years, and while deforestation is a serious global concern, strong U.S. markets for forest products provide incentives to retain sustainable working forests. Commenter 0064.1 agreed that forest stocks are increasing in volume, specifically in Washington State. However, commenter 0139.1 stated that the carbon sink represented by the LULUCF sector is larger than the amount stated in the proposed rule (i.e., 12 percent of the average gross emissions from all other sources combined in the US over the same time period) because seven or eight of the state-level estimates are inaccurately reported as net sources. According to the commenter, inventory data clearly show that these states actually functioned as sinks. The commenter provides their own analysis of U.S. Forest Service baseline estimates for carbon stocks in Idaho.

Commenter 0050.1 agreed with EPA's explanation of the role of biomass as a net sink for carbon, its finding that the U.S. has functioned as a net sink from 1990 to 2008, and that the LULUCF sink will continue until at least 2020.

In contrast, one commenter (0119.1) did not support the accounting of carbon stocks on land in the U.S. GHG Inventory. Commenter 0119.1 declared that the simple math of the U.S. GHG Inventory cannot account for the different carbon sink/source implications of different land uses like logging of endangered forests, large-scale clear cutting, widespread conversion of natural forests to plantations, and the ditching and draining of critical coastal wetlands. Similarly, Commenter 0269 stated that the Governor of Washington has called for state-level averaging in the accounting of $CO_2$ release and carbon sequestration so that all the protected parklands and wilderness areas are added to the carbon sequestration side of the equation in attempt to balance the combustion side.

**Response:** During the three-year deferral period, accounting for carbon stocks on land at various scales will be included in the review of accounting methodologies by the EPA and scientific panel. Issues raised by the commenters will be considered during this review.

## 2.5 Distinction Between Biogenic and Fossil Carbon Dioxide Reservoirs

**Comment:** Multiple commenters (0015.1, 0070.1, 0078.1, 0083.1, 0093.1, 0095.1, 0063.1, 0023J, 0052.1, 0080.1) supported the distinction between biogenic and fossil $CO_2$ reservoirs. Unlike fossil fuel carbon which has long been separated from the carbon cycle and would not return to atmosphere in the absence of combustion, biogenic carbon is actively cycled. The mass of $CO_2$ released when burning biogenic carbon is equivalent to the mass respired from the atmosphere during the recent life of the biogenic fuel and equivalent to that which would otherwise be returned to the atmosphere by other natural processes. In addition, commenters (0023J) concurred with EPA's statement that there is a significant difference in the length of time required to replenish the reservoirs where the carbon is stored.

Commenters (0055.1, 0132.1, 0093.1, 0023G, 0030) stated that biogenic and fossil $CO_2$ have the same GWP in the atmosphere. Commenters 0055.1 and 0132.1 also stated that the true GWP of biogenic $CO_2$ depends on interactions with the full carbon cycle and its sinks, the oceans and the terrestrial biosphere, which work on different time scales.

Multiple commenters (0030, 0023G, 0132.1) did not support the distinction between biogenic and fossil $CO_2$ reservoirs. Commenter 0030 explained that there does not appear to be any viable legal basis for treating $CO_2$ emissions from biomass differently from other $CO_2$ emissions, because the Tailoring Rule explicitly states that "all carbon counts" in determining whether a stationary source is major. Commenters 0023G and 0319 also pointed out that trees are just like coal or other fossil fuels, in that they both burn and release carbon that has accumulated over long periods of time. Commenter 0132.1 noted that the natural carbon cycle also takes a very long time to sequester $CO_2$ from the atmosphere, resulting in current $CO_2$ emissions that will not be sequestered in carbon sinks until sometime in the distant future.

Commenter 0080.1 pointed out that when waste materials derived from fossil fuels (e.g., plastics) are land-filled, this carbon is once again sequestered and not released into the atmosphere as $CO_2$ because fossil-fuel waste materials are essentially not degradable. This commenter also stated that when biomass is converted to a biofuel and combusted or converted directly to $CO_2$ or methane by microorganisms (e.g., via waste composting or land-filling) any $CO_2$ generated by these processes should be treated as no net increase to the atmosphere, and further stated that land-filling and composting of waste leads to increased sequestration of carbon that reduces atmospheric $CO_2$.

**Response:** The distinction between biogenic and fossil $CO_2$ reservoirs is an important consideration in accounting for biogenic emissions at stationary sources. Therefore, during the three-year deferral period, EPA will evaluate the distinctions between biogenic and fossil fuel $CO_2$, and consider issues raised by commenters during the review. Regarding the legal basis for the deferral, please see Section 11 of this document or legal authority section of the preamble.

## 2.6 Distinction Between Biogenic Carbon Dioxide that is Natural versus Anthropogenic

**Comment:** Commenter 0059.1 supported deferral because, in their opinion, the Tailoring Rule makes no distinction between biogenic and anthropogenic $CO_2$ emissions. Commenter 0059.1

argued that only anthropogenic emissions should count towards the permitting thresholds for the following reasons:

- This approach is consistent with proposed federal and state regulations;
- Including biogenic emissions would dramatically increase the number of facilities subject to permitting.
- A failure to distinguish between natural and anthropogenic emissions could potentially harm bioenergy expansion and would create the absurd result of regulating biogenic $CO_2$ produced during destruction of anthropogenic methane from landfills.

Commenter 0059.1 stated that EPA rests its authority to regulate GHG on the endangerment finding of December 2009 and that the endangerment finding was silent on biogenic $CO_2$, but stated that the U.S. Global Change Research Program (USGCRP) had confirmed evidence that GHG concentrations are now at elevated and unprecedented levels due to anthropogenic emissions.

In contrast, commenter 0083 encouraged EPA to consider that human activities related to forest products and forest product markets can also result in carbon sequestration.

**Response:** Biogenic $CO_2$ emissions can come from natural and anthropogenic sources. As stated in the proposed rule, natural processes such as fire and decomposition of unmanaged lands, and human activities such as forest management and harvesting all release $CO_2$ into the atmosphere. Therefore, during the three-year deferral period, EPA will conduct a detailed examination of the science associated with biogenic emissions, including the distinction between natural and anthropogenic fluxes, and EPA will consider these comments during the review process.

# 3.0 PSD, Title V, and Tailoring Rule Background

EPA received a number of comments expressing views on requirements of and rationale for the Tailoring Rule, as well as on aspects of the PSD and Title V permitting programs that are beyond the scope of this rule.

## 3.1 Tailoring Rule Rationale and Requirements

**Comment:** Commenter 0074.1 stated that the proposed deferral rule is properly re-establishing EPA's position in the major source Tailoring Rule proposal (that biogenic $CO_2$ does not count toward regulatory thresholds), because the definition of "carbon dioxide equivalent, or $CO_2e$" in the Tailoring Rule proposal invoked calculations used in the "Inventory of U.S. Greenhouse Gas Emissions and Sinks" (the Inventory), and these calculations do not count biogenic $CO_2$ emissions at stationary sources. Rather, the Inventory states that it is assumed the carbon released during consumption of biomass is recycled as U.S. forests and crops regenerate which causes no net addition of $CO_2$ to the atmosphere. Commenter 0074.1 also took exception to EPA's statements in the deferral proposal that suggested stakeholders misunderstood EPA's intent in the Tailoring Rule proposal and that references to the Inventory were not meant to indicate biogenic emissions would be excluded from applicability determinations. Commenter 0074.1 countered that the proposed Tailoring Rule "specifically and repeatedly stated that EPA would use the Inventory not only for determining a pollutant's global warming potential, but also 'for guidance on how to calculate a source's GHG emissions'"(74 FR 55351, 55352, and 55361).

**Response:** The reference to the Inventory of U.S. Greenhouse Gas Emissions and Sinks within the definition of carbon dioxide equivalent, or $CO_2e$ specified the procedure for converting individual masses of the six compounds that compose the New Source Review (NSR) regulated pollutant, GHG, into the metric used for major source threshold calculations and for significant increase calculations. The context of the usage within the Tailoring Rule proposal definition of $CO_2e$ indicated that the reference to the Inventory's calculation methods was for conversions of non-$CO_2$ GHG compounds to a $CO_2e$ basis (*see* 74 FR 55351):

> *Carbon dioxide equivalent, or $CO_2e$,* means a metric used to compare the emissions from various greenhouse gases based upon their global warming potential (GWP). The $CO_2e$ for a gas is determined by multiplying the mass of the gas by the associated GWP. The applicable GWPs and guidance on how to calculate a source's GHG emissions in tpy $CO_2e$ can be found in EPA's ''Inventory of U.S. Greenhouse Gas Emissions and Sinks,'' which is updated annually under [an] existing commitment under the United Nations Framework Convention on Climate Change (UNFCCC). (Emphasis added.)

References to the Inventory's guidance for conversion of non-$CO_2$ GHG compounds to the standard GWP basis of the rule was not intended to be construed as references to the Inventory's accounting conventions for biogenic $CO_2$ emissions at stationary sources or in the LULUCF sector.

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**Comment:** Commenters 0059.1 and 0080.1 supported deferral but did not agree with EPA's claim at promulgation of the Tailoring Rule that there was insufficient time or information to apply "absurd results" and "administrative necessity" doctrines to biogenic $CO_2$. Commenter

0059.1 pointed out that the Tailoring Rule makes no distinction between biogenic and anthropogenic $CO_2$ emissions unlike other international and federal policies where biogenic emissions are considered part of the natural carbon cycle and are not counted towards regulatory requirements. Commenter 0059.1 stated that unless EPA provides this distinction, sources whose $CO_2$ emissions are largely biogenic, such as landfills and waste to energy (WTE) operations, would easily trigger regulatory thresholds established under the Tailoring Rule. Commenters (0071.1, 0072.1, 0120.1) also supported deferral and stated that EPA has the legal authority to distinguish biogenic $CO_2$ from other GHG constituents and to exclude such emissions from Clean Air Act (CAA) programs, because biogenic $CO_2$ has no adverse impacts on human health or the environment, and EPA has historically excluded certain air emissions from CAA programs even when such emissions are otherwise regulated in some contexts; commenter 0071.1 also stated that it would be administratively impossible to regulate biomass, and both commenters (0071.1 and 0072.1) stated that EPA can use discretion to avoid imposing burdens on permit applicants and permit authorities. Commenters (0023E, 0023G, 0106.1, and 0143.1) opposed the deferral and noted that the Tailoring Rule clearly states that all $CO_2$ counts towards determining whether a stationary source is major, and therefore sources must hold construction and Title V operating permits for GHG emissions that reflect BACT.

**Response:** The record compiled to support the Tailoring Rule was based on permitting burdens estimated using the traditional 100/250 tons per year (tpy) major source permitting threshold for non-GHG applied to GHG. As explained in the preamble to the Tailoring Rule, EPA did not at the time the Tailoring Rule was finalized consider the associated rationale for tailoring new GHG thresholds for permitting applicability purposes a sufficient basis to exempt certain emissions from the PSD and Title V programs. However, in the final Tailoring Rule preamble, we stated that the decision not to provide a biogenic exclusion did not foreclose EPA's ability to either (1) provide this type of an exclusion at a later time when we have additional information about overwhelming permitting burdens due to biomass sources, or (2) provide another type of exclusion or other treatment based on some other rationale. In the final Tailoring Rule preamble we also recognized the merit in commenters' observations about accounting for various biomass feedstocks, and we stated our intention to seek further comment on how we might address emissions of biogenic $CO_2$ under the PSD and Title V programs through a future action. In order to properly exercise discretionary authority consistent with the Act, we believe that a detailed examination of the science and technical issues associated with accounting for the net atmospheric impacts of biogenic $CO_2$ emissions will address the issues raised by the commenter in future rulemaking we conduct to provide for such an accounting in the permitting programs.

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**Comment:** Commenter 0079.1 disagreed with the underlying premise necessitating the proposed deferral, that GHG are able to trigger PSD in the first place even though there is no National Ambient Air Quality Standard (NAAQS) for GHG. The commenter stated that GHG were not intended to be regulated under the PSD program. The commenter cited its comments (attached to their current comments) filed on the PSD and Title V Tailoring Rule proposal in support of the commenter's contention that Part C of Title I did not contemplate non-criteria pollutants triggering PSD. The commenter also disputed EPA's statements on page 15257 of the proposed deferral Federal Register (FR) notice stating that the scope of applicability of the PSD program is driven solely by the definition of "major emitting facility" in CAA Section 169 and the definition of "major stationary source" in 40 CFR § 51.166.

**Response:** The commenter's interpretation of Part C of Title I is inconsistent with the longstanding definition of "regulated NSR pollutant" under 40 CFR Parts 51 and 52, because this definition (which predates the Tailoring Rule amendments) only includes existence of a NAAQS as one of four types of pollutants that are subject to NSR regulation; the remaining three types of pollutants defined as NSR pollutants have bases independent of NAAQS. Furthermore, the fifth paragraph under the definition of "regulated NSR pollutant" (e.g., 40 CFR 51.166(b)(49)(v)) exemplifies why formal regulatory text is required to constrain unintended PSD applicability relative to rulemakings under CAA authorizations other than Part C of Title I (such as motor vehicle standards under Title II). Finally, the commenter's interpretations are also inconsistent with the Administrator's obligations and congressional purposes under Section 202(a) and Section 160(1) of the Act, respectively. EPA believes that the cited "major" definitions are integral to achieving the purposes of Part C of Title I based on the Supreme Court's holding that GHG are air pollutants under the Act; the purpose and authority under Section 160(1) for the Administrator to protect public welfare from reasonably anticipated endangerment posed by air pollutants; the 2009 Endangerment Finding; and the pre-construction permitting requirements for major sources of air pollutants under Section 165(a) of the Act.

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**Comment:** Commenter 0132.1 opposed deferral and stated that EPA has no authority to avoid federal regulations of greenhouse gas emissions and stated that references to the IPCC methodology for reporting biogenic emissions could not be used as a legitimate basis for the Agency to avoid responsibilities mandated by Congress in the Act.

Conversely, commenter 0042.1 stated that deferral is required so EPA can keep the commitment to reconsider treatment of biogenic emissions under CAA permitting programs consistent with the Tailoring Rule. Additionally, commenter 0043.1 would like to work with EPA to determine how to model the impact of carbon-based fuel sources and biogenic stationary sources. The commenter expressed concern regarding how these sources may be regulated if EPA does not amend the rules. Both commenters 0042.1 and 0043.1 urged EPA to consider employing a standard similar to the "enforceable commitment" for biogenic energy sources that is similar to the language included in the Tailoring Rule. Commenter 0043.1 noted that this would create a framework for regulation with specific targets set for categories of stationary fuel sources and would provide the flexibility necessary to adapt to the changing technology that makes use of biogenic energy viable. Another commenter (0139.1) was concerned about implications in the proposal that EPA would favor certain forms of biomass over other forms and concerns that EPA may intend to develop land use regulations under PSD; the commenter pointed out that federal regulation of state and private land use is an enduring controversial issue that has been left to the states.

**Response:** EPA notes that the cited references to the IPCC convention for reporting biogenic emissions from the LULUCF sector occur within the proposal's "Relevant Background" section as well as relevant background to our commitment to re-evaluate biogenic emissions in major source permitting.

## 3.2 Tailoring Rule Applicability Thresholds

**Comment:** One commenter (0023B) stated that the major source threshold for PSD should be increased to 200,000 tons of $CO_2$ per year if the intent is to truly regulate the largest emitters and

stated that operators of facilities previously not classified as major sources continue to have concerns about being regulated under EPA's Tailoring Rule, a regime designed for only "the very largest commercial facilities."

**Response:** The deferral does not include revisions to the major source thresholds for GHG. This rule is solely focused on biogenic $CO_2$ emissions from stationary sources subject to the PSD and Title V programs. The GHG applicability thresholds are discussed in the Tailoring Rule and in the response to comments (RTC) document associated with the Tailoring Rule. Revisions to the major source thresholds are outside the scope of this rulemaking.

## 3.3 March, 2011 Updated Permitting Guidance

**Comment:** Commenter 0056.1 stated that there is risk going forward that permitting actions at industrial sources, such as refineries, will be required to address, and possibly in some cases adopt, the use of biomass fuel to meet a state's BACT determination, because of "redefining the source" language in the newly-released BACT guidance that contains language implying that states have the latitude to consider this form of BACT in future permit actions, even to the extent of "redefining the source". The commenter contended that this interpretation is extremely problematic and violates one of the primary tenants of the PSD program to only consider control options for the project under consideration, and not require a fundamental redesign of a project.

For instance:

> EPA states: "The 'redefining the source' issue is ultimately a question of degree that is within the discretion of the permitting authority." (pg. 13)
>
> "EPA has recognized that a Step 1 (of the top-down BACT process) list of options need not necessarily include inherently lower polluting processes that would fundamentally redefine the nature of the source proposed by the permit applicant" (pg. 12).
>
> "If the permit applicant is unable to demonstrate that a different allocation of primary fuels would fundamentally redefine the proposed source, the options at Step 1 should include varying allocations of the two primary fuels if the proportional allocation of fuels has the potential to affect the amount of GHG emitted from the facility or the net atmospheric GHG concentrations." (pg. 16).

These excerpts from the March 2011 guidance document all clearly indicate that:

1. "Redefining the source" is simply one "tool" of many that permitting authorities may use in NSR permit actions,
2. This "tool" of "redefining the source" should be considered in NSR permit actions, and
3. Permit applicants must consider "alternative processes" in their top-down BACT evaluation.

The commenter stated that any requirement to "redefine the source" in an NSR permitting action is contrary to the statutory and regulatory language and intent of the NSR permitting regulations. Furthermore, this guidance document is another example of "regulations through guidance" in which the regulated communities (and permitting authorities) are being required to comply with

Agency actions that have not undergone the proper rulemaking process of publication and public vetting.

The commenter objected to this language in the GHG BACT guidance documents and requested that any reference or inference to "redefining the source" be removed.

**Response:** To clarify, EPA issued the interim guidance entitled, "Guidance for Determining Best Available Control Technology for Reducing Carbon Dioxide Emissions from Bioenergy Production" to help permitting authorities establish a basis for concluding that under PSD Programs the combustion of biomass fuels can be considered BACT for biogenic $CO_2$ emissions at stationary sources before the deferral becomes effective. The interim BACT guidance is unnecessary and inapplicable in those jurisdictions where the deferral becomes effective while EPA conducts the scientific review of biogenic $CO_2$ emissions and develops the accounting framework outlined in the preamble to this action. During this period, EPA will conduct a detailed examination of the science associated with biogenic $CO_2$ emissions from stationary sources, including engaging with federal partners, technical experts, and an independent scientific panel to consider technical issues. Based on the feedback from the scientific and technical review, EPA will then undertake a rulemaking to determine how biogenic $CO_2$ emissions should be treated and accounted for in PSD and Title V permitting. The proposed deferral focuses on biogenic $CO_2$ emissions from stationary sources subject to the PSD and Title V programs. EPA considers comments on the interim BACT guidance to be beyond the scope of this action.

# 4.0 Recent Actions/Procedures

## 4.1 National Alliance of Forest Owners (NAFO) Petition

**Comment:** Commenter 0023A stated that deferral and further scientific study are appropriate steps in response to NAFO's petition, because EPA did not properly inform stake holders on the treatment of biogenic $CO_2$ in the Tailoring Rule proposal. Similarly, commenter (0087.1) believes EPA was justified in granting the petition for reconsideration, because the final Tailoring Rule presented new issues and commenters never had an opportunity to address EPA's justification for including biogenic $CO_2$.

**Response:** We agree with these commenters that the deferral is an appropriate step in light of the unique complexity posed by biogenic $CO_2$ emissions. However, we also respectfully note that commenters did, in fact, have the opportunity to comment on the treatment of biogenic emissions during the Tailoring Rule process, and EPA received a number of comments in this regard. These comments were addressed in the final Tailoring Rule, where EPA also noted that the Agency had not yet evaluated the permitting burdens associated with biogenic $CO_2$ emissions, and had not received comments indicating that an overwhelming burden justified exclusion at that time (75 FR 31,514, 31,591). There, we also indicated our intent to solicit additional comments, and perform the further investigation necessary to determine how to best treat biogenic $CO_2$ emissions. *Id.* The present action fulfills that intent, and enables the Agency to make its final decision on the treatment of these emissions based on a thorough analysis of applicable science and policy concerns.

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**Comment:** Commenter 0023E stated that EPA's decision to grant the Tailoring Rule reconsideration request brought by NAFO is unlawful, because industry sought biogenic exemption during the Tailoring Rule comment period, and NAFO's request to reconsider the Tailoring Rule does not meet the requirements CAA Section 307(d)(7)(B).

**Response:** We disagree with this commenter's analysis of the statute or the legal justification for granting reconsideration on this issue. It is EPA's view that rather than circumscribing the Agency's authority to reconsider a rule, Section 307(d)(7)(B) serves to define a situation where EPA *must* reconsider a rule. *Id.* This does not prohibit or otherwise limit EPA's authority to reconsider a rule under circumstances outside of those defined in the statute. In Section 307(d)(7)(B) Congress set out when EPA *must* reconsider a rule; nowhere did Congress state that EPA may not consider a rule or change a past decision in other circumstances.

Courts have consistently held that administrative agencies have inherent authority to reconsider their decisions. In *Chevron v. NRDC*, the Supreme Court noted that "[a]n initial agency interpretation is not instantly carved in stone," rather, the agency "must consider varying interpretations and the wisdom of its policy on a continuing basis." 467 U.S. 863-864 (1984). Lastly, this interpretation of Section 307(d)(7)(B), as it relates to EPA's inherent authority to reconsider a rule, is consistent with past EPA practice. For example, on May 14, 2009, EPA issued a final rule announcing its decision to extend the effective date of its rule regarding ''aggregation'' under the PSD and NSR programs. 74 FR 22,693, 22,693.

**Comment:** Commenter 0014.1 noted that the petition for reconsideration was filed by an entity on the sequestration side of the biogenic balance due to speculative fears of economic impairment to regulated trading partners, and stated that EPA should consider that the petitioner may not be "directly affected by the ruling," because permit applications are case-by-case examinations of sources. Commenter 0014.1 stated that if the petitioner does have members that operate sources, these members must operate under emissions constraints without consideration of other members' sequestration areas because the presumption that equivalent sequestration is occurring off-site is theoretical without a case-by-case analysis.

**Response:** In general, comments on the economics of the biomass industry are beyond the scope of this action. EPA notes that there is no statutory or regulatory requirement that specifies how, or to what degree, a petitioner must be directly affected by the outcome of an agency's decision to grant or deny a Petition for Reconsideration. Specifically addressing the commenter's concern that NAFO's interest was only speculative, EPA notes that forest owners often have on-site biomass-fueled electric generating units (EGUs) to power their operations; these units are subject to EPA's determination regarding the regulation of $CO_2$ emissions from biogenic sources.

**Comment:** Commenter 0350.1 stated that EPA's final decision to reconsider the Tailoring Rule does not meet the strict requirements of CAA §307(d)(2)B) for such decision making. The commenter stated EPA is only required to reconsider a rule based on a Petition for Reconsideration if the petitioner demonstrates to EPA that (1) it was impracticable to raise the objection during the comment period, or (2) that the grounds for such objection arose after the comment period but within the time specified for judicial review. The commenter stated that the industry group submitted extensive comments to the Tailoring Rule docket on the very issues it now raises in its Petition. The commenter stated the industry group's petition does not satisfy either the statute's strict limitations on reconsideration, or EPA's recent interpretation of them. The commenter cited a recent EPA statement that says "section 307(d)(7)(B) does not provide a forum to request EPA to reconsider issues that actually were raised, or could have been raised, prior to promulgation of the final rule."

The commenter also noted that EPA had not satisfied the statute's procedural requirements governing decisions on submitted Petitions for Reconsideration, in that Administrator Jackson published her final decision to reconsider the rule in the proposed deferral notice. The commenter stated EPA provided no opportunity for public comment either on the industry group's Petition for Reconsideration (which was never even docketed in the Tailoring Rule record, or relied on by the industry group in its filings in the litigation over the Rule), or on EPA's *sua sponte* decision to reconsider this aspect of the Tailoring Rule. 42 U.S.C. §§ 7607 (d)(1)(J) (notice and comment requirements apply to the "promulgation or revision of" regulations under part C of subchapter I [the PSD provisions]"(emphasis added)); 7607(d)(2)(B) (the Administrator "shall convene a proceeding for reconsideration of the rule and provide the same procedural rights as would have been afforded had the information been available at the time the rule was proposed"). The commenter stated the nature of EPA's decision-making process here is not only unlawful in its own right, but further demonstrates the unreasonable, arbitrary and capricious nature of this highly political decision-making.

**Response:** Several commenters expressed their view that EPA's discretion to reconsider its treatment of $CO_2$ emissions from biogenic sources is limited by Section 307(d)(7)(B) of the

CAA. We disagree with these commenters' analysis of the statute. It is EPA's view that rather than circumscribing the Agency's authority to reconsider a rule, Section 307(d)(7)(B) serves to define a situation where EPA *must* reconsider a rule. *Id.* This does not prohibit or otherwise limit EPA's authority to reconsider a rule under circumstances outside of those defined in the statute. One commenter (0351.1) states that "EPA is only *required* to reconsider a rule based on a Petition for Reconsideration" if the petition makes the requisite showings per 307(d)(7)(B). This phrasing reiterates the plain language of this section. In Section 307(d)(7)(B) Congress set out when EPA *must* reconsider a rule; nowhere did Congress state that EPA may not consider a rule or change a past decision in other circumstances.

Courts have consistently held that administrative agencies have inherent authority to reconsider their decisions. In *Chevron v. NRDC*, the Supreme Court noted that "[a]n initial agency interpretation is not instantly carved in stone," rather, the agency "must consider varying interpretations and the wisdom of its policy on a continuing basis." 467 U.S. 863-864 (1984).

Lastly, this interpretation of Section 307(d)(7)(B), as it relates to EPA's inherent authority to reconsider a rule, is consistent with past EPA practice. On May 14, 2009, EPA issued a final rule announcing its decision to extend the effective date of its rule regarding ''aggregation'' under the PSD and NSR programs. 74 FR 22,693, 22,693. In response to a petition for reconsideration issued by the Natural Resources Defense Council, EPA proposed this deferral to give the Agency sufficient time to reconsider the rule, as a three-month administrative stay issued pursuant to 307(d)(7)(B) was inadequate. *Id.* Section 307(d)(7)(B) does not diminish EPA's inherent authority — via a new rulemaking such as the one undertaken here — to revise and reconsider its past rules and policies.

One commenter also expressed concern that EPA's decision to grant the Petition for Reconsideration was not opened up to public comment. EPA is not required to elicit public comment before deciding whether to grant or deny a Petition for Reconsideration. However, after EPA decided to grant the Petition for Reconsideration in its corresponding decision to reconsider the treatment of $CO_2$ from biogenic sources, EPA solicited public comments and held a public hearing. EPA complied with all procedural requirements in issuing the proposed rule.

# 5.0 Consistency Among Programs

**Comment:** Several commenters (0015.1, 0052.1, 0053.1, 0059.1, 0062.1, 0063.1, 0070.1, 0074.1, 0080.1, 0082.1, 0086.1, 0099.1, 0108.1, and 0126.1) highlighted acknowledgement of carbon neutrality of biogenic fuels in international, U.S. government (including EPA) and State regulatory and policy programs. Commenter 0053.1 noted that biogas is considered an important alternative energy source in Europe. Commenters 0062.1 and 0080.1 stated that EPA and other federal agencies, states and international groups have recognized the carbon neutrality of biogenic carbon in municipal solid waste (MSW) and landfills. The commenters provided multiple examples of regulatory and policy programs that treat biogenic fuels as a carbon neutral. One commenter (0059.1) listed a variety of international and domestic protocols and accounting systems that exclude biogenic $CO_2$ emissions including: EPA's GHG inventory, Clean Development Mechanism of the Kyoto Protocol, applicability determination for the EPA's GHG Reporting Program, H.R. 2454, and California's AB32 program. In addition, biomass emissions from combustion or non-combustion sources have not been capped under the current draft of the California cap-and-trade system, the Kyoto Protocol, the European Union Emission Trading Scheme (EU-ETS), or the Regional Greenhouse Gas Initiative (RGGI).

Commenter 0070.1 stated that electric utilities that are subject to renewable energy standard (RES) requirements in 29 states and the District of Columbia rely upon biomass, to varying degrees, to meet their compliance obligations. Biomass is part of the full portfolio of technologies and measures that electric utilities need to reduce GHG emissions, while continuing to provide reliable and affordable electric power in a manner that is consistent with a host of federal and state regulations. Permanent exemption of biogenic $CO_2e$ emissions from bioenergy and other biogenic stationary sources from PSD and Title V permitting further promotes compliance with voluntary or mandatory related RES policies.

**Response:** The accounting approaches taken by other programs, including other EPA programs, will be included in EPA's detailed examination of the scientific and technical issues related to biogenic $CO_2$ emissions and any subsequent rulemakings we undertake during the deferral period.

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**Comment:** Commenter 0108.1 stated that disqualifying bio-power as a form of renewable energy puts the U.S. at a grave disadvantage in the international arena. Treating biogenic carbon emissions from bio-power the same as fossil fuels sets a poor precedent for biofuels and may raise unneeded controversy around the existing Renewable Fuel Standard (RFS).

**Response:** The deferral rule relates to the applicability of biogenic $CO_2$ emissions within the context of the PSD and Title V programs, and does not establish precedent for accounting for biogenic $CO_2$ emissions associated with any RFS programs. Those programs are outside the scope of this rulemaking.

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**Comment:** Commenter 0111.1 stated that deviations from sustainable forestry are already accounted for by the Land Use, Land-Use Change and Forest (LULUCF) protocol from the UNFCCC. The commenter encourages the EPA during its rulemaking to not duplicate this accounting process nor risk double counting emissions from the energy sector.

**Response:** As explained in the preamble, the Inventory addresses biogenic $CO_2$ emissions in the LULUCF chapter to avoid double counting of those emissions in the Energy chapter at the national level. As also explained in the proposal, the Inventory was not designed to quantify the net atmospheric impacts of a particular type of fuel from a stationary source over a specified time period that extends into the future.

Any application of an accounting methodology to a particular stationary source program will be addressed through a future rulemaking and not this rulemaking. EPA will evaluate accounting methodologies during the three-year deferral period.

# 6.0 Biomass-Related Definitions and Affected Industries in the Deferral Rule

**Comment:** Commenter 0086.1 stated that EPA should make clear that it will not be reassessing the concept of carbon neutrality of biofuels under Title II of the CAA during the detailed scientific review referenced in the proposal, and further stated that any actions considered by EPA should remain separate from EPA actions with respect to regulation of fuels under Title II of the CAA, because EPA's lifecycle analysis under the RFS found that mobile source emissions should only include non-$CO_2$ gases, because the carbon emitted from biogenic fuel combustion is offset by the uptake of biogenic carbon during feedstock production. The commenter also noted that biofuels produced for mobile sources are also used in stationary sources.

**Response:** The final rule, which defers inclusion of biogenic $CO_2$ from major stationary source applicability determinations under PSD and Title V, does not alter any regulatory text related to mobile sources or Title II of the CAA. This rulemaking does not address the treatment of biogenic $CO_2$ emissions from mobile sources and within the RFS Program. Those programs and regulations are outside the scope of this rulemaking.

## 6.1 Affected Industries

**Comment:** Commenter 0054.1 stated that sugar industry processors operate industrial boilers fired primarily by bagasse, which is a co-product of sugarcane processing. Bagasse is a renewable, carbon-neutral fuel. The sugar industry uses bagasse to reduce its demand for fossil fuel and other sources of energy. Sugarcane processors operate boilers at sugar mills to produce process steam. The bagasse boilers burn 100-percent bagasse most of the time. A small amount of fossil fuel is burned at times, primarily for startup. The commenter operates a seasonal industry, with operations running October through April or May of each year, with one mill operating year-round to support sugar refining operations. Because the commenter's facilities combust almost exclusively bagasse, their facilities emit significant amounts of $CO_2$. However, over 98 percent of these $CO_2$ emissions are biogenic in nature.

**Response:** EPA recognized in the preamble of the proposal that the potential may exist for it to determine in subsequent rulemaking that multiple types of biomass feedstocks would have a negligible or *de minimis* impact on the net carbon cycle, and that $CO_2$ emissions from such feedstocks would result in a negligible net atmospheric impact. In particular, EPA noted that this may apply to residue or byproduct material that if not used as a bioenergy feedstock would have decomposed under natural circumstances in a relatively short period of time. The three-year deferral will allow time for a detailed and transparent examination of the science associated with the net atmospheric impact of biogenic $CO_2$ emissions, including $CO_2$ emissions from agricultural byproducts and to conduct the subsequent rulemaking.

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**Comment:** Commenter 0084.1 recognized that agribusiness organizations are engaged in manufacturing and other operations that generate or have the potential to generate biogenic $CO_2$ emissions, and as a result are subject to permitting under the CAA. The commenter stated that such permitting hinders the ability of agribusinesses to respond nimbly and flexibly to changing market conditions.

**Response:** EPA acknowledges the comment and notes that the final rule defers for three years the application of PSD and Title V permitting requirements to biogenic $CO_2$ emissions.

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**Comment:** Commenter 0086.1 referred to EPA's 2007 FR notice that clarified ethanol facilities are not "chemical process plants" subject to the 100 tpy major source threshold under PSD, and stated that the Tailoring Rule and uncertainty of outcomes following the deferral proposal have undermined EPA's 2007 decision about ethanol plants. This commenter goes on to quote 2007 FR passages about ethanol's role in balancing energy independence, environmental protection, and economic growth.

**Response:** We disagree that the Final Tailoring Rule and deferral of applicability for biogenic $CO_2$ emissions in PSD and Title V permitting undermines our 2007 decision. The 2007 decision applies to applicability thresholds for criteria air pollutants (not GHG).

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**Comment:** Commenter 0145.1 stated that the wide range of definitions for "biomass" in state and federal laws, including the "inadequate" definition in the deferral proposal, allow industry to evade regulation by confusing permitting authorities with the definition of "biomass" and state incentives for renewable energy. The commenter provided some specific examples of air permits to burn solid waste that have been issued to biomass projects and stated that one project was able to avoid solid waste incinerator facility siting laws by calling itself a renewable energy biomass project.

Commenter 0129.1 asserted that without deferral, biogenic $CO_2$ emissions will trigger PSD at many landfills from the combustion of landfill gas in flares and landfill gas renewable energy projects, which have resulted in significant GHG reductions in recent years. The commenter stressed that even without the Tailoring Rule, permitting is complex for solid waste landfills because of PSD and New Source Performance Standards (NSPS) requirements. The commenter further expressed that deferral and exemption of biogenic $CO_2$ from landfill flaring and landfill gas renewable energy projects would make the Tailoring Rule more consistent with NSPS requirements for gas collection and combustion that already reduce the GWP of landfill GHG emissions.

**Response:** EPA recognizes the complex relationships between state and federal solid waste and air pollution laws and the challenges that permitting authorities and solid waste managers face integrating the disparate requirements and definitions of these programs into enforceable permit conditions. EPA also recognizes that Section 111 standards and guidelines should complement PSD program objectives but such considerations are not related to this rulemaking. The commenter's allegations that a solid waste incinerator avoided applicable siting laws are outside the scope of the biogenic $CO_2$ emissions deferral rulemaking and it is suggested that the commenter voice these types of project-specific concerns with compliance personnel at the appropriate state environmental agency or EPA regional office.

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**Comment:** Commenter 0116.1 noted that the preamble in the deferral proposal refers several times to EPA's intention to exclude "fossil fuel" from the deferral. However, the EPA sweeps too broadly by including $CO_2$ emissions from the anthropogenic (or non-biogenic) portion of the MSW processed at WTE facilities. The commenter pointed out that local governments utilize WTE because it is the best means for managing non-recycled waste and indicated that such

utilization did not constitute "a fuel choice." The commenter also stated that subjecting the non-biogenic portion of WTE $CO_2$ emissions to PSD and Title V permitting requirements would discourage WTE projects.

**Response:** EPA notes the commenter's claims that the operation of WTE facilities result in reductions in GHG emissions, which provide the basis for advocating that the $CO_2$ emissions from the fossilized portion of the MSW feedstock also be deferred, are related to the biogenic portion of the MSW feedstock, not the fossilized portion. The final rule defers for three years the application of PSD and Title V permitting requirements to biogenic $CO_2$ emissions. EPA recognized in the preamble of the proposal that the potential may exist for it to determine in subsequent rulemaking that multiple types of biomass feedstocks would have a negligible impact on the net carbon cycle, and that $CO_2$ emissions from such feedstocks would result in a negligible net atmospheric impact. The three-year deferral will allow time for a detailed examination of the science associated with the net atmospheric impact of biogenic $CO_2$ emissions, including those $CO_2$ emissions from WTE facilities, and to conduct the subsequent rulemaking. EPA recognizes that policies and permitting decisions related to GHG emissions from WTE facilities must consider factors unique to the MSW feedstock, and EPA notes that the current knowledge of GHG emissions from landfills and WTE facilities allow operators to evaluate the climate impacts of each of these disposal options.

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**Comment:** Commenter 0056.1 stated that "biogenic activities" should encompass everything from fermentation processes to the combustion of renewable fuels, including ethanol manufacturing, biodiesel production, and other alternative energy production based on biomass feedstocks.

**Response:** EPA agrees that the activities described by the commenter represent activities that result in biogenic $CO_2$ emissions, as provided in the definition of "biogenic $CO_2$ emissions" in the preamble of the proposal. This definition includes $CO_2$ from combustion or decomposition of biologically-based materials, including $CO_2$ from fermentation during ethanol production and $CO_2$ derived from combustion of biological material, including all types of wood and wood waste, forest residue, and agricultural material.

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**Comment:** Commenter 0107.1 requests that EPA recognize the natural rubber content of tires and exempt the $CO_2$ emissions from the biogenic fraction of tire-derived fuel (TDF) from GHG reporting requirements. The commenter's U.S. tire shipment data for 2008 indicates that the overall percentage of TDF that is natural rubber or biomass is approximately 26 percent. The commenter stated that TDF reduces net carbon emissions because it contains natural rubber, which is biomass that is produced by sequestration of carbon dioxide through photosynthesis in rubber trees.

**Response:** EPA agrees that the natural rubber content of tires represents non-fossilized and biodegradable organic material, and that $CO_2$ emissions resulting from the combustion or decomposition of such material is included in the three-year deferral of the application of PSD and Title V permitting requirements to biogenic $CO_2$ emissions. The three-year deferral will allow time for a detailed and transparent examination of the science associated with the net atmospheric impact of biogenic $CO_2$ emissions, including $CO_2$ emissions from the biological fraction of TDF.

**Comment:** Commenter 0125.1 reviewed their industry's use of wood pulping co-products, where they extract all useful chemical components and then recover fuel value from residual by-products. The commenter noted that EPA's use of the term "biogenic" in the proposed rule appears to establish greater value for biomass used for bioenergy than for bio-based products. The commenter expressed concern that "wood waste and forest residue" is not well defined and the impact of the deferral on the commenter's industry is not clear. Without clarification, the rule could damage availability of the commenter's feedstocks.

**Response:** EPA's use of the term "biogenic" is neutral with regard to the economic use of the biogenic material. The term "biogenic" is used to refer to $CO_2$ emissions resulting from the combustion or decomposition of biologically-based materials other than fossil fuels. With regard to the definition of wood waste and forest residue, EPA does not believe that the broad regulatory language used in the final deferral rule has the potential to omit certain wood waste and forest residue categories, as it includes $CO_2$ emissions resulting from the combustion or decomposition of all forest products, by-products, residues and waste. The regulatory language of the final deferral rule includes "products, by-products, residues and waste from agriculture, forestry and related industries…"

**Comment:** Commenter 0354.1 stated that in the preamble to the proposal, EPA specifically cites fermentation processes as an affected entity, with the examples of ethanol manufacturing and food/beverage processors using fermentation processes. However, there are other fermentation processes, namely in the pharmaceutical and biotechnology business, that also emit $CO_2$ as a result of micro-organism transformation. EPA should clarify in the final rule preamble that all industrial fermentation processes would be covered under the deferral. EPA should also clarify that $CO_2$ emissions resulting from the thermal decomposition of volatile organic compounds (VOCs) that are released when processing biomass are considered biogenic $CO_2$ emissions and are therefore covered under the deferral. Furthermore, the commenter noted the proposed language in §§51.166, 52.21, and 70.2 states that the deferral applies to "…carbon dioxide emissions resulting from the combustion or decomposition of non-fossilized and biodegradable organic material originating from plants, animals, or micro-organisms…" However, this definition does not appear to include the consumption of organic material by micro-organisms, which is what occurs during industrial fermentation processes.

**Response:** EPA agrees that other fermentation processes in addition to ethanol fermentation also result in $CO_2$ emissions and are covered under the deferral provided in the final rule. While the examples of affected entities provided in Table 1 of the preamble to the proposal are illustrative and not intended to be exhaustive, in developing the preamble to the final rule, EPA has included in Table 1 the industrial classification category of "medicinal and botanical manufacturing" (NAICS 325411) in response to the comment. In response to the comment, EPA has also included in the preamble to the final rule a clarification that all forms of industrial fermentation represent an example of biogenic $CO_2$ emissions, by clarifying the fermentation example to state "$CO_2$ from fermentation during ethanol production *or other industrial fermentation processes*" (emphasis added). With respect to the comment regarding $CO_2$ emissions resulting from the thermal decomposition of VOC that are released when processing biomass, EPA believes that such emissions are addressed in the phrase "decomposition of non-fossilized and biodegradable organic material" at §§51.166, 52.21, 70.2, and 71.2 of the final rule. With respect to the comment regarding language in §§51.166, 52.21, 70.2, and 71.2 of the

final rule stating that the deferral applies to "…carbon dioxide emissions resulting from the combustion or decomposition of non-fossilized and biodegradable organic material originating from plants, animals, or micro-organisms…", EPA believes that this language applies to the scenario described by the commenter involving the production of $CO_2$ by micro-organisms during industrial fermentation processes. In such processes, biological materials are used as a growth media for microbes. In such a case, $CO_2$ emissions result from the decomposition of biodegradable organic material and originate from micro-organisms.

## 6.2 Meaning of "Biologically-Based Material"

**Comment:** Commenters 0051.1 and 0077.1 encouraged use of a broad definition of "biological-based material" and one that is flexible, so that it does not limit future technologies and biomass feedstocks. Commenter 0077.1 supports the broadest definition possible, given the diversity of biological material that could be used, and listed the following types of biologically-based materials used as energy sources in meat plant operations: rendered fats and recycled restaurant grease, tallow, sunflower hulls, biogas from wastewater treatment, biogas from manure treatment, and landfill gas.

**Response:** "Biologically-based material" is included as a specific definition in the final rule (as proposed without change). EPA agrees that the materials noted by the commenter (rendered fats and recycled restaurant grease, tallow, sunflower hulls, biogas from wastewater treatment, biogas from manure treatment, and landfill gas) are within the scope of the description of biologically-based material in the final rule (as proposed without change), which includes: "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 non-fossilized and biodegradable organic material)."

## 6.3 Meaning of Preamble Terms "Bioenergy and Other Biogenic Sources" or "Biogenic $CO_2$ Emissions"

**Comment:** Commenters 0023J and 0070.1 supported EPA's definition of biogenic $CO_2$ emissions in the proposal and agreed with the list of biogenic $CO_2$ emissions in the proposed rule. Commenter 0086.1 requested that EPA clarify in the final rule that $CO_2$ emissions from the combustion of liquid biofuels, such as ethanol and biodiesel, in stationary power units should also be excluded. Commenter 0075.1 recommended that EPA separate feedstocks into two groups based on current knowledge of biomass-to-energy cycles. One group should be granted immediate permanent exemption from PSD and Title V permitting requirements, while the second group would be subject to further study as proposed by EPA. The two groups were described as follows:

1) *Materials eligible for immediate, permanent exemption* include materials for which the carbon content would likely return to the atmosphere in the near-term if the material is not used to produce energy:
   a) Forest and agricultural wastes;
   b) Urban wood wastes;

c) Removals associated with ecosystem restorations and maintenance of right-of-ways; and
d) Crops on lands in continuous agricultural production for a number of years.

2) *Materials subject to the deferral as proposed* include materials where $CO_2$ emission reduction benefits are open to questions and where further study is appropriate, such as:
   a) Vegetable oils where indirect land-use change emissions can be substantial;
   b) Materials from land recently converted from forest or grassland to tillage crops;
   c) Chipped or pelletized materials from whole trees; and
   d) Materials shipped long distances between harvest and the point of use.

Commenter 0087.1 urged EPA to affirm the findings in the proposal that some feedstocks have a "negligible impact on the net carbon cycle" when utilized to produce energy or "would clearly reduce net atmospheric $CO_2$ levels." The commenter asked EPA to expand the list of such feedstocks referenced in the proposal to include forest residues and spent pulping liquor and provided key points of several research studies, as well as a lifecycle analysis, to support this request. The commenter concluded that the lifecycle analysis demonstrates the GHG and renewable energy benefits of combusting spent pulping liquors for energy.

**Response:** EPA believes that the definition in the final rule provides permitting authorities sufficient flexibility to identify biogenic feedstocks during the deferral period, and EPA agrees that the biogenic fraction of liquid biofuels combusted by stationary sources is within the scope of the proposed definition. Regarding differentiation of feedstocks and suggestions to apply the deferral to only a subset of biogenic feedstocks, EPA believes that this type of differentiation requires a scientific record of analyses and peer review. EPA plans to complete these analyses in a transparent peer-reviewed process that is open to the public during the deferral period but not as part of this deferral rulemaking. Regarding forest residues and spent pulping liquor, EPA agrees that these feedstocks are within the scope of the current definition.

## 6.4 Open-Loop Biomass

**Comment:** Commenter 0023D highlighted the benefits of open-loop biomass fuels, agreed with the proposed deferral to allow EPA to define the science of open-loop biomass (waste biomass), and discussed regulatory and market challenges that the biomass industry faces.

Commenter 0108.1 stated that using open-loop biomass (waste biomass) for bio-power production releases carbon faster into the atmosphere than would have occurred naturally. The commenter agrees that the biogenic carbon emissions should be counted when determining PSD and Title V applicability, but that a significant discount compared to fossil fuel $CO_2$ emissions should be applied.

Commenter 0108.1 stated that any biomass harvested and collected through an open-loop process (waste biomass) must be replenished on a sustainable basis. Crops like perennial grasses can yield up to 10 dry tons per acre, per year by its second or third year of growth. Trees, on the other hand, have a slower rate of growth, and even the fastest-growing varieties are about half as productive as grasses. Therefore, crops that are faster growing should be advantaged through some form of credit, as a means to reward the grower for removing $CO_2$ faster and repaying the carbon "mortgage" that is created from the primary combustion of open-loop woody biomass more rapidly and more efficiently than replanting trees, for example.

**Response:** We acknowledge that different accounting considerations may be warranted for different types of feedstocks but such considerations are beyond the scope of this rulemaking. Various types of "open-loop biomass" will be considered along with other feedstocks as we study accounting methods for biogenic $CO_2$ from stationary sources over the next three years.

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**Comment:** Commenter 0064.1 noted that when forest biomass is used to generate energy, as a fossil fuel substitute, new $CO_2$ emissions from fossil fuels are replaced by emissions that are already part of the closed-loop carbon cycle. The commenter also noted that biomass is often produced when over-crowded forests are thinned in order to improve the productivity and fire resiliency of forests. In so doing, the forests are better able to absorb and store more carbon over time.

**Response:** EPA acknowledges that different accounting considerations may be warranted for different types of biomass feedstocks. We are considering the issues the commenter raises as we conduct a detailed examination of the science and technical issues associated with biogenic $CO_2$ emissions, and the net atmospheric impact of such emissions, and develop an accounting framework that is scientifically sound and manageable in practice.

## 6.5 Wastewater Treatment $CO_2$

**Comment:** Commenters 0053.1, 0099.1, and 0117.1 stated that waste-derived biogas is a green renewable energy resource that should continue to be promoted as an environmentally friendly alternative to fossil fuel and that regulation of biogenic emissions from combustion of biogas only serves as a disincentive to renewable energy production and use. Commenter 0053.1 discussed benefits of using biogas derived from wastewater treatment, referring to wastewater treatment practices and the California Air Resources Board (CARB) low carbon fuel standard (LCFS). The commenter noted that regulating biogenic $CO_2$ emissions under Title V and PSD would inhibit green energy and green fuel development and would stop projects that could reduce GHG emissions by displacing fossil fuel and converting methane to energy and biogenic $CO_2$.

Commenter 0099.1 provided several reasons why waste-derived biofuels should be considered separate from other biofuel sources:

- Waste-derived biofuels are largely generated locally, requiring little transportation to get the fuel to market;
- There is no competing land use impact;
- There is no possibility of carbon stock reversal, as with other sources of biomass; and
- Sewage is a "must manage" waste. If this decomposition of organic material happens in nature, then no energy benefit is realized. However, by managing and accelerating decomposition in a controlled environment such as a landfill or wastewater treatment plant, potential is created for renewable energy.

Commenter 0099.1 noted that biogas contains approximately 40 percent $CO_2$ and 60 percent methane. Some publicly owned treatment works (POTWs) use biosolids for energy generation. Biogas and biomass at wastewater facilities have significantly lower carbon pathways when compared to other commercial biomass energy production, particularly in the transportation fuels

sector. The CARB, under AB32, has adopted a low carbon fuel standard that treats compressed/liquefied natural gas (C/LNG) produced from biogas as having the lowest carbon intensity of all transportation fuels that were evaluated.

**Response:** EPA acknowledges the comment and notes that the final rule defers for three years the application of PSD and Title V permitting requirements to biogenic $CO_2$ emissions. EPA also acknowledges that different accounting considerations may be warranted for different types of biomass feedstocks. In addition, EPA recognized in the preamble of the proposal that the potential may exist for it to determine that multiple types of biomass feedstocks would have a negligible impact on the net carbon cycle, and that $CO_2$ emissions from such feedstocks would result in a negligible net atmospheric impact. In particular, EPA noted that this may apply to residue or byproduct material that if not used as a bioenergy feedstock would have decomposed under natural circumstances in a relatively short period of time. We are considering the issues the commenter raises as we conduct a detailed examination of the science and technical issues associated with biogenic $CO_2$ emissions, and the net atmospheric impact of such emissions, and develop an accounting framework that is scientifically sound and manageable in practice.

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**Comment:** Commenter 0117.1 stated that the deferral of biogenic $CO_2$ emissions from CAA permitting programs should specifically include both combustion and non-combustion sources of biogenic $CO_2$. In the proposed rule, combustion of biosolids and biogas are specifically listed as exclusions, but wastewater treatment process emissions are not mentioned. The commenter stated that wastewater treatment is a vital natural function that cannot be stopped, and utilities should therefore not be penalized for biogenic $CO_2$ emissions resulting from the mandatory treatment of these wastes, adding that composting should be included as well, since its waste-derived emissions are part of the same short-term carbon cycle.

**Response:** The final rule includes the deferral of biogenic $CO_2$ emissions resulting from the decomposition of organic material during wastewater treatment processes. The language of the final rule states that the deferral applies to "…carbon dioxide emissions resulting from the combustion *or decomposition* of 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 non-fossilized and biodegradable material)" (emphasis added). The inclusion of the phrase "including gases and liquids recovered from the decomposition of non-fossilized and biodegradable organic material" does not limit the language that precedes it.

## 6.6 Co-firing Fuel Mixtures

**Comment:** Commenters 0023J, 0063.1, and 0086.1 stated that in the proposal, EPA indicated the deferral will apply to biogenic $CO_2$ emissions from biogenic feedstocks and is not limited to specific types of facilities. The commenters agreed that EPA should not limit the deferral based on the type of facility, and should apply the deferral to the biogenic fraction of $CO_2$ emissions from projects planning to use mixtures of fossil fuels and biogenic fuels.

**Response:** The final rule does not limit the deferral of biogenic $CO_2$ emissions based on the type of facility from which such emissions originate. In addition, as was stated in the preamble to

the proposal, the preamble to the final rule reiterates that for facilities that co-fire biologically-based fuels and fossil fuels, and/or mixed fuels, the biogenic $CO_2$ emissions from combustion are included in the deferral and the fossil $CO_2$ emissions are not.

## 6.7 Municipal Solid Waste Considerations

**Comment:** Commenter 0062.1 urged EPA to finalize its proposed deferral and to include the solid waste management sector in its evaluation of alternative accounting approaches for biogenic GHG emissions. The commenter noted that although the entire waste sector contributes only about two percent of total U.S. GHG emissions, landfills will be disproportionately impacted by the Tailoring Rule. The commenter stated that for their organization alone, the PSD permitting program will apply to approximately one-third of active landfills at some point in the future based on potential GHG emissions that include biogenic $CO_2$.

**Response:** EPA acknowledges that different accounting considerations may be warranted for different types of biomass feedstocks. In addition, EPA recognized in the preamble of the proposal that the potential may exist for it to determine that multiple types of biomass feedstocks would have a negligible impact on the net carbon cycle, and that $CO_2$ emissions from such feedstocks would result in a negligible net atmospheric impact. We are considering the issues the commenter raises as we conduct a detailed examination of the science and technical issues associated with biogenic $CO_2$ emissions, and the net atmospheric impact of such emissions, and develop an accounting framework that is scientifically sound and manageable in practice.

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**Comment:** Commenters 0059.1 and 0116.1 stated that use of MSW biomass as an energy source is different from the use of many other types of biomass, because not all sources of biomass reduce emissions equally on a lifecycle basis. Commenter 0116.1 articulated that EPA's *Municipal Solid Waste Decision Support Tool* shows that WTE results in significant displacement of fossil fuels and is superior to land-filling from an environmental and energy perspective (including a net reduction in GHG emissions). However, the cost burden for WTE projects is already proportionally higher than land-filling, and Title V permitting could discourage the environmentally preferable option. Commenter 0116.1 provided several references in support of the environmental and GHG-mitigating benefits of WTE relative to land-filling. Commenter 0059.1 argued that direct and indirect emissions from land-use changes must be considered when assessing sustainability of many biogenic feedstocks, and referred to a study that concluded across-the-board exemption of biogenic $CO_2$ is inappropriate without consideration of emissions due to land-use changes. However, the commenter pointed out that the use of biogenic MSW is widely accepted as carbon neutral, because MSW is not harvested or grown, and that EPA made this same point in the preamble to the RFS rule in March 2010, stating that renewable fuel produced from feedstocks consisting of wastes that would normally be discarded should be assumed to have little or no land-use emissions of GHG.

**Response:** EPA acknowledges that different accounting considerations may be warranted for different types of biomass feedstocks. In addition, EPA recognized in the preamble of the proposal that the potential may exist for it to determine that multiple types of biomass feedstocks would have a negligible impact on the net carbon cycle, and that $CO_2$ emissions from such feedstocks would result in a negligible net atmospheric impact. We are considering the issues the commenter raises as we conduct a detailed examination of the science and technical issues

associated with biogenic $CO_2$ emissions, and the net atmospheric impact of such emissions, and develop an accounting framework that is scientifically sound and manageable in practice.

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**Comment:** Commenter 0080.1 stated that EPA did not examine the regulatory burdens associated with extending PSD and Title V requirements to biogenic $CO_2$ from modern landfills in the Tailoring Rule. Commenters (0062.1 and 0080.1) stated that conventional landfill projects without energy recovery have not triggered PSD, since the primary pollutant is non-methane organic compounds (NMOCs) and pointed out that EPA programs for control of NMOCs from landfills have prompted voluntary landfill gas-to-energy (LFGTE) projects with higher $CO_2$ emissions than flares. Commenter 0062.1 indicated that LFGTE projects have triggered PSD permitting primarily for carbon monoxide emissions and to a lesser extent for nitrogen oxides (NOx) emissions. Engine- and turbine-based LFGTE projects tend to have significantly higher carbon monoxide (CO) and NOx emissions than flares when burning landfill gas, and the siloxanes entrained in landfill gas preclude the use of stack emissions control technology. Commenter 0080.1 stated that without the deferral and subsequent permanent exemption of biogenic $CO_2$, recent EPA actions will result in more LFGTE projects triggering PSD and deter such projects and the reductions in methane emissions that come with such projects.

**Response:** EPA acknowledges the comments and notes that the final rule defers for three years the application of PSD and Title V permitting requirements to biogenic $CO_2$ emissions, including biogenic $CO_2$ emissions from LFGTE projects.

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**Comment:** Commenter 0062.1 referenced an EPA Office of Solid Waste lifecycle assessment that concluded accounting for and regulating biogenic GHG emissions from solid waste management would result in double-counting, because at the point of waste generation reductions in the carbon sink due to harvesting wood or plant material and manufacturing a consumer product have already been accounted for.

**Response:** While double counting of biogenic $CO_2$ emissions may be an issue addressed within the context of the OSW lifecycle assessment, this does not necessarily mean that emissions would be double counted in the PSD and Title V programs and it is beyond the scope of this rulemaking. EPA will evaluate the issues the commenter raises during its detailed examination of the science and technical issues associated with accounting for biogenic $CO_2$ emissions.

# 7.0 Pollutants Included in Deferral

## 7.1 Non-$CO_2$ GHG and Non-GHG Pollutants

**Comment:** Commenters 0070.1 and 0144.1 suggested that the biogenic deferral, and eventually permanent biogenic exemption should apply on a $CO_2e$ basis because the GWP of the non-$CO_2$, GHG emissions is typically small compared to the $CO_2$ emitted during biogenic combustion. The commenter stated that inclusion of $CH_4$ and nitrous oxide ($N_2O$) in the deferral would promote the construction of biomass facilities and comport with state renewable energy standards. Commenter 0070.1 also stated that an alternative approach is to deem $CH_4$ and $N_2O$ *de minimis* for purposes of the threshold determination, so as not to undermine EPA's stated purpose for proposing the deferral.

**Response:** While $CH_4$ and $N_2O$ are produced when biomass is combusted, the level of emissions and resulting impact on atmospheric concentrations of these gases are primarily related to the feedstock handling and combustion conditions at the specific plant rather than to the source of the feedstocks. We finalized this rule as proposed and included only biogenic $CO_2$ emissions for this reason, and we note further that emissions of non-$CO_2$ GHGs are typically a small proportion of the total GHG emissions from combustion of biologically based material. Since the non-$CO_2$ GHGs are so small relative to $CO_2$, the deferral of biogenic $CO_2$ emissions will ensure the biomass combustion projects will likely not meet the applicability thresholds based on their $CH_4$ and $N_2O$ emissions alone.

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**Comment:** Commenter 0094.1 urged EPA to expand the scope of the detailed scientific review that will be conducted during the deferral to include an evaluation of issues associated with all biogenic emissions, including methane from landfills. Currently EPA's rules require, in most instances, that a gas collection system be installed and routed to a flare when the capacity of a landfill reaches a certain threshold. Prior to this point, landfills may be subjected to a PSD permit review based on their ultimate potential to emit methane. However, since the control requirement would likely be a gas collection system and a flare, which would convert the methane to $CO_2$, the same issues associated with combustion of a biogenic feedstock would still need to be addressed only now it would be after the permitting process is complete.

**Response:** As noted in Section III of the preamble, the deferral will give EPA time to complete its work including a detailed examination of the scientific and technical issues associated with accounting for biogenic $CO_2$ emissions from stationary sources and any subsequent rulemakings. The proposed rule addresses issues from methane sources, noting in Section III.A.5 of the proposal preamble, that the combustion of $CH_4$-laden biogas (*e.g.*, from landfills or other large sources of methane) for energy-production reduces overall $CO_2e$ emissions because of the higher GWP for $CH_4$.

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**Comment:** One commenter (0102.1) disagreed with the statement in Section III.C of the proposal that "… non-$CO_2$ GHG do not participate in natural biogeochemical carbon cycles as $CO_2$ does…" This commenter stated that methane is part of the global carbon cycle; nitrous oxide emissions and removals are a part of the global nitrogen cycle. The commenter requested that the sentence be revised to reflect current scientific understanding.

**Response:** We have revised this text in the preamble to the final rule. We emphasize that while $CH_4$ and $N_2O$ are produced when biomass is combusted, the level of emissions and resulting impact on atmospheric concentrations of these gases are primarily related to the feedstock handling and combustion conditions at the specific plant rather than to the source of the feedstocks.

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**Comment:** Commenter 0143.1 contended that if EPA's $CO_2$ permitting exemption is allowed to stand there will be a large increase in emissions of particulates and other toxic air pollutants from biomass combustion. The commenter provided numerous examples of the health impacts of biomass emissions, citing several prominent health organizations. Similarly, commenter 0182 noted that biomass incinerators release more particulate, particularly fine particulate, requiring more use and disposal of water for scrubbers.

**Response:** We agree that EPA regulations should address harmful health impacts; however, the CAA does not always give EPA authority to consider health impacts as part of the regulatory development process for particular regulations. As noted in Section III of the preamble, the deferral will give EPA time to complete its work including a detailed examination of the scientific and technical issues associated with accounting for biogenic $CO_2$ emissions from stationary sources and any subsequent rulemakings. This rule does not address emissions of other particulates and other toxic air pollutants.

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**Comment:** Commenter 0093.1 recommended that EPA consider not $CO_2$ emissions but carbon emissions for deferral, and defer regulation of all stationary source biogenic carbon emissions: biogenic $CH_4$, biogenic CO and non-methane hydrocarbon emissions. These carbon emissions are part of the natural carbon cycle as well as part of bioenergy applications, and if the energy alternative produces a net reduction in the $CH_4$ emissions associated with biomass recycling, credit should be given for that reduction.

Commenter 0056.1 suggested that the lifecycle analysis of biogenic methane should be included in EPA's overall carbon lifecycle analysis of biogenic emissions.

**Response:** While $CH_4$, $N_2O$, and other hydrocarbons are produced when biomass is combusted, the level of emissions and resulting impact on atmospheric concentrations of these gases are primarily related to the feedstock handling and combustion conditions at the specific plant, rather than to the source of the feedstocks. We finalized this rule as proposed and included only biogenic $CO_2$ emissions for this reason, and we note further that emissions of non-$CO_2$ GHGs are typically a small proportion of the total GHG emissions from combustion of biologically based material. Since the non-$CO_2$ GHGs are so small relative to $CO_2$, the deferral of biogenic $CO_2$ emissions will ensure the biomass combustion projects will likely not meet the applicability thresholds based on their $CH_4$ and $N_2O$ emissions alone. Further, in Section III.A.5 of the proposal preamble, we note that combustion of $CH_4$-laden biogas for energy-production reduces overall $CO_2e$ emissions because of the higher GWP for $CH_4$.

## 7.2 Fugitive Emissions

**Comment:** Commenter 0080.1 noted that at the present time, there are no accepted or approved methodologies for determining the site specific sources of biogenic $CO_2$ at solid waste management facilities. Area sources like landfills and compost facilities are highly complex

sources, and $CO_2$ emissions are emitted from a variety of locations. A recent report found that these emissions can only be estimated, but not quantified. Before EPA imposes GHG accounting at waste management facilities, a standardized approach should be developed, along with reliable and accurate test methods, considering the cost implications of mandating such requirements.

**Response:** The commenter asserts that there are no accepted or approved methodologies for determining the sources of biogenic $CO_2$ at solid waste facilities. There are, however, existing methods for direct measurement of $CO_2$ in collected landfill gas. While methodologies for estimating $CO_2$ emissions from composting are less developed than for landfills, estimating these emissions is somewhat easier than for landfills because essentially all of the carbon loss from the waste is emitted as $CO_2$.

As mentioned in Section II.D of the preamble, the three-year deferral period for regulation of biogenic $CO_2$ emissions under PSD was proposed so the Agency can develop an appropriate accounting methodology that satisfies the principles of predictability, practicality, and scientific soundness. Should it be necessary, EPA proposes in the future to implement an appropriate accounting methodology through notice-and-comment rulemaking within the three-year timeframe. Comments about particular emissions estimation or determination methods or the application of future permitting requirements to a particular source or source category are outside the scope of this rulemaking.

# 8.0 Duration of Deferral and Permitted Activities During Deferral

## 8.1 Deferral Start Date

**Comment:** Multiple commenters (0023J, 0062.1, 0080.1, 0086.1, and 0091.1) supported finalization of the proposed deferral prior to July 1, 2011. Commenter 0086.1 added that EPA should defer the July 1, 2011 trigger date entirely until pending petitions for reconsideration and pending court cases are resolved, and because States are not prepared to implement the permitting program. Commenter 0062.1 stated the deferral was necessary to prevent triggering permit requirements for a large number of new municipal waste management facilities.

**Response:** This rule defers the application of the PSD and Title V programs to biogenic $CO_2$ emissions for three years. The dates, thresholds and other requirements established in the Tailoring Rule remain unchanged and are not a subject of this rulemaking.

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**Comment:** Commenter 0079.1 stated that EPA should not only defer regulation of biogenic $CO_2$ but also completely eliminate the July 1, 2011, date for GHG to trigger PSD permitting requirements, because states are not prepared to implement the program and in light of pending petitions for reconsideration of EPA's statutory thesis for GHG. The commenter cited EPA permitting determinations that deferred the January 2, 2011 trigger date for certain sources as evidence that the Tailoring Rule schedule moves too quickly to implement PSD for GHG and contrasted this previous deferral with statements in the final Tailoring Rule. The commenter stated that there is even greater justification for deferring the July 1, 2011 trigger date, which brings far more sources into the program, than the January 2, 2011 trigger date. The commenter summarized the Tailoring Rule as follows:

> *A source or modification that would be major only for GHGs must begin actual construction prior to July 1, 2011, in order to avoid PSD applicability for GHGs and for all other attainment pollutants that trigger the significance levels.*

Based on the Step 2 deadline the commenter observed that many states have a significant minor NSR permitting backlog and obtaining the required permits to begin construction may not be possible based on routine permitting time frames of a year or more for minor NSR permits. The commenter further stated that the useful timeframe was further constrained by EPA's requirement that construction must commence prior to July 1, and stated that EPA was "incorrect" in statements that the Tailoring Rule provided sufficient time for sources to "begin actual construction" before July 1, 2011. The commenter closed stating that EPA should defer the July 1, 2011, trigger date at least until the litigation is resolved and no sooner than 2013, because by 2013, the litigation in the United States Court of Appeals for the D.C. Circuit challenging EPA's suite of GHG rules should be resolved and EPA will be able to provide sources with more certainty regarding the applicable regulatory requirements.

**Response:** This rule defers the application of the PSD and Title V programs to biogenic $CO_2$ emissions for three years. The dates, thresholds and other requirements established in the Tailoring Rule remain unchanged and are not a subject of this rulemaking.

## 8.2 Permanent Exemption

**Comment:** Several commenters (0023B, 0023D, 0023K, 0052.1, 0054.1, 0064.1, 0070.1, 0084.1, 0086.1, 0089.1, 0117.1, 0122.1, 0126.1, 0103.0, 0139.1, 0140.1, 0144.1) generally supported the proposed deferral while maintaining that the proper long-term solution is permanent exemption based on both scientific and administrative issues related to biogenic $CO_2$ emissions. Two commenters (0117.1 and 0023B) stated that permanent exemption will re-align CAA permitting programs with major GHG regulatory and policy programs worldwide. Commenter 0126.1 also provided a legal rationale justifying a permanent exemption. Commenter 0023B added that permanent exemption would avoid placing burdensome regulations and costs on fuel ethanol, a far better environmental alternative to fossil fuels. Commenter 0023K also specifically supported permanent exemption of biogas and bio-solids from wastewater treatment. Commenter 0089.1 noted that biomass fuels derived from forestry wastes and other biomass materials that have been clearly demonstrated to be carbon neutral could be permanently exempted.

**Response:** This rulemaking defers the application of the PSD and Title V programs to biogenic $CO_2$ emissions for a period of three years because that is the amount of time EPA has determined is necessary to complete its work and the commenters have not provided sufficient information to suggest otherwise. EPA is conducting a detailed examination of the science and technical issues associated with accounting for biogenic $CO_2$ emissions. Once that work is complete the Agency intends to undertake a rulemaking to establish the treatment of these emissions in the PSD and Title V programs. At this time, we do not have enough information or analysis to establish a permanent accounting methodology or permanent exclusions, inclusion, or other treatment for biogenic $CO_2$ emissions, even emissions from certain types of feedstocks, in the PSD and Title V programs. We also note, as explained in the preamble, that it is possible that the subsequent rulemaking, depending on the nature of EPA's determinations, would supersede this rulemaking and become effective in fewer than three years.

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**Comment:** Commenter 0332.1 stated that for certain types of biomass, the climate benefits are clear and there is little scientific debate about their carbon neutrality. The commenter believes that bioenergy producers who use these types of biomass should be exempted from the Tailoring Rule regulations and thus, be released from the threat of future regulatory action under the Tailoring Rule – a threat which now creates uncertainty for farmers, forest owners, bioenergy producers, investors, workers, and communities. Commenter 0089.1 also supported a permanent exemption for certain types of biomass fuels that have been demonstrated to be carbon neutral, and recommended EPA apply the deferral only to those biomass fuels where EPA needs to resolve the uncertainty of impact on the carbon cycle.

**Response:** EPA is considering the issues the commenter raises as it conducts it detailed examination of the science and technical issues associated with accounting for biogenic $CO_2$ emissions. As stated in the preceding response, once that work is complete the Agency intends to undertake a rulemaking to establish the treatment of these emissions in the PSD and Title V programs. We have determined that three years will be required to complete the scientific work as well as the follow-on rulemaking. However, we would also note, as explained in the preamble, it is possible that the subsequent rulemaking, depending on the nature of EPA's determinations, would supersede this rulemaking and become effective in fewer than three years.. At this time,

we do not have enough information or analysis to establish a permanent accounting methodology or permanent exclusion, inclusion or other treatment for biogenic $CO_2$ emissions, even those emissions from certain types of feedstocks, in the PSD and Title V programs.

## 8.3 Three-Year Deferral Period

**Comment:** Commenter 0014.1 rejected EPA's explanation that the proposed deferral timeframe is due to difficulties in accounting for different types of biogenic feedstocks, because "this is not directly linked to biogenic emissions" at a specific source within the current paradigm for permitting individual stationary sources on a case-by-case basis. The commenter felt this explanation should not be used to justify relaxation of existing permitting requirements for stationary sources for three years.

**Response:** EPA disagrees with the commenter's view that this action is unsupported by the law or science. As EPA explained in the preamble, this interim deferral represents a permissible application of well-established administrative law doctrines, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, to develop a regulatory scheme that implements the CAA in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* sources of air pollution. Subsequent regulations to establish treatment of specific sources of biogenic emissions under the PSD and Title V programs, based on the results of the study and development of the accounting framework, are beyond the scope of this action.

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**Comment:** One commenter (0355) believes EPA's deferral should only last for one year, and stressed that EPA must commit the necessary resources to complete these studies. Commenter 0049.1 suggested EPA reduce the study period to 2 years, and then develop PSD and Title V regulations for bioenergy sources, after completing an environmental analysis to support the regulations.

**Response:** EPA is conducting a detailed examination of the science and technical issues associated with accounting for biogenic $CO_2$ emissions. Once that work is complete the Agency intends to undertake a rulemaking to establish the treatment of these emissions in the PSD and Title V programs. We have determined that three years will be required to complete the scientific work as well as the follow-on rulemaking, and the commenter has not provided information to suggest otherwise.

We also note, as explained in the preamble, that it is possible that the subsequent rulemaking, depending on the nature of EPA's determinations, would supersede this rulemaking and become effective in fewer than three years.

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**Comment:** One commenter (0145.1) stated that the biomass industry already exploits CAA loopholes, avoiding BACT determinations. The commenter provided a list of facilities and alleges that they have unlawfully obtained "minor source status" to avoid PSD permitting and the Tailoring Rule, even though their emissions exceed Tailoring Rule thresholds. Instead of exempting biomass energy for 3 years, EPA should conduct a wholesale examination of the manner in which the industry is escaping PSD permitting and the fact that this is being sanctioned by the states.

**Response:** This rulemaking defers the application of the PSD and Title V programs to biogenic $CO_2$ emissions for a period of three years. Facilities with minor source permits and the other issues raised by the commenter are beyond the scope this rulemaking.

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**Comment:** Commenter 0074.1 supports the deferral and notes that EPA has ample legal authority to finalize the proposal. The commenter maintains that EPA must remove the automatic sunset date from the final deferral rule based on concerns that EPA may not be able to complete all required analyses and related rulemaking procedures within three years.

**Response:** EPA is conducting a detailed examination of the science and technical issues associated with accounting for biogenic $CO_2$ emissions. Once that work is complete the Agency intends to undertake a rulemaking to establish the treatment of these emissions in the PSD and Title V programs. We have determined that three years will be required to complete the scientific work as well as the follow-on rulemaking, and the commenter has not provided information to suggest otherwise. In fact, as explained in the preamble, it is possible that the subsequent rulemaking, depending on the nature of EPA's determinations, would supersede this rulemaking and become effective in fewer than three years.

We do not agree with the commenter's suggestion to remove the automatic sunset provision. This deferral is intended to be a temporary measure to allow the Agency time to complete its work and determine what, if any, the treatment of biogenic $CO_2$ emissions should be in the PSD and Title V programs. This action is not the Agency's final determination on the treatment of biogenic $CO_2$ emissions in those programs.

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**Comment:** Commenter 0062 supports deferral and a public review of biogenic carbon neutrality while emphasizing the time critical need to promulgate the deferral prior to July 1, 2011.

**Response:** EPA thanks the commenter for their comment. We have made every attempt to finalize this deferral as close to July 1, 2011 as possible.

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**Comment:** Commenter 0070.1 stated that as an initial step, EPA should defer for a period of three years application of PSD and Title V regulations to biogenic $CO_2$ emissions because biogenic $CO_2$ differs from fossil $CO_2$ in the time required to replenish carbon reservoirs.

**Response:** This rulemaking defers the application of the PSD and Title V programs to biogenic $CO_2$ emissions for a period of three years.

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**Comment:** Commenter 0082.1 stated that EPA should extend deferral until final rulemaking is complete to avoid encumbering potential investments in projects and associated jobs with uncertainty regarding whether issues identified in the deferral can be resolved within three years.

**Response:** EPA is conducting a detailed examination of the science and technical issues associated with accounting for biogenic $CO_2$ emissions. Once that work is complete the Agency intends to undertake a rulemaking to establish the treatment of these emissions in the PSD and Title V programs. We have determined that three years will be required to complete the scientific work as well as the follow-on rulemaking, and the commenter has not provided information to suggest otherwise. In fact, as explained in the preamble, it is possible that the

subsequent rulemaking, depending on the nature of EPA's determinations, would supersede this rulemaking and become effective in fewer than three years. We do not agree with the commenter's suggestion to remove the automatic sunset provision. This deferral is intended to be a temporary measure to allow the Agency time to complete its work and determine what, if any, the treatment of biogenic $CO_2$ emissions should be in the PSD and Title V programs. This action is not the Agency's final determination on the treatment of biogenic $CO_2$ emissions in those programs.

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**Comment:** Commenter 0086.1 supports deferral based on carbon neutrality while expressing concerns that EPA must take additional actions to ensure the three-year deferral can be effectuated considering existing State regulations that cannot be revised by July 1, 2011.

**Response:** This rulemaking defers the application of the PSD and Title V programs to biogenic $CO_2$ emissions for a period of three years because that is the amount of time EPA has determined it is necessary to complete its work.

With this final rule, states may require additional time to review their state laws to incorporate the deferral. To the extent no such deferral is available under the PSD permitting regulations applicable at the time a permitting authority issues a PSD permit for a bioenergy facility EPA has issued guidance entitled, "Guidance for Determining Best Available Control Technology for Reducing Carbon Dioxide Emissions from Bioenergy Production". The guidance is provided to help permitting authorities establish a basis for concluding that under PSD Programs the combustion of biomass fuels can be considered BACT for biogenic $CO_2$ emissions at stationary sources.

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**Comment:** Commenter 0084.1 declared that EPA should defer applicability of PSD/Title V to biogenic GHG emission on the basis of common sense. The commenter quoted the preamble to the proposal, "EPA has sufficient information at this time to conclude that at least *some* biomass feedstocks that may be utilized to produce energy have a negligible impact on the net carbon cycle ...." The commenter stated that EPA believes it can come to a decision on the remaining biomass feedstocks within three years. The commenter asserted that if EPA were to adopt the deferral, PSD/Title V would apply at the end of those three years automatically to biogenic $CO_2$ emissions from all sorts of combustion or decomposition processes. The commenter stated that this would be arbitrary and capricious and would be impossible to justify upon judicial review. Commenter 0084.1 stated that EPA should instead defer PSD/Title V indefinitely and bring any cases of net carbon contribution by biogenic materials within the domain of major permitting programs on a case-by-case basis through rulemaking. The commenter further contended that a three-year period is far too short for the amount of work EPA anticipates.

**Response:** EPA is conducting a detailed examination of the science and technical issues associated with accounting for biogenic $CO_2$ emissions. Once that work is complete the Agency intends to undertake a rulemaking to establish the treatment of these emissions in the PSD and Title V programs. We have determined that three years will be required to complete the scientific work as well as the follow-on rulemaking, and the commenter has not provided information to suggest otherwise. In fact, as explained in the preamble, it is possible that the subsequent rulemaking, depending on the nature of EPA's determinations, would supersede this rulemaking and become effective in fewer than three years.

This deferral is intended to be a temporary measure to allow the Agency time to complete its work and determine what, if any, the treatment of biogenic $CO_2$ emissions should be in the PSD and Title V programs. This action is not the Agency's final determination on the treatment of biogenic $CO_2$ emissions in those programs.

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**Comment:** Commenter 0014.1 is concerned that the deferral might slow development of control technologies for small sources, if major sources are not required to comply with BACT. Commenter 0014.1 also expressed concerns about new major sources of biogenic $CO_2$ emissions being constructed in marginally attainment or not-attainment areas and stated that these concerns warrant only a two year deferral.

**Response:** This rulemaking defers the application of the PSD and Title V programs to biogenic $CO_2$ emissions for a period of three years because that is the amount of time EPA has determined it is necessary to complete its work. Technology development and attainment/non-attainment issues are outside the scope of this rulemaking.

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**Comment:** Commenter 0150.1 opposed deferral and stated that there is no need to defer for three years because the science of accounting for carbon from burning wood is well known and the concept of biogenic carbon neutrality is "based on a host of false assumptions"; see EPA-HQ-OAR-2011-0083-0150.2, -0150.3, -0150.4, and -0150.5.

**Response:** EPA is conducting a detailed examination of the science and technical issues associated with accounting for biogenic $CO_2$ emissions. Once that work is complete the Agency intends to undertake a rulemaking to establish the treatment of these emissions in the PSD and Title V programs. We have determined that three years will be required to complete the scientific work as well as the follow-on rulemaking, and the commenter has not provided information to suggest otherwise. In fact, as explained in the preamble, it is possible that the subsequent rulemaking, depending on the nature of EPA's determinations, would supersede this rulemaking and become effective in fewer than three years. This deferral is intended to be a temporary measure to allow the Agency time to complete its work and determine what, if any, the treatment of biogenic $CO_2$ emissions should be in the PSD and Title V programs. This action is not the Agency's final determination on the treatment of biogenic $CO_2$ emissions in those programs.

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**Comment:** Commenter 0142.1 believes the decision to propose a three-year deferral was arbitrary and capricious. The proposal to delay and in the interim to consider bioenergy of all types to be best available technology appears to be driven by forces and factors other than what a large body of scientific research and the precautionary principle indicates. If this deferral is granted, the science indicates there is a strong possibility for irreversible damage to be done to the climate, and therefore should be reconsidered. The commenter also questions the rationale behind the length of time chosen for the deferral, which appears too arbitrary and lengthy, and specifically asks why three years was chosen.

**Response:** This rulemaking defers the application of the PSD and Title V programs to biogenic $CO_2$ emissions for a period of three years because that is the amount of time EPA has determined it is necessary to complete its work, not an arbitrary and capricious time period, as the commenter suggests. In fact, as explained in the preamble, it is possible that the subsequent

rulemaking, depending on the nature of EPA's determinations, would supersede this rulemaking and become effective in fewer than three years.

This deferral is intended to be a temporary measure to allow the Agency time to complete its work and determine what, if any, the treatment of biogenic $CO_2$ emissions should be in the PSD and Title V programs. This action is not the Agency's final determination on the treatment of biogenic $CO_2$ emissions in those programs.

During the deferral period, EPA is conducting a detailed examination of the science and technical issues associated with accounting for biogenic $CO_2$ emissions. Once that work is complete the Agency intends to undertake a rulemaking to establish the treatment of these emissions in the PSD and Title V programs. During that process, EPA may find that some sources of biogenic $CO_2$ emissions have a de minimus effect on atmospheric $CO_2$.

It is true that stationary sources that combust biomass and construct or modify during the three-year deferral period will avoid the application of PSD to the biogenic $CO_2$ emissions resulting from those actions. However, at this time, we are unable to predict which biogenic $CO_2$ sources, if any, currently subject to the deferral would be subject to any permanent exemptions, or which currently deferred sources would be potentially required to account for their emissions in relation to future permitting actions as a result of the future rulemaking. Thus, we do not have enough information at this time to consider the effects of allowing or not allowing such grandfathering.

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**Comment:** Commenter 0056.1 supported an extension of the proposed deferral to a total of five years, from the currently proposed three years, because the analysis needed to characterize the life-cycle emissions and pathways of biogenic activities will require additional time beyond the three years envisioned, owing to the complexity of life-cycle emission calculations and the myriad processes that require evaluation, and when the additional time for regulatory proposal and finalization is considered (12-18 months), it becomes clear that three years is inadequate to properly characterize and codify a task of this complexity. In order to ensure that EPA prepares a complete, scientifically sound, and defensible analysis, the commenter recommends a minimum 5-year duration for this deferral.

**Response:** EPA is considering the issues the commenter raises as it conducts a detailed examination of the science and technical issues associated with accounting for biogenic $CO_2$ emissions. Once that work is complete the Agency intends to undertake a rulemaking to establish the treatment of these emissions in the PSD and Title V programs. We have determined that three years will be required to complete the scientific work as well as the follow-on rulemaking, rather than five years as the commenter suggests. In fact, as explained in the preamble, it is possible that the subsequent rulemaking, depending on the nature of EPA's determinations, would supersede this rulemaking and become effective in fewer than three years.

## 8.4 Scientific Examination

**Comment:** Commenter 0047.1 stated a proper study is needed to determine if fossil and biogenic $CO_2e$ should be treated differently under the Tailoring Rule, and requested that EPA perform a thorough and expeditious review of the available science related to biogenic $CO_2$ emissions. Commenter 0032 recommended that EPA engage with state forestry and agriculture

agencies as non-federal expert partners during scientific review of biogenic $CO_2$ emissions. Commenter 0059.1 encouraged EPA to include a representative from the MSW management industry. Commenter 0062.1 recommended that the EPA include solid waste management experts from academia and the public and private sectors and offered to provide suggested experts for the Agency's deliberation.

**Response:** EPA is considering the issues the commenter raises as it conducts it detailed examination of the science and technical issues associated with accounting for biogenic $CO_2$ emissions. EPA intends to provide their work to the Science Advisory Board (SAB) for peer review later in 2011. The SAB is serving as the "independent scientific panel" cited in proposed deferral. The public will have the opportunity to provide comments for SAB consideration.

On April 27, 2011, EPA's SAB published a notice soliciting experts for a peer review of EPA's science and technical work on biogenic $CO_2$ emissions. The commenter should contact the SAB directly with any questions, comments or suggestions.

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**Comment:** Commenters 0043.1 and 0054.1 recommended that EPA take the full three-year deferral period to evaluate how to regulate biogenic stationary sources of $CO_2$. Commenter 0050.1 stated it is appropriate for EPA to seek more time to examine technical and accounting issues related to biomass emissions, to collaborate with federal and independent experts, while deferring application of PSD and Title V requirements to avoid creating disincentives. During the deferral period, the commenter would be pleased to provide additional information to demonstrate the reasoning for the permanent exclusion of biogenic $CO_2$ emissions from PSD and Title V. The commenter also supports giving EPA time to conduct a detailed examination of the science, to engage with an independent scientific panel and then, if appropriate, to initiate a notice and comment rulemaking to implement an accounting approach.

**Response:** EPA is conducting a detailed examination of the science and technical issues associated with accounting for biogenic $CO_2$ emissions. Once that work is complete the Agency intends to undertake a rulemaking to establish the treatment of these emissions in the PSD and Title V programs. The commenter will have the opportunity to provide the additional information cited at several steps in the process including the peer review that will be conducted by the SAB later this year and the rulemaking mentioned above.

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**Comment**: Commenter 0093.1 stated that the risks to climate posed by a three-year deferral in order to get the science right are negligible, while the risks of seriously harming the bio-energy industry in its formative stages, and preventing it from delivering the greenhouse gas benefits it is capable of, are large.

**Response:** EPA thanks the commenter for the comment.

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**Comment:** Commenter 0084.1 urged EPA to build into the final deferral "grandfather" language that clearly defines whether a project is "new" as of the switch-over date (i.e., the end of the deferral period). The commenter preferred the "commencement" of construction concept because it is well-developed and relatively clear.

**Response:** EPA will not be developing "grandfather" language in this action as this deferral is intended to be a temporary measure to allow the Agency time to complete its work and

determine what, if any, the treatment of biogenic $CO_2$ emissions should be in the PSD and Title V programs. This action is not the Agency's final determination on the treatment of biogenic $CO_2$ emissions in those programs.

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**Comment:** Commenter 0078.1 encouraged EPA to move forward with its study and rulemaking as soon as possible to relieve long-term uncertainties regarding Title V permitting and to improve biomass project viability.

**Response:** EPA is conducting a detailed examination of the science and technical issues associated with accounting for biogenic $CO_2$ emissions. Once that work is complete the Agency intends to undertake a rulemaking to establish the treatment of these emissions in the PSD and Title V programs.

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**Comment:** Commenter 0086.1 noted concerns with the peer review process in the RFS and urged EPA to engage in an open and transparent process to ensure objectivity and participation by the public when conducting independent panel reviews during deferral. Commenter 0086 also stated that EPA should allow stakeholders to nominate members of the panel, and that EPA should not exclude nominees purely on the grounds that they may have ties to industry. Commenter 0086 stated that EPA should provide a voice representing all stakeholder interests, should allow the public to comment on the charge questions to the panel, and should allow the public to provide comments to the panel itself. Commenter 0086 also stated that EPA should utilize Office of Management and Budget (OMB) Guidance and EPA's Peer Review Handbook to ensure transparency and objectivity and that the following materials should be made available to the public:

a) the draft work product submitted for peer review;

b) materials and information given to the peer reviewers;

c) the peer review report, which summarizes the peer review findings and contains information about the peer reviewers;

d) logistical information about the conduct of the peer review;

e) a memorandum, or other record, responding to the peer review comments; and

f) the final work product.

**Response:** EPA is conducting a detailed examination of the science and technical issues associated with accounting for biogenic $CO_2$ emissions. EPA intends to provide its work to the SAB for peer review later in 2011.

The SAB is an advisory body established by Congress to provide independent advice and peer review to EPA's Administrator on the scientific and technical aspects of environmental issues. The SAB's members are composed of experts nominated for candidacy by the public and other federal agencies, and selected to provide an independent scientific review of the scientific and technical information used or proposed as a basis for Agency regulations. The SAB operates through a transparent and public process as required by the Federal Advisory Committee Act. The SAB process follows both the EPA Peer Review Handbook and OMB's "Final Information Quality Bulletin for Peer Review" (issued December 16, 2004).

On April 27, 2011, EPA's SAB published a notice soliciting experts for a peer review of EPA's science and technical work on biogenic $CO_2$ emissions. The commenter should contact the SAB directly with any questions, comments or suggestions.

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**Comment:** Commenters 0086.1 and 0060.1 suggested that EPA's consideration of accounting methods during the scientific study should be based on science, not policy. The methodology should be built on the requirements of EPA IQA guidelines. Commenter 0060.1 suggested that a cost-benefit analysis be performed. Particularly in this case, the credibility of the models used by EPA depends on their transparency and ensuring the models reflect the latest knowledge about agricultural and food systems.

**Response:** EPA is conducting a detailed examination of the science and technical issues associated with accounting for biogenic $CO_2$ emissions. EPA is following all relevant guidelines during this process. The study and supporting documentation and analysis will be provided to the SAB for peer review. During the SAB peer review the public will have the opportunity to provide comment to the SAB of all of the information presented.

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**Comment:** Commenter 0104.1 suggested for categories of biomass that are less clearly long-term sources of pollution or truly carbon neutral within 1-3 years, EPA should undertake a scientific review of data on carbon turnover rates. The Agency does not need three years to do so nor is it clear that these sources should be exempted in the interim.

**Response:** EPA is considering the issues the commenter raises as it conducts a detailed examination of the science and technical issues associated with accounting for biogenic $CO_2$ emissions. Once that work is complete the Agency intends to undertake a rulemaking to establish the treatment of these emissions in the PSD and Title V programs. We have determined that three years will be required to complete the scientific work as well as the follow-on rulemaking, and the commenter has not provided information to suggest otherwise. In fact, as explained in the preamble, it is possible that the subsequent rulemaking, depending on the nature of EPA's determinations, would supersede this rulemaking and become effective in fewer than three years. This deferral is intended to be a temporary measure to allow the Agency time to complete its work and determine what, if any, the treatment of biogenic $CO_2$ emissions should be in the PSD and Title V programs. This action is not the Agency's final determination on the treatment of biogenic $CO_2$ emissions in those programs.

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**Comment:** Commenter 0104.1 noted if EPA is going to delay regulating these biogenic carbon emissions considered to be *de minimis*, it must identify the knowledge gaps and establish that it can reasonably expect to fill these gaps in a timely fashion.

**Response:** EPA is considering the issues the commenter raises as it conducts it detailed examination of the science and technical issues associated with accounting for biogenic $CO_2$ emissions.

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**Comment:** Commenters 0023B, 0023C, and 0117.1, noted that they look forward to working with the independent scientific panel and EPA to consider the technical issues of biogenic carbon emissions over the next three years.

**Response:** EPA thanks the commenters for their comments.

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**Comment:** One commenter (0023I) suggested the Agency may need three years because scientists realized that the issue of whether biomass electricity generation is carbon neutral is not a question of science; it's a question of policy.

**Response:** This rulemaking defers the application of the PSD and Title V programs to biogenic $CO_2$ emissions for a period of three years because that is the amount of time EPA has determined it is necessary to complete its work and the commenters have not provided information to suggest otherwise. In fact, as explained in the preamble, it is possible that the subsequent rulemaking, depending on the nature of EPA's determinations, would supersede this rulemaking and become effective in fewer than three years. EPA is conducting a detailed examination of the science and technical issues associated with acconting for biogenic $CO_2$ emissions. Once that work is complete the Agency intends to undertake a rulemaking to establish the treatment of these emissions in the PSD and Title V programs. Through these steps EPA will address both scientific and policy issues associated with biogenic $CO_2$ emissions from stationary sources.

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**Comment**: Commenter 0106.1 agreed that EPA should conduct a scientific review to improve the understanding of the impact of bio-energy facilities on net greenhouse gas emissions and other environmental considerations. The scientific review should not be undertaken at the expense of delaying implementation. There already exist appropriate tools for wood-energy plants that could be considered BACT for $CO_2$ such as certification from the Forest Stewardship Council (FSC). The Agency should advance the science to bring further clarity to the carbon accounting needed to assess the best regulatory methodology and achieve the goal of protecting the public health and welfare from the negative impacts of greenhouse gas pollution. However, this will always be an ongoing process and should not become the reason to delay implementation when appropriate methods are available today.

**Response:** EPA is conducting a detailed examination of the science and technical issues associated with accounting for biogenic $CO_2$ emissions. Once that work is complete the Agency intends to undertake a rulemaking to establish the treatment of these emissions in the PSD and Title V programs. We have determined that three years is a sufficient amount of time to complete that work. In fact, as explained in the preamble, it is possible that the subsequent rulemaking, depending on the nature of EPA's determinations, would supersede this rulemaking and become effective in fewer than three years.

While we are considering the information the commenter cites, at this time, we do not have enough information or analysis to establish a permanent accounting methodology or permanent exemption or other treatment for biogenic $CO_2$ emissions, even those emissions from certain types of feedstocks, in the PSD and Title V programs.

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**Comment:** Commenter 0049.1 supported the proposed study of how to safeguard against biomass carbon pollution and to protect the ecological services that forests provide. The commenter also urged EPA to expand the study scope to include analysis of the forest as an ecosystem and the ecological services it provides. The commenter recommended the larger integrated study include: current role of forests in carbon sequestration and air scrubbing services; carbon footprint of different sources of biomass; carbon emissions of various biomass

technologies and energy efficiencies of these technologies; appropriate scale and intensity of harvesting trees for biomass energy; carbon sequestration potential of forests under potential carbon credit policy guidelines; local economic development impacts of different biomass technologies; long-term cumulative impacts of the addition of biomass to the harvesting of pulp and other forest products upon the current forest resources and services; protection of native forests from conversion to biomass plantations; protection of habitat of threatened and endangered species and other wildlife; criteria to determine within a region and local area the state of forests as to age classes, rotation cycles, conversion to plantations and other non-forest uses, resiliency from past abuses, forest soils health, pestilence potential for native forests and for mono-culture plantations.

**Response:** EPA is considering some of the issues the commenter raises as it conducts it detailed examination of the science and technical issues associated with accounting for biogenic $CO_2$ emissions. However some of the broader issues (e.g., carbon sequestration potential of forests under potential carbon credit policy guidelines, protection of native forests from conversion to biomass plantations, pestilence potential for native forests and for mono-culture plantations) are outside the scope of this deferral. EPA will keep in mind the commenter's views as it conducts the detailed examination described above.

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**Comment:** Commenter 0122.1 recommended that EPA should include forestry scientists with a practical understanding of forests and forest practices as well as biometrics on the EPA science team to ensure EPA builds on proven forestry modeling protocols as it develops principles to evaluate the carbon benefits of biomass for energy, because building on these protocols will contribute to a scientifically sound understanding of the forest carbon life cycle that includes the entire forest system and will also aid the EPA in understanding how multiple forest products, processes, and conditions can be effectively considered together to understand the overall net carbon benefit of sustainable forestry.

**Response:** EPA is considering the issues the commenter raises as it conducts it detailed examination of the science and technical issues associated with accounting for biogenic $CO_2$ emissions. EPA intends to provide its work to the SAB for peer review later in 2011. The public will have the opportunity to provide comments for SAB consideration.

On April 27, 2011, EPA's SAB published a notice soliciting experts for a peer review of EPA's science and technical work on biogenic $CO_2$ emissions. The commenter should contact the SAB directly with any questions, comments or suggestions.

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**Comment:** Commenter 0122.1 suggested that EPA should include policy analysis as part of its scientific effort, because practical and effective policy should be simple and easy to implement and should avoid complex and onerous carbon accounting procedures unless it can be demonstrated to be scientifically necessary.

**Response:** EPA is considering the issues of practicality and effectiveness as it conducts a detailed examination of the science and technical issues associated with accounting for biogenic $CO_2$ emissions. Once that work is complete the Agency intends to undertake a rulemaking to establish the treatment of these emissions in the PSD and Title V programs. Through these steps EPA will address both scientific and policy issues associated with biogenic $CO_2$ emissions from stationary sources.

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## 8.5 Notice and Comment Rulemaking

**Comment:** One commenter (0023A) stated that this proposal and comment process represents very good government, concepts of transparency, stakeholder input and incorporation of sound science and policy and reflects that EPA is taking the time to get issues right and study them closely before making very significant decisions that may have unintended consequences. Commenter 0051.1 agreed that biogenic $CO_2$ deserves further review and a separate rulemaking.

**Response:** EPA thanks the commenter for their comment.

# 9.0 BACT During the Deferral

## 9.1 Disagreement that Use of Biogenic Fuels is BACT

**Comment:** Commenter 0101.1 stated that EPA should use the PSD program to require biomass projects to consider emissions controls and energy efficiency measures to reduce emissions.

**Response:** To clarify, EPA's March 2011 *Guidance for Determining Best Available Control Technology for Reducing Carbon Dioxide Emissions from Bioenergy Production* was intended to apply only on an interim basis before the deferral becomes effective. EPA considers the commenter's views about the appropriate controls and energy efficiency measures for biogenic emission sources to be beyond the scope of this action. Permitting authorities for which the deferral has not become effective may find the guidance useful as an interim measure to assist with their permitting actions. As explained in the guidance document, EPA has not provided a final determination of BACT for a particular source, since such determinations can only be made by individual permitting authorities on a case-by-case basis after consideration of the record in each case. Upon consideration of the record in an individual case, if a permitting authority has a reasoned basis to address particular issues in a different manner than EPA recommends in the Bioenergy BACT guidance, they have the discretion to do so.

Furthermore, as discussed in the guidance, EPA does recommend that emissions controls and energy efficiency measures should be considered when completing a top-down BACT analysis. However, EPA believes that the analysis given in the guidance document is sufficient in most cases to support the conclusion that utilization of biomass fuels alone is BACT for a bioenergy facility.

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**Comment:** Commenters 0101.1 and 0132.1 contended that EPA's March 2011 *Guidance for Determining Best Available Control Technology for Reducing Carbon Dioxide Emissions from Bioenergy Production* allows biomass fuel to be considered BACT for controlling biogenic $CO_2$ emissions at energy projects. The commenter urged EPA not to adopt this approach. Additionally, the commenter asserted that biomass projects should be confined by the rules even if they deliver broad energy and environmental benefits.

**Response:** To clarify, EPA's March 2011 *Guidance for Determining Best Available Control Technology for Reducing Carbon Dioxide Emissions from Bioenergy Production* was intended to apply only on an interim basis before the deferral becomes effective. EPA considers the commenter's views about content of the guidance to be beyond the scope of this deferral action. Permitting authorities for which the deferral has not become effective may find the guidance useful as an interim measure to assist with their permitting actions. As explained in the guidance document, EPA has not provided a final determination of BACT for a particular source, since such determinations can only be made by individual permitting authorities on a case-by-case basis after consideration of the record in each case. Upon consideration of the record in an individual case, if a permitting authority has a reasoned basis to address particular issues in a different manner than EPA recommends in the Bioenergy BACT guidance, they have the discretion to do so.

Regarding the comment that biomass projects should still be confined by the rules, EPA is granting the deferral of biogenic $CO_2$ emissions from stationary source permitting requirements because the issue of accounting for the net atmospheric impact of biogenic $CO_2$ emissions is complex enough that further consideration of this important issue is warranted. During the three-year deferral period, EPA will conduct a detailed examination of the science associated with biogenic $CO_2$ emissions from stationary sources, including engaging with federal partners, technical experts, and an independent scientific panel to consider technical issues. Based on the feedback from the scientific and technical review, EPA will then undertake a rulemaking to determine how biogenic $CO_2$ emissions should be treated and accounted for in PSD and Title V permitting. The deferral focuses on biogenic $CO_2$ emissions from stationary sources subject to the PSD and Title V programs.

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**Comment:** Commenter 0150.1 noted that the assumption that $CO_2$ released from burning wood and other biomass is simply reabsorbed by new plant growth may be true for algae or very short-term annual crops, but is incorrect for the cutting of living. This claim was supported by scientific evidence (see EPA-HQ-OAR-2011-0083-0150.1). In sum, commenter 0150.1 contended that the claim that "BACT for biogenic $CO_2$ emissions at stationary is the combustion of biomass fuels by itself" is simply incompatible with the basic science.

**Response:** EPA considers the commenter's view about what constitutes BACT for biogenic $CO_2$ emissions from stationary sources to be beyond the scope of this deferral action. EPA is granting the deferral of biogenic $CO_2$ emissions from stationary source permitting requirements because the issue of accounting for the net atmospheric impact of biogenic $CO_2$ emissions is complex enough that further consideration of this important issue is warranted. During the three-year deferral period, EPA will conduct a detailed examination of the science associated with biogenic $CO_2$ emissions from stationary sources, including engaging with federal partners, technical experts, and an independent scientific panel to consider technical issues. Based on the feedback from the scientific and technical review, EPA will then undertake a rulemaking to determine how biogenic $CO_2$ emissions should be treated and accounted for in PSD and Title V permitting.

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**Comment:** Commenter 0142.1 notes the choice to allow biomass energy to be considered BACT seems arbitrary and costly to the climate. The commenter states EPA's awareness that hundreds of stand-alone biomass incineration facilities are under construction, and this decision will keep subsidies in place without informed guidance.

**Response:** EPA considers the commenter's view about what constitutes BACT for biogenic $CO_2$ emissions from stationary sources to be beyond the scope of this deferral action. To clarify, EPA's March 2011 *Guidance for Determining Best Available Control Technology for Reducing Carbon Dioxide Emissions from Bioenergy Production* was intended to apply only on an interim basis before the deferral becomes effective. Permitting authorities for which the deferral has not become effective may find the guidance useful as an interim measure to assist with their permitting actions. As explained in the guidance document, EPA has not provided a final determination of BACT for a particular source, since such determinations can only be made by individual permitting authorities on a case-by-case basis after consideration of the record in each case. Upon consideration of the record in an individual case, if a permitting authority has a

reasoned basis to address particular issues in a different manner than EPA recommends in the Bioenergy BACT guidance, they have the discretion to do so.

## 9.2 Alternative BACT Considerations Other than Carbon Neutrality

**Comment:** Commenter 0101.1 contended that the BACT review process could be used to require an analysis of the fuel source on $CO_2$ emissions, but EPA may want to consider using the Additional Impact Analysis required under PSD.

**Response:** Any comments concerning BACT for biogenic $CO_2$ is beyond the scope of this deferral rulemaking. To clarify, EPA's March 2011 *Guidance for Determining Best Available Control Technology for Reducing Carbon Dioxide Emissions from Bioenergy Production* was intended to apply only on an interim basis before the deferral becomes effective. Permitting authorities for which the deferral has not become effective may find the guidance useful as an interim measure to assist with their permitting actions. As explained in the guidance document, EPA has not provided a final determination of BACT for a particular source, since such determinations can only be made by individual permitting authorities on a case-by-case basis after consideration of the record in each case. Upon consideration of the record in an individual case, if a permitting authority has a reasoned basis to address particular issues in a different manner than EPA recommends in the Bioenergy BACT guidance, they have the discretion to do so.

Regarding the additional impacts analysis, see the Tailoring Rule preamble (75 FR 31514) for a full description of why we are not requiring an analysis. In short, there are currently no NAAQS or PSD increments established for GHG, and therefore these PSD requirements would not apply for GHG, even when PSD is triggered for GHG.

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**Comment:** Commenter 0101.1 stated that there is no need to defer applicability of the PSD program to biogenic emissions. Biomass projects would simply be required to consider energy efficiency measures and carbon capture and sequestration, as appropriate.

**Response:** EPA is granting the deferral of biogenic $CO_2$ emissions from stationary source permitting requirements because the issue of accounting for the net atmospheric impact of biogenic $CO_2$ emissions is complex enough that further consideration of this important issue is warranted. During the three-year deferral period, EPA will conduct a detailed examination of the science associated with biogenic $CO_2$ emissions from stationary sources, including engaging with federal partners, technical experts, and an independent scientific panel to consider technical issues. Based on the feedback from the scientific and technical review, EPA will then undertake a rulemaking to determine how biogenic $CO_2$ emissions should be treated and accounted for in PSD and Title V permitting. The deferral focuses on biogenic $CO_2$ emissions from stationary sources subject to the PSD and Title V programs.

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**Comment:** Commenter 0101.1 noted that should EPA implement the PSD program in a way that recognizes the full impact of biomass combustion, the requirement to identify the most stringent control technology used in similar facilities and to explore technology transfer and innovation under BACT could be used to push biomass projects toward best-practice fuel procurement strategies.

**Response:** EPA considers the commenter's view about what constitutes BACT for biogenic $CO_2$ emissions from stationary sources to be beyond the scope of this deferral action. To clarify, EPA's March 2011 *Guidance for Determining Best Available Control Technology for Reducing Carbon Dioxide Emissions from Bioenergy Production* was intended to apply only on an interim basis before the deferral becomes effective. Permitting authorities for which the deferral has not become effective may find the guidance useful as an interim measure to assist with their permitting actions. EPA is granting the deferral of biogenic $CO_2$ emissions from stationary source permitting requirements because the issue of accounting for the net atmospheric impact of biogenic $CO_2$ emissions is complex enough that further consideration of this important issue is warranted. During the three-year deferral period, EPA will conduct a detailed examination of the science associated with biogenic $CO_2$ emissions from stationary sources, including engaging with federal partners, technical experts, and an independent scientific panel to consider technical issues. Based on the feedback from the scientific and technical review, EPA will then undertake a rulemaking to determine how biogenic $CO_2$ emissions should be treated and accounted for in PSD and Title V permitting. The deferral focuses on biogenic $CO_2$ emissions from stationary sources subject to the PSD and Title V programs.

# 10.0 Facilities Permitted During Deferral

## 10.1 Regulatory Uncertainty

**Comment:** Commenter 0082.1 noted that Table 1 in the proposal gave examples, specifically identifying several affected entities including biomass combustion and fermentation processes. However, the guidance EPA issued in March 2011, which will be applicable until the deferral rule becomes effective, is more narrowly focused on combustion sources. This inconsistency places projects that would utilize biomass in fermentation processes subject to high uncertainty. The commenter stated that EPA should include bioenergy sources and other biogenic $CO_2$ emissions in both the deferral rule and the subsequent rulemaking that will address exclusions for biogenic $CO_2$ longer term. Commenter 0078.1 stated that EPA plans for follow-up rulemakings for potential step reductions in GHG applicability thresholds represent planned but unknown actions that hold many mills with strategic plans and decisions in suspense.

**Response:** The deferral rulemaking did not address or ask for comment on the guidance that is of concern to the commenter, thus, it is beyond the scope of this rulemaking. EPA issued interim guidance entitled, "Guidance for Determining Best Available Control Technology for Reducing Carbon Dioxide Emissions from Bioenergy Production" to help permitting authorities where the deferral is not effective establish a basis for concluding that under PSD programs the combustion of biomass fuels can be considered BACT for biogenic $CO_2$ emissions at stationary sources, which is related to the treatment of biogenic $CO_2$ emissions during the three-year deferral period. During this period, EPA will conduct a detailed examination of the science associated with biogenic $CO_2$ emissions from stationary sources, including engaging with federal partners, technical experts, and an independent scientific panel to consider technical issues. Based on the feedback from the scientific and technical review, EPA will then undertake a rulemaking to determine how biogenic $CO_2$ emissions should be treated and accounted for in PSD and Title V permitting. EPA understands that there is a high amount of uncertainty relating to biogenic $CO_2$ emissions which is why we are moving forward with the deferral. The proposed deferral focuses on biogenic $CO_2$ emissions from stationary sources subject to the PSD and Title V programs.

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**Comment:** Commenter 0082.1 contended that regulating GHG will slow economic recovery and states that including biogenic $CO_2$ emissions in PSD exacerbates these concerns because EPA's decisions have lead to regulatory uncertainty and delay of biomass energy projects, further stating that such decisions ultimately will harm our nation's forest land base by undermining the value of working forest lands. Commenters 0082.1 and 0144.1 stated that the deferral as proposed provides no relief from regulatory uncertainty and predicts that projects are likely to continue to be delayed or abandoned while EPA continues to further study the LULUCF net carbon sink in the United States. Consequently, one commenter (0144.1) urges EPA to make a decision now that biomass used in energy applications is indefinitely excluded from $CO_2$-related PSD and Title V provisions, thereby removing uncertainty. Commenter 0047.1 stated that regulatory uncertainty can stymie the momentum of the bioenergy industry and requested EPA reach an acceptable ruling as quickly as possible.

**Response:** EPA recognizes the concerns regarding the treatment of biomass used in energy applications, and is mindful of the role that biomass or biogenic fuels and feedstocks could play in state and local policies. However, EPA considers the commenters' views about the economics

of the biomass industry to be beyond the scope of this deferral action. As discussed in the preamble, EPA is finalizing this deferral to in order to conduct a detailed study of the science surrounding biogenic $CO_2$ emissions and to develop an accounting methodology. Based on the feedback from the scientific and technical review, EPA will then undertake a rulemaking to determine how biogenic $CO_2$ emissions should be treated and accounted for in PSD and Title V permitting.

EPA believes that at least some biomass feedstocks that may be utilized to produce energy have a negligible impact on the net carbon cycle. It appears that the potential may exist for EPA to determine that other types of biomass feedstocks would have a negligible impact on the net carbon cycle impact after further detailed examination of the science associated with biogenic $CO_2$ emissions. Thus, if EPA were to require all bioenergy facilities to limit emissions of $CO_2$ before this assessment is complete, it may later determine that such actions have yielded trivial gain. To avoid this outcome EPA believes an initial deferral of the PSD requirements for bioenergy and other biogenic sources is justified at this time. However, the possibility also remains that more detailed examination of the science of biogenic $CO_2$ will demonstrate that the utilization of some biomass feedstocks for bioenergy production will have a significant impact on the net carbon cycle, making application of the PSD program requirements to such emissions necessary to fulfill Congressional intent. Therefore, EPA is finalizing a temporary, rather than a permanent, deferral of PSD requirements for such sources at this time in order to conduct the scientific study, develop and accounting methodology and take subsequent rulemaking actions to establish the treatment of biogenic $CO_2$ emissions under the PSD and Title V permiting programs.

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**Comment:** Commenter 0089.1 indicated the preamble language created uncertainty as to whether the deferral fully exempts new and modified sources permitted during the three-year period or only delays applicability. The commenter had concerns that the temporary deferral could delay renewable biomass energy projects until EPA makes a permanent decision.

**Response:** Stationary sources that combust biomass and construct or modify during the three-year deferral period will avoid the application of PSD to the biogenic $CO_2$ emissions resulting from those actions. Note that the deferral applies only to $CO_2$ emissions and does not affect non-GHG pollutants or other greenhouse gases.

At this time, we are unable to predict which biogenic $CO_2$ sources, if any, currently subject to the deferral would be subject to any permanent exemptions or which currently deferred sources would be potentially required to account for their emissions in relation to future permitting actions as a result of the future rulemaking EPA has committed to undertake for such purposes in three or fewer years, and thus, we do not have enough information at this time to consider the effects of allowing such grandfathering. No decision has yet been made regarding permit applications and permits issued after the three-year deferral period expires.

To the extent the deferral is not effective in a particular state at the time a PSD permit is issued, then the permit would need to include BACT limitations for GHG if the source emits above levels that make GHG subject to regulation under applicable rules. Some states may not have any, or may have only a few, sources that combust biomass, and may have adequate information and resources as to the nature of biogenic emissions from those sources. To further reduce

uncertainty, EPA issued interim guidance entitled, "Guidance for Determining Best Available Control Technology for Reducing Carbon Dioxide Emissions from Bioenergy Production" that is applicable for permitting authorities where the deferral is not effective, and various methods are available to calculate both the biogenic and fossil portions of $CO_2$ emissions, including those methods contained in the GHG Reporting Program (40 CFR part 98).

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**Comment:** Commenter 0078.1 stated that if EPA fails to finalize a permanent solution for biomass emissions after the three-year deferral period, biogenic $CO_2$ would automatically be included in PSD and Title V permitting, and EPA must avoid the uncertainty that automatic default would cause and provide an orderly determination and path for treatment of biogenic emissions that does not penalize projects.

**Response:** At this time, we are unable to predict which biogenic $CO_2$ sources, if any, currently subject to the deferral would be subject to any permanent exemptions or which currently deferred sources would be potentially required to account for their emissions in relation to future permitting actions as a result of the future rulemaking EPA has committed to undertake for such purposes in three or fewer years. Thus, we do not have enough information at this time to consider the effects of allowing such grandfathering. No decision has yet been made regarding permit applications and permits issued after the three-year deferral period expires. EPA is committed to conducting a detailed examination of the science associated with biogenic $CO_2$ emissions from stationary sources, including engaging with federal partners, technical experts, and an independent scientific panel to consider technical issues all within the three-year deferral period, thus preventing an 'automatic default.' Recently, EPA's SAB published a notice soliciting experts for a peer review of EPA's science and technical research on biogenic $CO_2$ emissions. EPA intends to provide their study that examines the science and technical associated with biogenic $CO_2$ emissions from stationary source and accompanying accounting framework to the SAB for peer review later in 2011.

Based on the feedback from the scientific and technical review, EPA will then undertake a rulemaking to determine how biogenic $CO_2$ emissions should be treated and accounted for in PSD and Title V permitting. This will reduce uncertainty for permitting authorities and sources preparing applications and permits with potential biogenic $CO_2$ emissions.

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**Comment:** Commenter 0144.1 recognized that burning whole trees for fuel likely warrants demonstration that the biomass combustion emissions are offset with life cycle demonstrated re-growth from an academic perspective. Yet, Minnesota forests are in a net re-growth situation that is a backdrop for individual land owner choices for harvesting and re-growing trees. Placing a hold on biomass exclusion for the sake of documenting whole tree energy life cycle assessment can have the unintended consequence of creating uncertainty for all biomass energy production in a situation where use of whole trees for energy production is not currently or expected to be a significant practice in Minnesota.

**Response:** EPA believes that at least some biomass feedstocks that may be utilized to produce energy have a negligible impact on the net carbon cycle, and it appears that the potential may exist for other types of biomass feedstocks to have a negligible impact on the net carbon cycle impact. Yet the possibility also remains that the utilization of some biomass feedstocks for bioenergy production will have a significant impact on the net carbon cycle, making application

of the PSD program requirements to such emissions necessary to fulfill Congressional intent. Therefore, EPA is committed to a detailed examination of the science associated with biogenic $CO_2$ emissions from stationary sources, including engaging with federal partners, technical experts, and an independent scientific panel to consider technical issues. Based on the feedback from the scientific and technical review, EPA will then undertake a rulemaking to determine how biogenic $CO_2$ emissions should be treated and accounted for in PSD and Title V permitting.

To the extent the deferral is not effective in a particular state at the time a PSD permit is issued, then the permit would need to include BACT limitations for GHG if the source emits above levels that make GHG subject to regulation under applicable rules. Some States may not have any, or may have only a few, sources that combust biomass, and may have adequate information and resources as to the nature of biogenic emissions from those sources. To further reduce uncertainty, EPA issued interim guidance for permitting authorities for which the deferral has not become effective entitled, "Guidance for Determining Best Available Control Technology for Reducing Carbon Dioxide Emissions from Bioenergy Production" and various methods are available to calculate both the biogenic and fossil portions of $CO_2$ emissions, including those methods contained in the GHG Reporting Program (40 CFR part 98).

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**Comment:** Commenters 0013.1, 0046, 0056.1, 0071.1, and 0090.1 expressed concern that the regulation of biomass will spring back into effect after three years if EPA does not finalize a further rule. This kind of sunset treatment will create significant uncertainty throughout the three-year period. No one can predict what events might delay EPA's consideration of this issue and ultimate revision of the Tailoring Rule. The commenter urged the Agency to take a more flexible approach, such as removing the sunset provision and maintaining the position that EPA should not regulate biomass emissions unless it adopts a rule to do so after notice and comment.

**Response:** The purpose of the three-year deferral is to better understand the impacts of biogenic $CO_2$ emissions. The EPA is committed to an expeditious schedule – during the three year deferral period, EPA will conduct a detailed examination of the science associated with biogenic $CO_2$ emissions from stationary sources, including engaging with federal partners, technical experts, and an independent scientific panel to consider technical issues. Recently, EPA's SAB published a notice soliciting experts for a peer review of EPA's science and technical work on biogenic $CO_2$ emissions. EPA intends to provide their study that examines the science and technical associated with biogenic $CO_2$ emissions from stationary source and accompanying accounting framework to the SAB for peer review later in 2011. Based on the feedback from the scientific and technical review, EPA will then undertake a rulemaking to determine how biogenic $CO_2$ emissions should be treated and accounted for in PSD and Title V permitting. The Agency does not foresee any delays in our reconsideration at this time.

EPA believes it has the authority to exclude biogenic $CO_2$ emissions from the PSD and Title V requirements for the three-year deferral period and will be exploring whether a permanent exemption is permissible for at least some and perhaps all types of feedstocks. As discussed in the preamble, EPA believes that at least some biomass feedstocks that may be utilized to produce energy have a negligible impact on the net carbon cycle and it appears, after further examination of the science, that the potential may exist for EPA to determine that other types of biomass feedstocks would also have a negligible impact as well. If EPA were to require all bioenergy facilities to limit emissions of $CO_2$ before this assessment is complete, it may later determine that

such actions have yielded trivial gain. To avoid this outcome EPA believes an initial deferral of the PSD requirements for bioenergy and other biogenic sources is justified at this time. However, the possibility also remains that more detailed examination of the science of biogenic $CO_2$ will demonstrate that the utilization of some biomass feedstocks for bioenergy production will have a significant impact on the net carbon cycle, making application of the PSD program requirements to such emissions necessary to fulfill Congressional intent. Thus, EPA is proposing only a temporary, rather than a permanent, deferral of PSD requirements for such sources at this time.

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**Comment:** Commenters (0121.1 and 0120.1) are concerned about the consequences that regulatory uncertainty could create for the biomass market and thus encourage EPA to declare biomass exempt from GHG regulation until it adopts rules. The commenter requested a speedy exemption as to avoid a protracted period of market uncertainty, which would ultimately be detrimental to landowners as well as source lands.

**Response:** EPA recognizes the concerns regarding the treatment of biomass used in energy applications, and is mindful of the role that biomass or biogenic fuels and feedstocks could play in state and local policies. EPA considers the commenters' views on the economics of the biomass industry to be beyond the scope of this deferral action. The information gathered from stakeholders in response to the CFI provided diverse perspectives on treatment of biogenic $CO_2$ emissions in pre-construction and operating permit reviews, and therefore, further study is warranted.

The Agency is proceeding as expeditiously as possible, ensuring that a detailed examination of the science associated with biogenic $CO_2$ emissions from stationary sources is conducted, including engaging with federal partners, technical experts, and an independent scientific panel to consider technical issues. Stationary sources that combust biomass and construct or modify during the three-year deferral period will avoid the application of PSD to the biogenic $CO_2$ emissions resulting from those actions. Note that the deferral applies only to $CO_2$ emissions and does not affect non-GHG pollutants or other greenhouse gases.

At this time, we are unable to predict which biogenic $CO_2$ sources, if any, currently subject to the deferral would be subject to any permanent exemptions or which currently deferred sources would be potentially required to account for their emissions in relation to future permitting actions as a result of the future rulemaking EPA has committed to undertake for such purposes in three or fewer years, and thus, we do not have enough information at this time to consider the effects of allowing such grandfathering. No decision has yet been made regarding permit applications and permits issued after the three-year deferral period expires.

To the extent the deferral is not effective in a particular state at the time a PSD permit is issued, then the permit would need to include BACT limitations for GHG if the source emits above levels that make GHG subject to regulation under applicable rules. Some States may not have any, or may have only a few, sources that combust biomass, and may have adequate information and resources as to the nature of biogenic emissions from those sources. To further reduce uncertainty, EPA issued interim guidance for permitting authorities for which the deferral has not become effective entitled, "Guidance for Determining Best Available Control Technology for Reducing Carbon Dioxide Emissions from Bioenergy Production" and various methods are

available to calculate both the biogenic and fossil portions of $CO_2$ emissions, including those methods contained in the GHG Reporting Program (40 CFR part 98).

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**Comment:** Four commenters (0064.1, 0090.1, 0111.1, and 0120.1) stated that imposition of the Tailoring Rule and PSD permitting requirements would delay and potentially jeopardize planned projects that have beneficial effects. Commenter 0064.1 listed benefits such as air quality improvements, reduction of fossil fuel consumption, long term provision of renewable electricity, and retention and potential creation of jobs.

**Response:** EPA recognizes the concerns regarding the treatment of biomass and is mindful of the role that biomass or biogenic fuels and feedstocks could play in state and local policies. EPA considers the commenters' views about the economics of the biomass industry to be beyond the scope of this deferral action. Information gathered from stakeholders in response to the CFI provided diverse perspectives on treatment of biogenic $CO_2$ emissions in pre-construction and operating permit reviews, which indicates further study is warranted. The Agency is proceeding as expeditiously as possible, ensuring that a detailed examination of the science associated with biogenic $CO_2$ emissions from stationary sources is conducted. The Agency is committed to working with stakeholders to examine appropriate ways to treat biogenic $CO_2$ emissions.

Based on the feedback from the scientific and technical review, EPA will then undertake a rulemaking to determine how biogenic $CO_2$ emissions should be treated and accounted for in PSD and Title V permitting. As discussed in the preamble, EPA believes that at least some biomass feedstocks that may be utilized to produce energy have a negligible impact on the net carbon cycle, and it appears that the potential may exist for EPA to determine that other types of biomass feedstocks also would have a negligible impact. However, the possibility also remains that more detailed examination of the science of biogenic $CO_2$ will demonstrate that the utilization of some biomass feedstocks for bioenergy production will have a significant impact on the net carbon cycle, making application of the PSD program requirements to such emissions necessary to fulfill Congressional intent. Thus, EPA is proposing only a temporary, rather than a permanent, deferral of PSD requirements for such sources at this time.

## 10.2 Permitting Decisions Made During Deferral Should Hold

**Comment:** Commenters 0078.1, 0082.1, 0083.1 and 0140.1 and stated that complete and approved PSD permit applications and non-PSD projects initiated during the period the deferral rule is in effect must be honored after the deferral period ends. Commenter 0089.1 had concerns that PSD requirements could be applied retroactively after the three-year deferral, and suggested that EPA clarify the impacts on sources permitted, constructed, or modified in the three-year period.

**Response:** Major stationary sources of biogenic $CO_2$ emissions that are constructed or modified where the deferral is effective will avoid the application of PSD to the biogenic $CO_2$ emissions resulting from those actions. At this time, we are unable to predict which biogenic $CO_2$ sources, if any, currently subject to the deferral would be subject to any permanent exemptions or which currently deferred sources would be potentially required to account for their emissions in relation to future permitting actions as a result of the future rulemaking EPA has committed to undertake for such purposes in three or fewer years. Note that the deferral applies only to $CO_2$ emissions

and does not affect non-GHG pollutants or other greenhouse gases. Sources issued complete and approved permits during the deferral period would continue their projects accordingly.

No decision has yet been made regarding permit applications and permits issued after the three-year deferral period expires. During the deferral, EPA will conduct a detailed examination of the science associated with biogenic $CO_2$ emissions from stationary sources, including engaging with federal partners, technical experts, and an independent scientific panel to consider technical issues. Based on the feedback from the scientific and technical review, EPA will then undertake a rulemaking to determine how biogenic $CO_2$ emissions should be treated and accounted for in PSD and Title V permitting.

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**Comment:** Commenters 0084.1 and 0089.1 urged EPA to build into the final deferral "grandfather" language that clearly defines whether a project is "new" as of the switch-over date (end of deferral period). Commenter 0084.1 preferred the "commencement" of construction concept because it is well-developed and relatively clear.

**Response:** EPA will not be developing "grandfather" language as this rule is a deferral for the purposes of better understanding the impacts of biogenic $CO_2$ emissions. Major stationary sources of biogenic $CO_2$ emissions that are constructed or modified where the deferral is effective will avoid the application of PSD to the biogenic $CO_2$ emissions resulting from those actions. Note that the deferral applies only to $CO_2$ emissions and does not affect non-GHG pollutants or other greenhouse gases. Sources issued complete and approved permits during the deferral period would continue their projects accordingly.

No decision has yet been made regarding permit applications and permits issued after the three-year deferral period expires. During the deferral, EPA will conduct a detailed examination of the science associated with biogenic $CO_2$ emissions from stationary sources, including engaging with federal partners, technical experts, and an independent scientific panel to consider technical issues. Based on the feedback from the scientific and technical review, EPA will then undertake a rulemaking to determine how biogenic $CO_2$ emissions should be treated and accounted for in PSD and Title V permitting.

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**Comment:** Commenter 0056.1 asked that EPA clarify use of the word "defer" in regard to the accounting of emissions, rather than using the word "exempt." This implies the possibility that permitting actions during this three-year window may be forced into a retroactive review once EPA establishes the biogenic life-cycle factors. The risk of a retroactive review of projects undertaken during the three-year window would significantly inhibit alternative energy projects due to a lack of regulatory certainty and the resulting economic impact. The commenter strongly recommends that EPA provide clarification in the final rule that permitting actions undertaken in the three to five year window will not be retroactively examined.

**Response:** Stationary sources of biogenic $CO_2$ emissions that are constructed or modified where the deferral is effective will avoid the application of PSD to the biogenic $CO_2$ emissions resulting from those actions. Note that the deferral applies only to $CO_2$ emissions and does not affect non-GHG pollutants or other greenhouse gases. Sources issued complete and approved permits during the deferral period would continue their projects accordingly.

No decision has yet been made regarding permit applications and permits issued after the three-year deferral period expires. During the deferral, EPA will conduct a detailed examination of the science associated with biogenic $CO_2$ emissions from stationary sources, including engaging with federal partners, technical experts, and an independent scientific panel to consider technical issues. Based on the feedback from the scientific and technical review, EPA will then undertake a rulemaking to determine how biogenic $CO_2$ emissions should be treated and accounted for in PSD and Title V permitting.

## 10.3 Permits Issued During Deferral Should Not be Grandfathered

**Comment:** Several commenters (0023H, 0023I, 0166, 0101.1 0137.1, and 0142.1) were concerned that biogenic sources permitted during the deferral period would be permanently exempt from BACT requirements for $CO_2$, and that such an exemption could have climate change implications outlasting the deferral period even if EPA concludes after the scientific study that biogenic $CO_2$ should not be exempt from BACT requirements. Commenter 0166 is also concerned that the deferral will provide an incentive for industry to obtain a large number of permits for biogenic sources that will be grandfathered from PSD requirements creating de facto sacrifice zones in rural, working class, and minority communities. Commenter 0048.1 stated that grandfathering of existing facilities under less stringent rules should not be allowed, as this sets a bad precedent.

**Response:** EPA will not be developing "grandfather" language as this rule is a deferral for the purposes of better understanding the impacts of biogenic $CO_2$ emissions. Major stationary sources of biogenic $CO_2$ emissions that are constructed or modified where the deferral is effective will avoid the application of PSD to the biogenic $CO_2$ emissions resulting from those actions. Note that the deferral applies only to $CO_2$ emissions and does not affect non-GHG pollutants or other greenhouse gases.

At this time, we are unable to predict which biogenic $CO_2$ sources, if any, currently subject to the deferral would be subject to any permanent exemptions or which currently deferred sources would be potentially required to account for their emissions in relation to future permitting actions as a result of the future rulemaking EPA has committed to undertake for such purposes in three or fewer years, and thus, we do not have enough information at this time to consider the effects of allowing such grandfathering. No decision has yet been made regarding permit applications and permits issued after the three-year deferral period expires. During the three-year deferral period, EPA will conduct a detailed examination of the science associated with biogenic $CO_2$ emissions from stationary sources, including engaging with federal partners, technical experts, and an independent scientific panel to consider technical issues. Based on the feedback from the scientific and technical review, EPA will then undertake a rulemaking to determine how biogenic $CO_2$ emissions should be treated and accounted for in PSD and Title V permitting.

## 10.4 EPA Should Issue a Moratorium on Major Biogenic Projects During Deferral

**Comment:** Commenters 0023H, 0023I, 0048.1, 0049.1, 0110, 0118.1, 0119.1, 0138.1 0142.1, 0143.1, 0148, 0166, 0216, and 0269 stated that EPA should initiate a moratorium on construction

of sources of biogenic $CO_2$ until the scientific studies are complete. Commenter 0023I also presented the alternative that EPA should make it clear that any plant built during the deferral will be subject to the new rules developed based on the scientific study, and commenters 0048.1 and 0166 further stated that there should be no expansion of existing facilities during the deferral.

Commenter 0118.1 communicated that this would protect the environment and the public interest, allow time for EPA to consider the science and unique characteristics of various feedstocks, and avoid administrative burdens related to permitting at both state and federal levels. Furthermore, the commenter noted that the "potential to emit" phrase in 40 CFR 51.166 and 40 CFR 70.2 provides the administrative means to differentiate between facilities which clearly are not subject to regulation, and those which have a "potential to emit" at or above the threshold levels.

Commenter 0119.1 declared that without a moratorium facilities will be permitted or modified at the expense of our forests, climate, and local communities without consideration of what the implications may be for forests. The commenter noted that a regulatory holiday can only increase the already-frenzied rate of development of the bioenergy industry at the time when calm and careful consideration of science and policy options is needed. The commenter further contended that the effect of the three year deferral could actually be much longer because once permitted, PSD regulations would not apply until facilities undertook a major modification.

**Response:** EPA recognizes the concerns regarding the treatment of biomass and potential impacts to environment and health. The Agency is proceeding as expeditiously as possible, ensuring that a detailed examination of the science associated with biogenic $CO_2$ emissions from stationary sources is conducted, including engaging with federal partners, technical experts, and an independent scientific panel to consider technical issues. Based on the feedback from the scientific and technical review, EPA will then undertake a rulemaking to determine how biogenic $CO_2$ emissions should be treated and accounted for in PSD and Title V permitting.

In some cases, the use of biological material as a fuel would clearly reduce net atmospheric $CO_2$ levels. In these cases, requiring permitting at this time, before conducting the detailed scientific examination that is required to develop an appropriate accounting system for bioenergy and other biogenic sources, might actually discourage projects that would have a net benefit for the atmosphere. However, the possibility also remains that more detailed examination of the science of biogenic $CO_2$ will demonstrate that the utilization of some biomass feedstocks for bioenergy production will have a significant impact on the net carbon cycle, making application of the PSD program requirements to such emissions necessary to fulfill Congressional intent. Thus, EPA is proposing only a temporary, rather than a permanent, deferral of PSD requirements for such sources at this time.

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**Comment:** Commenter 0142.1 asks whether EPA considered the following questions:

1. The cumulative impact to our forests from new construction of facilities that will almost certainly occur due to the EPA's decision to defer this permitting for three years?
2. The cumulative effect on our nation's air quality from new construction of facilities that will almost certainly occur due to the EPA's decision to defer this permitting for three years? Impacts and costs from asthma and other respiratory diseases, etc.?

3. The impact to recycling programs and infrastructure by allowing virgin forest fiber kraft pulp mills to perpetuate the myth of carbon-neutrality of these emissions from the high volumes of burning of black liquor, hogged fuel and other biomass? Or competition for municipal solid waste, especially paper, by allowing incinerators this loophole and that will almost certainly occur due to the EPA's decision to defer this permitting for three years? These two factors hurt recycling and recycled product manufacturing significantly and are unfair. A decision to defer, which will create winners and losers, and makes these other industries the losers, is arbitrary. And incidentally, also contrary to EPA's long established scientifically driven goals in waste management and support for recycling.

**Response:** The purpose of the three-year deferral is to weigh a variety of factors, such as those listed by the commenter above. Multiple factors need to be considered to accurately assess the net atmospheric impacts of the use of a particular type of fuel by a stationary source over a specified time period, that extends into the future: Net emissions to the atmosphere (emissions from the facility and sequestration elsewhere) of carbon from the biomass used for bioenergy; the time scale against which net emissions should be measured; delineation of geographic areas for measurement; and leakage.

EPA recognizes the concerns regarding the treatment of biomass and potential environmental and health impacts, and is mindful of the role that biomass or biogenic fuels and feedstocks could play in state and local policies. The Agency is allowing sufficient time to consider the unique characteristics and attributes of biogenic $CO_2$ feedstocks and is committed to working with stakeholders to examine appropriate ways to treat biomass combustion emissions. EPA is proceeding as expeditiously as possible, ensuring that a detailed examination of the science associated with biogenic $CO_2$ emissions from stationary sources is conducted, including engaging with federal partners, technical experts, and an independent scientific panel to consider technical issues. Based on the feedback from the scientific and technical review, EPA will then undertake a rulemaking to determine how biogenic $CO_2$ emissions should be treated and accounted for in PSD and Title V permitting.

# 11.0 Rationale and Legal Justification for Interim Deferral

**Comment:** Commenter 0042.1 declared that in the Tailoring Rule EPA dictated which stationary sources of greenhouse gases would have to obtain permits and meet other requirements under PSD and Title V and which would not. Specifically, the commenter noted, the proposed rule directed that EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks should be used "to calculate a source's GHG emissions." Commenter 0042.1 further pointed out that the inventory does not count carbon dioxide emissions from combustion of biomass at stationary sources; rather, it assumes these sources are carbon neutral. Due to the inventory and because EPA provided no further explanation in the preamble to the proposed regulations or elsewhere, the commenter always presumed that EPA did not propose to deviate from this policy in PSD and Title V. The commenter expressed shock when the final Tailoring Rule provided that carbon dioxide emissions from biomass combustion would count toward the rule's applicability thresholds for the PSD and Title V. Commenter 0042.1 noted that no one had ever asked EPA to exempt biogenic emissions from the Tailoring Rule; rather commenters had asked EPA to maintain the policy separating biogenic emissions from fossil fuel emissions.

**Response:** The deferral rulemaking did not address or ask for comment on the Final Tailoring Rule which is of concern to the commenter, thus, it is beyond the scope of this rulemaking. The proposal was solely focused on biogenic $CO_2$ emissions from stationary sources subject to the PSD and Title V programs, which is related to the treatment of biogenic $CO_2$ emissions during the three-year deferral period. During this period, EPA will conduct a detailed examination of the science associated with biogenic $CO_2$ emissions from stationary sources, including engaging with federal partners, technical experts, and an independent scientific panel to consider technical issues. Based on the feedback from the scientific and technical review, EPA will then undertake a rulemaking to determine how biogenic $CO_2$ emissions should be treated and accounted for in PSD and Title V permitting.

## 11.1 Applicability of Major Permitting Programs to Biogenic $CO_2$

**Comment:** Commenter 0087.1 stated that EPA was justified in granting the NAFO petition for reconsideration, because there are many important issues about application of CAA programs to biogenic emissions which were not considered prior to EPA's promulgation of the Tailoring Rule and because the final rule presented new issues not included in the proposal by applying permitting requirements to biogenic emissions. The commenter stated that the final rule justification failed to respond to some comments about treatment of biogenic emissions provided by stakeholders in response to the proposal and the justification presented arguments in response to other biogenic comments for the first time in the final rule. The commenter stated that stakeholders did not consider the proposed Tailoring Rule to apply to biogenic $CO_2$ emissions because EPA referenced standard methodologies (for calculating GHG emissions from stationary sources) that do not include biogenic emissions in both the endangerment finding and the Tailoring Rule proposal and because EPA's previous regulations concerning $CO_2$ emissions reporting did not include $CO_2$ emissions from biogenic fuels, consistent with IPCC protocols that excluded biogenic $CO_2$ emissions. The commenter understood the proposed Tailoring Rule to consistently incorporate the carbon neutrality of biogenic $CO_2$ that EPA (and the U.S. Department of Energy [DOE]) had consistently used in all previous rules and guidelines, because the proposed rule stated that sources should rely on EPA's Inventory of U.S. Greenhouse Gas

Emissions and Sinks for guidance on how to calculate a source's GHG emissions. The commenter stated that industry stakeholders and others supported the proposed Tailor Rule's approach and commented extensively on the problems that would result if EPA applied the permitting programs to biogenic emissions and urged EPA to explicitly exclude biogenic $CO_2$ emissions in the final Tailoring Rule. The commenter stated that stakeholders never had an opportunity to address EPA's justification for including biogenic $CO_2$ emissions in the final Tailoring Rule and found inadequacies in the final rule's responses to stakeholder comments. The commenter stated that because EPA did not propose to apply the PSD and Title V programs to biogenic emissions, and because many new issues about biogenic emissions were raised in EPA's response to comments for the final Tailoring Rule, the petition for reconsideration raised objections to the final rule that arose after the public comment period, meeting the criteria for a petition for reconsideration under CAA Section 307(d)(7).

**Response:** Based on careful consideration of the petitioners' arguments, together with the weight of the comments received on the CFI, EPA concluded that the issue of accounting for the net atmospheric impact of biogenic $CO_2$ emissions is complex enough that further consideration of this important issue is warranted. Therefore, EPA granted the petition for reconsideration on January 12, 2011. Regarding commenters' claims that the Inventory excludes $CO_2$ emissions from biomass, the Inventory does not exclude these emissions. Rather, they are included in the LULUCF Sector rather than the Energy Sector to avoid double-counting at the national scale. The narrow reference to the use of the Inventory's GWP values for estimating GHG emissions was provided to offer consistent guidance on how to calculate these emissions and not as an indication, direct or implied, that biomass emissions would be excluded from permitting applicability merely by association with the national inventory (see 74 FR 55351, under the definition for "carbon dioxide equivalent"). EPA also notes that commenters did, in fact, have the opportunity to comment on the treatment of biogenic emissions during the Tailoring Rule process, and EPA received a number of comments in this regard. These comments were addressed in the final Tailoring Rule, where EPA also noted that the Agency had not yet evaluated the permitting burdens associated with biogenic $CO_2$ emissions, and had not received comments indicating that an overwhelming burden justified exclusion at that time. 75 FR 31,514, 31,591. There, we also indicated our intent to solicit additional comments, and perform the further investigation necessary to determine how to best treat biogenic $CO_2$ emissions. *Id.* This action fulfills that intent, and enables the Agency to make its final decision on the treatment of these emissions based on a thorough analysis of applicable science and policy concerns.

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**Comment:** Comments were received both supporting and opposing the deferral based on applicability criteria under PSD and Title V. One State permitting authority commenter (0102.1) was concerned that without the deferral many ethanol, biodiesel, and wastewater treatment plants would be affected by the PSD and Part 70 rules. One commenter (0095.1) supported deferral, but cited 40 CFR 51.166(a)(6)(i),(iii) as bases for asserting that states with federally approved PSD programs are not required to revise PSD applicability criteria until three years after promulgation of the Tailoring Rule. Several commenters (0063.1, 0086.1, 0087.1, and 0091.1) used biogenic carbon neutrality arguments to state that such emissions are properly excluded from major source threshold determinations. Commenters (0063.1, 0086.1, and 0091.1) suggested that absence of land use emissions or discussions of biogenic emissions in the endangerment finding requires exclusion, because the endangerment finding is the source of CAA authority for GHG

regulations. Commenter 0091.1 stated that the source of the generation of biogenic $CO_2$ should not be used as a factor to determine if it should be regulated, but that examples exist where EPA has determined that biogenic $CO_2$ is carbon neutral (e.g., landfill gases). Therefore, placing biogenic $CO_2$ under the regulatory umbrella of PSD and Title V will create an undue burden on the regulated community as well as the regulating agencies. Similarly, commenter 0087.1 stated that EPA should revise its definition of GHG to exclude biogenic $CO_2$ to avoid imposing permitting and BACT requirements on biogenic sources.

**Response:** EPA appreciates commenters who expressed support for the deferral based on the applicability criteria under PSD and tile V permitting programs and notes EPA will be evaluating the carbon neutrality arguments in greater detail as part of its development of accounting methodologies. These comments underscore the complexity of issues associated with biogenic emissions of $CO_2$ and their role in the carbon cycle. As discussed in the preamble, EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. This interim deferral represents a permissible application of well-established administrative law doctrines, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, to develop a regulatory scheme that implements the CAA consistent with Congressional intent in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* sources of air pollution. EPA will consider the information about the carbon lifecycle presented by these commenters, as well as others, as it conducts this study and develops the accounting framework prior to developing subsequent regulations establishing treatment for biogenic emissions under the PSD and Title V programs. Subsequent regulations to establish treatment of specific sources of biogenic emissions under the PSD and Title V programs, based on the results of the study and development of the accounting framework, are beyond the scope of this action.

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**Comment:** Commenter 0104.1 opposed the deferral and did not feel that EPA had justified the special treatment of biogenic $CO_2$ discussed in the proposal, because a PSD netting approach that counts off-site, un-enforceable activities that may occur in the future (i.e., biomass re-growth) as equivalent to a source's direct emissions would be a significant departure from EPA's historic approach to PSD applicability, and such an approach would undermine the effectiveness of the Act as the best method for setting targets for GHG reductions in the absence of further Congressional action on climate change. Similarly, Commenter 0115.1 stated that nothing in the statute allows the EPA to create an exemption from PSD and Title V programs based on the fuel supply or type of source that emits the pollutant. The commenter argued that exempting biogenic $CO_2$ emissions during the deferral violates the CAA by permitting biomass facilities without requiring a demonstration that the sources will meet the BACT requirement for greenhouse gases.

**Response:** EPA disagrees with the commenters' characterization of the action being taken in this rulemaking. As explained in the preamble, EPA believes that based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that emissions from certain biomass feedstocks may be carbon neutral or *de minimis* but also believes based on the complexity of this evidence that the deferral to allow for further study is warranted. EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting

programs and sources. This interim deferral represents a permissible application of well-established administrative law doctrines, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, to develop a regulatory scheme that implements the CAA consistent with Congressional intent in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution. EPA will consider the information about the carbon lifecycle presented by the commenter, as well as others, as it conducts this study and develops the accounting framework prior to developing subsequent regulations. Subsequent regulations to establish treatment of specific sources of biogenic emissions under the PSD and Title V programs, based on the results of the study and development of the accounting framework, are beyond the scope of this action.

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**Comment:** Commenter 0350.1 stated that EPA's proposal to redefine "subject to regulation" to exclude biogenic $CO_2$ is not supported. The commenter noted that in the Tailoring Rule, EPA re-defined "subject to regulation" to temporarily increase the statutory threshold for all greenhouse gas emissions; now, EPA proposes to revise the term by splitting the regulated pollutant while admitting that biogenic $CO_2$ molecules have the same GWP in the atmosphere as fossil $CO_2$ molecules. The commenter asserted that there can be no doubt that $CO_2$ indeed is now "subject to regulation." The commenter stated that in the Tailoring Rule, the Agency determined that it had no basis for exempting biogenic $CO_2$ emissions from the permitting requirements on the "administrative necessity," and "absurd results" doctrines and that conclusion remains correct. The commenter stated that the proposal either changes or contradicts the Tailoring Rule. The commenter pointed out that the air pollutant is $CO_2$, not "fossil-fuel-based $CO_2$," and under any reading of the term "subject to regulation under the Act," $CO_2$ is now subject to permitting. The commenter stated that EPA's deferral proposal is not the result of analysis or interpretation of the terms "air pollutant" and "subject to regulation" in Sections 165(a)(4) and 169(3), or of any other statutory language anywhere else in the CAA, or an examination of Congressional intent. The commenter noted that EPA does not devote a single sentence to trying to justify its rulemaking based on such an inquiry, but instead, EPA seeks to justify its actions solely based on the doctrines of "*de minimis*," "administrative necessity," and "absurd results."

**Response:** EPA disagrees with the commenters' characterization of the action being taken in this rulemaking. Courts have consistently held that administrative agencies have inherent authority to reconsider their decisions and change previously issued regulations. In *Chevron v. NRDC*, the Supreme Court noted that "[a]n initial agency interpretation is not instantly carved in stone," rather, the agency "must consider varying interpretations and the wisdom of its policy on a continuing basis." 467 U.S. 863-864 (1984). As explained in the preamble, EPA believes that based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that emissions from certain biomass feedstocks may be carbon neutral or *de minimis* but also believes based on the complexity of this evidence that the deferral to allow for further study is warranted. EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. This interim deferral represents a permissible application of well-established administrative law doctrines, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, to develop a regulatory scheme that implements the CAA consistent with Congressional intent in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution. Subsequent regulations to establish treatment of specific

sources of biogenic emissions under the PSD and Title V programs, based on the results of the study and development of the accounting framework, are beyond the scope of this action.

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**Comment:** Commenter 0350.1 stated that EPA's proposed blanket exemption will thwart the purpose and design of the CAA permitting requirements. The commenter stated that deferring permitting for biogenic $CO_2$ emissions cannot be reconciled with the purposes of the PSD program under Section 160 of the Act, because even a temporary deferral from permitting requirements would increase incentives for uncontrolled biomass development and significantly increase near-term $CO_2$ emissions. The commenter stated that the deferral does not protect health or welfare, preserve air quality, insure growth will be consistent with preservation of air resources, or promote careful decision making and informed public participation. The commenter indicated EPA's proposed approach undermines the fundamental policy choices that Congress made in adopting the PSD program: (1) that it is preferable to prevent air pollution from becoming a problem in the first place; and (2) that controls should be installed when new sources are being constructed rather than as retrofits on existing sources.

The commenter stated that waiving the applicable permitting requirements on the basis that further study might determine that there could be $CO_2$ emission benefits, demonstrably undermines the "prevention" purpose of the PSD program and the policy choices made by Congress. The commenter indicated it is simply not reasonable to believe that Congress could have intended EPA to adopt a stance of deliberate ignorance concerning the foreseeable result, due to the proposed exemption, of increased near-term $CO_2$ emissions. The commenter pointed out that EPA's proposal will allow biomass-fueled stationary sources to be built and operated for years or decades without any demonstration that these sources are controlled to meet BACT-based $CO_2$ emissions limits. The commenter goes on to say that EPA creates a competitive advantage for biomass facilities in that they will be relieved of demonstrating any form of BACT for GHG, including efficiency improvements, carbon capture and sequestration, or other technologies that fossil-fueled sources will be required to explore. The commenter further states that when it subsequently is determined that the biomass feedstocks fueling those facilities are and have been more damaging from a climate perspective than other available feedstocks, the Act does not provide a mechanism to "fix" the problem, unless and until the facilities undertake major modification. The commenter stated EPA's proposed deferral runs completely counter to the fundamental design of the statutory program under which it is proposed. See *Public Citizen*, 831 F.2d at 1113; *Alabama Power*, 636 F.2d at 360 (Agency's attempt to interpret a statute is an unlawful overreach where it would thwart statutory purpose or command).

**Response:** EPA disagrees with commenter's characterization of this action. EPA concluded in the Tailoring Rule that it is authorized under relevant case law to tailor applicability requirements to apply PSD and Title V to such sources in a phased-in manner, starting with the largest sources first. This action further implements Congressional intent by administering the CAA's permitting programs in a step-wise manner that avoids absurd results and impossible administrative burdens stemming from the scientific uncertainty associated with biogenic emissions of $CO_2$ from stationary sources.

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**Comment:** Commenter 0350.1 stated EPA can never justify a departure from the CAA statutory language and design on purely policy grounds. The commenter stated that absent any basis in

law or science, the only plausible explanation for EPA's proposal is that the Agency is promoting a policy, or political, preference, as justification for avoiding the clear statutory requirements of the CAA. The commenter noted that EPA's authority under the Act, however, does not include administrative discretion to avoid statutory commands in order to create de facto policy-based economic subsidies for particular industries and cited a recent Supreme Court case where EPA was reminded that the Agency's policy discretion is limited by statute, not the other way around. (*Massachusetts v. EPA*, 549 U.S. 497, 532-35 2007). The commenter continued by noting that an agency may not "avoid the Congressional intent clearly expressed in the [statutory] text simply by asserting that its preferred approach would be better policy." (*Engine Mfrs. Ass'n v, EPA*, 88 F.3d 1075, 1089 (D.C. Cir. 1996). And yet, that is precisely what EPA attempts here, without providing any justification, never mind the "extraordinarily convincing justification" required in such circumstances. *Appalachian Power Company v. EPA*, 249 F.3d 1032, 1041 (D.C. Cir. 2001).

**Response:** EPA disagrees with the commenter's view that this action is based purely on policy grounds or costs and is unsupported by the law or science. As EPA explained in the preamble and in our other responses to this commenter, this interim deferral represents a permissible application of well-established administrative law doctrines, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, to develop a regulatory scheme that implements the CAA in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution.

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**Comment:** Commenter 0350.1 stated EPA's policy arguments do not support any exemption or deferral. The commenter stated the land-based accounting conventions used in the Inventory cannot answer the questions essential to an applicability determination under the PSD and Title V permitting programs, as the inventory's conventions are backward-looking and provide a snapshot of carbon stock changes across wide geographical areas over a handful of years, and the PSD and Title V program require quantification of a particular facility's projected emissions and the application of emission limits and controls in order to reduce them. The commenter noted it is puzzling that EPA then proposes to defer regulation for 3 years so that it can explore an Inventory-style land-based accounting system for use in applicability determinations, and the commenter stated EPA's approach is unlawful and scientifically indefensible. The commenter pointed out that analysis of off-site future sequestration has no place in pre-construction permit applicability determinations under the CAA, and this should be obvious to EPA. The commenter noted that EPA's concept of a forward-looking, land-based "baseline" for analysis of facility-level impacts is similarly misplaced, although noted that such an approach may have a place in evaluating case-by-case BACT determinations or in BACT guidance, but not for PSD and Title V applicability. The commenter further stated that policy arguments about domestic energy independence or the promotion of "renewable fuels," whether pursued by state or federal agencies, are not related to the fundamental purpose of the permitting requirements of the statute, that is, the reduction of emissions of air pollutants. EPA's attempt to base an exemption from the permitting requirements on such policy arguments, clearly disregards not only statutory language and structure, but also the statute's fundamental purpose.

The commenter noted that the only state that has analyzed the best available scientific information, Massachusetts, has now decided to tightly restrict eligibility of biomass-based power for state renewable energy credits. The commenter indicated that Massachusetts

suspended biomass units for the renewable portfolio standard (RPS), commissioned a research study by Manomet Center for Conservation Science, and the study findings show that net GHG emission from biomass combustion to generate electricity in utility-scale plants are higher than when using coal (40 year basis), and when compared to natural gas, net GHG emissions from biomass combustion are still higher after 90 years. The commenter indicated that Massachusetts then proposed its revised regulation in May 2011 to (1) narrowly define biomass to include residues, limited thinning, and salvage wood, but not healthy whole trees; (2) require a 50 percent reduction in GHG over 20 years, as compared to a natural gas-fired electric generating facility; (3) establish site-sensitive restrictions on woody biomass removal, ranged from 40 percent by weight to 0 percent; and (4) create minimum efficiency standards for generators, of 40 percent before qualifying for renewable energy credits from use of biomass. The commenter pointed out that the actions taken by Massachusetts contradict EPA's position that its proposed deferral is consistent with state policies.

**Response:** EPA disagrees with the commenter's view that this action is unsupported by the law, policy or science. The comment underscores the complexity of the science associated with accounting for biogenic $CO_2$ emissions as part of the PSD and Title V permitting programs. As discussed in the preamble, EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. EPA will consider the information about the carbon lifecycle presented by this commenter, as well as others, as it conducts this study and develops the accounting framework.

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**Comment:** Commenter 0084.1 agreed that the *de minimis* doctrine provides EPA with sufficient authority to defer permitting for biogenic $CO_2$ emissions; however, there is a more fundamental statutory basis − one that actually obviates the need for EPA to engage in mere deferral and then further study with respect to biogenic $CO_2$ emissions. The commenter reasoned that unless EPA makes an endangerment finding for a particular pollutant stream, it may not regulate the stream under CAA. The commenter asserted that EPA has never made the necessary endangerment finding for biogenic $CO_2$ emissions per se. The commenter continued that the only GHG-related endangerment finding that EPA has ever made related to GHG emissions from certain classes of motor vehicles, all of which EPA understood to combust fossil fuels predominantly. The commenter noted that in the FR of said endangerment finding, EPA's description of and justification for the finding did not once mention the word "biogenic," "biomass," "biofuel," or "ethanol, thus EPA has never determined the combustion or decomposition of biogenic materials cause or contribute significantly to air pollution. As a result, the commenter noted, EPA lacks authority to bring biogenic GHG emissions within the domain of PSD and Title V. The commenter stated that until EPA makes an endangerment finding biogenic GHG emissions cannot constitute "a pollutant subject to regulation" for PSD and Title V purposes. Consequently, the commenter requested that EPA repeal applicability of biogenic $CO_2$ to PSD and Title V indefinitely.

**Response:** EPA appreciates the commenter's support for the interim deferral. EPA disagrees with the commenter's arguments pertaining to the status of $CO_2$ as a regulated pollutant and the endangerment and cause-and-contribute findings. A pollutant becomes "subject to regulation" when the pollutant is subject to either a provision in the CAA, or a nationally-applicable regulation codified by the Administrator. Comments concerning biogenic $CO_2$ as a regulated

pollutant and $CO_2$'s inclusion in the GHG air pollutant subject to regulation are beyond the scope of this rulemaking and are not being reconsidered as part of this action. As explained in more detail in the "Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act" (74 FR 66496), and the Light Duty Vehicle Rule, the Agency has found that air pollution in the form of elevated concentrations of a group of six individual GHG in the atmosphere, including $CO_2$, may reasonably be anticipated to endanger both public health and public welfare and that emissions from new motor vehicles of an air pollutant composed of this same group of GHG contributes to this air pollution. In the Light Duty Vehicle Rule EPA set standards applicable to emissions of this air pollutant. Once GHG became subject to action control under the light-duty vehicle rule, applicability of the PSD and Title V permitting programs was triggered under the CAA.

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**Comment:** Commenter 0118.1 proposed that EPA apply, for three years, PSD and Title V requirements to all facilities that have the potential for net biogenic $CO_2$ at or above Tailoring Rule thresholds. The commenter declared that this approach provides a generalized technical review, which is easy to administer because the "potential emissions" element of the screen is coarse. Commenter 0118.1 stressed that the screen must be ensure that environment and public interest are protected from facilities that will cause an increase in atmospheric $CO_2$ burden.

**Response:** EPA disagrees with the commenter's characterization of the state of the science and the rationale in support of this action. As explained in the preamble, EPA believes that based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that emissions from certain biomass feedstocks may be carbon neutral or *de minimis* but also believes based on the complexity of this evidence that the deferral to allow for further study is warranted. EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. This interim deferral represents a permissible application of well-established administrative law doctrines, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, to develop a regulatory scheme that implements the CAA consistent with Congressional intent in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution. Subsequent regulations to establish treatment of specific sources of biogenic emissions under the PSD and Title V programs, based on the results of the study and development of the accounting framework, are beyond the scope of this action.

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**Comment:** Commenter 0054.1 is in general agreement with the approach and the rationale for deferring biogenic $CO_2$ emissions, as described in the preamble to the proposed rule.

**Response:** EPA appreciates the commenter's support for the deferral.

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**Comment:** One commenter (0054.1) stated that an important reason for the three-year deferral period is to allow sufficient time to consider the unique characteristics and attributes of biogenic $CO_2$ feedstocks, using the results from a detailed examination. Absent this deferral, there would be significant additional and unique complexities to implementing the PSD and Title V programs. As a result, there would be additional permitting burden in terms of time and resources requirements, resulting from the associated analysis that would be required for sources of biogenic $CO_2$ emissions as well as permitting agencies.

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The commenter believes that, absent the deferral period and the completion of EPA's full analysis of the unique technical issues associated with these diverse facilities emitting biogenic $CO_2$, it would be particularly challenging for permitting authorities and facilities to process permits involving these emissions. Therefore, for the reasons cited above the FSI supports the proposed three-year deferral.

**Response:** EPA appreciates the commenter's support for the interim deferral and agrees that the scientific uncertainties associated with biogenic $CO_2$ emissions and lack of accounting methodologies, which EPA will address during the deferral period, will exacerbate the existing administrative burdens of permitting agencies, which EPA described in detail in the Tailoring Rule and in the preamble to this action.

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**Comment:** Commenter 0064.1 stated EPA has the legal authority to enact a three-year deferral and to permanently exempt $CO_2$ emissions from biomass fired sources. There is no basis under the Act to regulate biogenic emissions because the endangerment finding was limited to fossil fuel combustion from motor vehicles. The original petition for an endangerment finding, the Supreme Court opinion in *Massachusetts v. EPA*, and EPA's eventual endangerment finding were limited to greenhouse gas emissions from motor vehicles. In its final Endangerment Finding, EPA states: "The only issue under CAA section 202(a) is whether the air pollution is reasonably anticipated to endanger, and whether emissions from one domestic source category—new motor vehicles—cause or contribute to this air pollution." (74 FR 66496, 66521)

Even if EPA considers its endangerment finding to extend to sources other than motor vehicles, the findings do not expressly address biomass sources. Therefore, EPA has inherent discretion to distinguish biogenic and non-biogenic emissions for purposes of a deferral or permanent exemption. Exclusion of biomass emissions from the Tailoring Rule can also be defended as a *de minimis* exemption supported by longstanding case law. The carbon neutrality of biomass emissions means that the net effect is not only *de minimis* but likely has a beneficial effect (especially if compared to combustion of fossil fuels).

**Response:** EPA appreciates the commenter's support for the interim deferral. EPA disagrees with the commenter's arguments pertaining to the status of $CO_2$ as a regulated pollutant and the characterization of the endangerment and cause and contribute findings. Comments concerning biogenic $CO_2$ as a regulated pollutant and $CO_2$'s inclusion in the GHG air pollutant subject to regulation are beyond the scope of this rulemaking and are not being reconsidered as part of this action. As explained in more detail in the "Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act" (74 FR 66496), and the Light Duty Vehicle Rule, the Agency has found that air pollution in the form of elevated concentrations of a group of six individual GHG in the atmosphere, including $CO_2$, may reasonably be anticipated to endanger both public health and public welfare and that emissions from new motor vehicles of an air pollutant composed of this same group of GHG contributes to this air pollution. In the Light Duty Vehicle Rule EPA set standards applicable to emissions of this air pollutant.

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**Comment:** Commenter 0079.1 stated that excluding biogenic $CO_2$ emissions from the "Subject to Regulation" definition will not address those emissions for PSD applicability if EPA regulates GHG under an NSPS for utilities or refineries. By embedding the deferral of biogenic $CO_2$

emissions in the definition of the term "subject to regulation," the Agency only "solves" the problem it has identified temporarily – until an NSPS is issued applicable to $CO_2$. The commenter provided the text of 40 CFR 52.21(b)(50) that defines the term "regulated NSR pollutant," and 40 CFR 52.21(b)(49), that defines the term "subject to regulation." EPA proposes to place the biomass deferral in the "subject to regulation" definition, which will exclude biogenic $CO_2$ emissions to the extent $CO_2$ becomes a regulated NSR pollutants under the "any pollutant otherwise subject to regulation" clause of Section 52.21(b)(50)(iv). However, it would not exclude biogenic $CO_2$ emissions to the extent $CO_2$ becomes a regulated NSR pollutant under the "any pollutant that is subject to any standard promulgated under section 111 of the Act" clause of Section 52.21(b)(50)(ii). The thresholds and exclusions included in subparagraph 52.21(b)(49) are apparently applicable only to pollutants that come into the program through the "subject to regulation" language. However, that language is found nowhere in the provision that makes NSPS pollutants "regulated NSR pollutants" under EPA's rules.

The commenter understands that EPA embedded the thresholds for GHG and the phasing in of the program in the new "subject to regulation" definition for the purpose of avoiding the need for states to revise their state implementation plans (SIPs). An unintended consequence of revising the rules in this way is that it does not appear to address the effects of EPA issuing an NSPS for GHG. EPA has agreed to issue an NSPS for the utility and refining sectors in the near future (with the first standard in May of 2012), long before the three-year deferral proposed here would expire. Therefore, EPA's proposed regulatory language will not have the desired effect of actually deferring biogenic $CO_2$ emissions.

**Response:** EPA appreciates the views of the commenter but notes that regulation of $CO_2$, including from biogenic sources, under the CAA Section 111 NSPS program is beyond the scope of this action.

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**Comment:** Commenter 0126.1 stated that the Agency applied the "administrative necessity" doctrine in fashioning the regulatory limits of the Tailoring Rule, but stated that this and other doctrines were inapplicable to its considerations regarding biomass.

**Response:** As discussed in the preamble, EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. This interim deferral represents a permissible application of well-established administrative law doctrines, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, to develop a regulatory scheme that implements the CAA consistent with Congressional intent in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* sources of air pollution. Subsequent regulations to establish treatment of specific sources of biogenic emissions under the PSD and Title V programs, based on the results of the study and development of the accounting framework, are beyond the scope of this action.

## 11.2 Permitting is Required

**Comment:** Many commenters (0010, 0023E, 0023G, 0029, 0030, 0045, 0049.1, 0066, 0101.1, 0104.1, 0115.1, 0137.1, and 0145.1) are opposed to the deferral. Commenter 0101.1 cited a study that found higher $CO_2$ emissions from biomass than from coal combustion and stated the study

indicated permitting is necessary to evaluate fuel sources, efficiencies, and other project complexities. Commenter 0104.1 argued that permitting is critical for peaking GHG emissions and joined other commenters (0010, 0023E, 0023H, 0030, 0104.1, 0145.1) with concerns that deferral will encourage projects that will consume whole trees and increase $CO_2$ concentrations in the near term. Commenter 0104.1 suggested that EPA amend the proposal to defer only feedstocks which are clearly carbon neutral (e.g., biogenic wastes), but suggests the carbon neutrality of questionable feedstocks (e.g., whole trees) be resolved during the proposed deferral period. Additionally, Commenter 0104.1 requested that EPA investigate Massachusetts regulations for qualifying for the RPS. Commenter 0023E argued that the Act does not support permanent or temporary permitting exemptions for biogenic $CO_2$. Commenter 0023G supported improvement of accounting methods and recognized that climate impacts are feedstock specific but objected to complete exemption of biogenic emissions for three years, because the commenter sees the permitting process as a method for ensuring sustainability and use of wastes, residues, herbaceous and short rotation wood while preserving food production. Commenter 0014.1 stated industry is familiar with the permitting process and will not be unduly burdened with biogenic $CO_2$ permitting.

**Response:** EPA appreciates the views of the commenters and notes that it has received other comments taking an opposing view of the science. EPA believes these comments underscore the complexity of the science associated with accounting for biogenic $CO_2$ emissions as part of the PSD and Title V permitting programs. EPA believes that based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that emissions from certain biomass feedstocks may have a neglible impact on atmospheric concentrations of $CO_2$, but further believes based on this evidence that the deferral to allow for further study is warranted. As discussed in the preamble, EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. In addition, EPA is conducting an independent peer review by the SAB of the science and accounting methodologies associated with biogenic $CO_2$ emissions. EPA will consider the information about the carbon lifecycle presented by these commenters, as well as others, as it conducts this study and develops the accounting framework. EPA considers the commenters' views about the economics of the biomass industry to be beyond the scope of this action but notes that business decisions are made based on a number of factors, not just regulatory requirements.

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**Comment:** Commenter 0048.1 stated that during the three-year deferral, safeguards are needed to prevent new biomass incinerators, as well as mixed waste incinerators burning biomass, from being permitted without adequate safeguards to protect our air, water, soil, and public health.

**Response:** EPA appreciates the commenter's views. As EPA explained in the preamble, this interim deferral represents a permissible application of well-established administrative law doctrines, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, to develop a regulatory scheme that implements the CAA consistent with Congressional intent to protect air quality in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution. Subsequent regulations to establish treatment of specific sources of biogenic emissions under the PSD and Title V programs, based on the results of the study and development of the accounting framework, are beyond the scope of this action.

**Comment:** Commenter 0049.1 stated there is no scientific basis for completely ignoring carbon pollution from biomass, and the exemption of biomass emissions from a source's PTE introduces regulatory bias that accelerates biomass burning, particularly burning of whole trees. Commenter 0049.1 stated all carbon emissions from major sources should count and preconstruction and operation permits should be required during the study period.

**Response:** EPA appreciates the views of the commenter and notes that it has received other comments taking an opposing view of the science. EPA considers the commenter's views about the economics of the biomass industry to be beyond the scope of this action but notes that business decisions are made based on a number of factors, not just regulatory requirements. EPA believes these comments underscore the complexity of the science associated with accounting for biogenic $CO_2$ emissions as part of the PSD and Title V permitting programs. EPA agrees that based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that emissions from certain biomass feedstocks may have a neglible impact on atmospheric concentrations of $CO_2$, but further believes based on this evidence that the deferral to allow for further study is warranted. As discussed in the preamble, EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. This interim deferral represents a permissible application of well-established administrative law doctrines, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, to develop a regulatory scheme that implements the CAA consistent with Congressional intent in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution. Subsequent regulations to establish treatment of specific sources of biogenic emissions under the PSD and Title V programs, based on the results of the study and development of the accounting framework, are beyond the scope of this action.

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**Comment:** Commenter 0049.1 stated EPA policies must reflect the science of biomass carbon accounting and forest protection, and EPA must create a path for treating biomass emissions correctly under the CAA. The commenter stated EPA must work with other federal agencies to develop methods and criteria to determine whether biomass is sustainable without degrading ecological health of the forest and its dependent biota.

**Response:** See previous response to commenter 0049.1. In addition, EPA agrees on the importance of working with other federal agencies, as well as scientists and state and local agencies, to understand the forest ecology and developing accounting methodologies.

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**Comment:** Commenters 0065.1, 0106.1, 0118.1, 0119.1, 0128.1, 0141, 0143.1, 0275, 0319, and 0351 are opposed to the deferral. Commenter 0118.1 noted that a deferral – amounting to complete suspension of the regulations for three years– is an extreme step contrary to legal requirements that EPA protect the environment and the public interest, and it is unnecessary to based on the reasons given in the proposal. Commenter 0119.1 is opposed because it will allow biomass facilities to be permitted or modified at the expense of forests, climate, and local communities. Additionally, commenter 0119.1 noted that the effect of the three year deferral could actually be much longer because once permitted, PSD regulations will not apply (perhaps for decades) until a major modification is requested. Commenter 0128.1 noted that the deferral

sets a bad precedent for CAA compliance and fails to acknowledge the important differences in biomass energy applications that may or may not achieve net GHG reductions. Additionally, the commenter asserts that there will be no federal limits on biomass burning in the foreseeable future which could create perverse incentives that lead to only marginal gains in air quality.

Commenter 0275 further stated that biomass burning is not a solution but is a severe problem in and of itself, and is the worst thing we could do from a climate change perspective.

**Response:** EPA disagrees with commenters' views that the interim deferral is not based on sound legal rationales. As EPA explained in the preamble, this interim deferral represents a permissible application of well-established administrative law doctrines, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, to develop a regulatory scheme that implements the CAA consistent with Congressional intent in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution. EPA disagrees with the commenters that the deferral may exceed three years or would necessarily lead to a degradation of air quality in violation of Congressional intent. EPA notes that the issue of subsequent applicability of the PSD and Title V programs to facilities that may be permitted during the deferral period is beyond the scope of this action and will be addressed in any rulemakings subsequent to the conclusion of the scientific study and development of the accounting methodologies. In response to the comment opposed to biomass burning, EPA notes that a variety of Federal and State policies have recognized that some types of biomass can be part of national strategy to reduce dependence on fossil fuels and to reduce emissions of GHG.

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**Comment:** Commenter 0150.1 noted that EPA should not have removed biogenic carbon emissions from consideration of the Tailoring Rule, and further should not take more than one year to develop appropriate carbon accounting rules. Moreover, the commenter asserted that a three-year delay will allow a number of biomass to electricity facilities to be built that will significantly increase US $CO_2$ emissions.

**Response:** EPA disagrees with the commenter. As explained in the preamble, EPA concluded it would need the three years of the deferral period to complete the scientific study and to develop the accounting framework for biogenic $CO_2$ emissions. In fact, as explained in the preamble, it is possible that the subsequent rulemaking, depending on the nature of EPA's determinations, would supersede this rulemaking and become effective in fewer than three years. The deferral period is no longer than necessary to complete these tasks in order to develop a regulatory scheme that implements the CAA consistent with Congressional intent in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution. Subsequent regulations to establish treatment of specific sources of biogenic emissions under the PSD and Title V programs, based on the results of the study and development of the accounting framework, are beyond the scope of this action.

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**Comment:** Commenter 0130.1 stated that EPA's recent decision to exempt $CO_2$ emissions from the combustion of biomass under the CAA regulation for the next three years will place communities across America at significant risk.

**Response:** EPA appreciates the views of the commenter and notes that it has received other comments taking an opposing view of impact of the deferral.

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**Comment:** Commenter 0128.1 noted that the deferral sets a bad precedent for CAA compliance and fails to acknowledge the important differences in biomass energy applications that may or may not achieve net GHG reductions. Additionally, the commenter asserts that there will be no federal limits on biomass burning in the foreseeable future which could create perverse incentives that lead to only marginal gains in air quality. The commenter further contends that the deferral puts states in the difficult position of developing their own methodologies that could lead to an uneven patchwork of regulatory approaches.

**Response:** EPA disagrees with commenter's characterization of this action and believes the comment underscores the complexity of the science surrounding biogenic emissions of $CO_2$ and their impact on the carbon cycle. As EPA explained in the preamble, this interim deferral represents a permissible application of well-established administrative law doctrines that EPA has used in other aspects of implementing the PSD program and other parts of the CAA. As discussed in the preamble, EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. EPA notes that it has received comments taking an opposing view of the impact of the deferral on the development of the biomass industry. In addition, EPA notes that a variety of Federal and State policies have recognized that some types of biomass can be part of national strategy to reduce dependence on fossil fuels and to reduce emissions of GHG.

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**Comment:** Two commenters (0138.1, 0131.1) objected to EPA's expressed concern about the proposal to defer regulation of deter safeguards for biogenic carbon dioxide emissions. The commenter agreed that EPA should study GHG $CO_2$ emissions from biogenic energy sources, but suspending regulation of biogenic emissions is not supported by good science.

**Response:** EPA appreciates the commenters' support for the scientific study but disagrees with the view that the deferral is not based on "good" science. EPA notes that it has received other comments taking an opposing view of the science, which underscores the complexity of the science associated with accounting for biogenic $CO_2$ emissions as part of the PSD and Title V permitting programs. EPA agrees that based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that emissions from certain biomass feedstocks may have a neglible impact on atmospheric concentrations of $CO_2$, but further believes based on this evidence that the deferral to allow for further study is warranted. As discussed in the preamble, EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. In addition, EPA is conducting an independent peer review by the SAB of the science and accounting methodologies associated with biogenic $CO_2$ emissions. EPA will consider the information about the carbon lifecycle presented by these commenters, as well as others, as it conducts this study and develops the accounting framework. EPA also notes that a variety of Federal and State policies have recognized that some types of biomass can be part of national strategy to reduce dependence on fossil fuels and to reduce emissions of GHG.

**Comment:** One commenter (0138.1) projected that biomass power generation will quadruple over the next ten years, and this rapid growth will have dramatic consequences for forests and carbon emissions because industry data demonstrate that the overwhelming majority of existing bio-energy plants use wood as fuel, and the overwhelming majority of new plants being planned and built will use wood as fuel. The commenter stated that plants co-firing biomass have a particular need for wood, rather than agricultural crops, since their boilers and emissions control equipment are not equipped to deal with the slagging and fouling that can accompany combustion of agricultural materials, and processed wood is the fuel of choice for coal plants wanting to co-fire biomass. The commenter stated that the three-year deferral on biomass pollution safeguards would create a flawed incentive for new and expanded power plants to burn biomass instead of other fuels and stated that because the supply of sustainable, low-carbon forestry wastes is extremely limited, expanding the biomass power industry will require burning whole trees. The commenter stated that EPA should not be creating incentives for burning biomass without safeguards for forests and the commenter provided projections of wood usage and $CO_2$ emissions associated with industrial plans to expand use of biogenic fuels. The commenter stated that the projected growth in wood consumption and the associated growth in $CO_2$ emissions are grounds for EPA to reject the proposed deferral.

**Response:** EPA notes that it has received other comments taking an opposing view of the impact of the deferral and the science, which underscores the complexity of the science associated with accounting for biogenic $CO_2$ emissions as part of the PSD and Title V permitting programs. EPA believes based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that emissions from certain biomass feedstocks may have a neglible impact on atmospheric concentrations of $CO_2$, but also believes based on the complexity of this evidence that the deferral to allow for further study is warranted. As discussed in the preamble, EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. This interim deferral represents a permissible application of well-established administrative law doctrines, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, to develop a regulatory scheme that implements the CAA consistent with Congressional intent in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution. EPA will consider the information about the carbon lifecycle presented by the commenter, as well as others, as it conducts this study and develops the accounting framework prior to developing subsequent regulations. EPA considers the commenter's views about the economics of the biomass industry to be beyond the scope of this action but notes that business decisions are made based on a number of factors, not just regulatory requirements.

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**Comment:** Commenter 0269 opposed deferral and stated that the biomass incinerators being proposed and constructed are a fast grab for scarce taxpayer dollars, are economically unconscionable, are economically unsustainable without major subsidies, are environmentally unconscionable, and are environmental travesties. The commenter also thought these sources should be subject to the same rules as other sources.

**Response:** EPA considers this commenter's views about the economics of the biomass industry to be beyond the scope of this action.

**Comment:** Commenter 0350.1 stated EPA's proposed exemption is unlawful, arbitrary, and capricious. The commenter opposed the blanket three-year exemption on policy grounds because if finalized it will have the effect of increasing uncontrolled near-term emissions of $CO_2$. The commenter stated EPA has not justified its proposal, either as a matter of law or science. The commenter stated that the blanket exemption is a plain violation of the statute's language and Congressional intent. Commenter 0350.1 stated EPA's only lawful course of action is to require PSD and Title V permits for every major source that emits $CO_2$ at the Tailoring Rule thresholds. The commenter noted that inquiries concerning allegedly clean fuel feedstocks for each facility must be resolved on a case-by-case basis as part of the BACT analysis.

**Response:** EPA disagrees with commenter's views that the interim deferral is arbitrary and capricious and not based on sound legal rationales or science. As EPA explained in the preamble, this interim deferral represents a permissible application of well-established administrative law doctrines, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, to develop a regulatory scheme that implements the CAA consistent with Congressional intent in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution. EPA believes that based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that emissions from certain biomass feedstocks may have a neglible impact on atmospheric concentrations of $CO_2$, but also believes based on this evidence that the deferral to allow for further study is warranted. As discussed in the preamble, EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. EPA considers the commenter's views on the requirements of a BACT analysis to be beyond the scope of this action.

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**Comment:** Commenter 0350.1 stated EPA's proposed exemption for biogenic $CO_2$ emissions is unlawful. The commenter stated the CAA language and statutory design require the "emissions" of "any air pollutant" including biogenic $CO_2$ count toward PSD and Title V applicability. The commenter stated that the plain language of the CAA and EPA's practice for decades makes absolutely clear that, in determining whether a facility must apply for a PSD or Title V permit (the "applicability determination"), all emissions of an air pollutant directly from the facility must be taken into account; regardless of the fuel types used at a source, if the relevant pollutant emission threshold is met, a preconstruction permit must be held, and the emissions limits it contains complied with, when the source is operational.

The commenter indicated that Section 165(a) of the Act requires that prior to the commencement of construction of any major emitting facility, a permit must be issued for the proposed facility based on the "best available control technology for each pollutant" emitted by the facility. 42 U.S.C.§§ 7475(a)(1), (a)(4)(emphasis added). The commenter noted the definition of "major emitting facility" in Section 169(a) also hinges on the emission of specified quantities of "any air pollutant." 42 U.S.C. §7479(1)(emphasis added). The commenter cited a court case where the Supreme Court, in Massachusetts v. EPA, 549 U.S. 497, 528-30 (2007), firmly established that $CO_2$ is an "air pollutant" within the meaning of the CAA, and that holding applies to all $CO_2$, not just to "fossil-fuel-based" $CO_2$. The commenter stated biogenic $CO_2$, like all other $CO_2$, is an air pollutant. The commenter noted that nothing in the language of the CAA permits EPA to count

less than all of the air pollutant that is emitted, or to carve out an exemption for some molecules of an air pollutant, depending on the fuel type from which it is produced. The PSD (and Title V) permitting requirements are triggered if the amount of emissions generated by the facility make it a "major emitting facility." 42 U.S.C. §7479(1). The statutory framework and EPA's longstanding interpretation of that framework10 requires assessment of how much of the air pollutant is emitted by the source. Specifically, a facility becomes a "major emitting facility" based on the amounts of pollutants which it "emit[s] or ha[s] the potential to emit." 42 USC § 7479(1)(emphasis added). Similarly, Section 165(a) of the Act requires that a facility's permit state the "emission limitations for such facility," and applies BACT for each pollutant "emitted from or which results from such facility." 42 U.S.C.§§ 7475(a)(1), (a)(4)(emphasis added). In other words, if the relevant threshold is met by a facility's at the stack and fugitive emissions, compliance with the BACT requirement is mandatory

The commenter stated there is nothing about biogenic $CO_2$ emissions that justifies the radical departure proposed by EPA from the statute's permitting framework. In short, $CO_2$, regardless of its source, is an air pollutant, and it is the amount of a facility's emissions that determines permit program "applicability," that is, whether the facility must hold PSD and Title V permits.

**Response:** EPA disagrees with commenter's views that the interim deferral is unlawful. As EPA explained in the preamble, this interim deferral represents a permissible application of well-established administrative law doctrines, which EPA has used to implement other aspects of the PSD program and other provisions of the CAA, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, to develop a regulatory scheme that implements the CAA consistent with Congressional intent in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution. EPA notes that the Supreme Court recently described the appropriateness of this approach as follows: "Agencies, like legislatures, do not generally resolve massive problems in one fell regulatory swoop;" and instead they may permissibly implement such regulatory programs over time, "refining their preferred approach as circumstances change and as they develop a more nuanced understanding of how best to proceed." Massachusetts v. EPA, 549 U.S. 497, 524 (2007). EPA believes that based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that emissions from certain biomass feedstocks may have a neglible impact on atmospheric concentrations of $CO_2$, but also believes based on the complexity of this evidence that the deferral to allow for further study is warranted. As discussed in the preamble, EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. Once that work is complete the Agency intends to undertake a rulemaking to establish the treatment of these emissions in the PSD and Title V programs. At this time we do not have enough information or analysis to establish an accounting methodology or treatment for specific sources biogenic $CO_2$ emissions in the PSD and Title V programs.

## 11.3 Permitting is Not Required

**Comment:** Numerous commenters (0013.1, 0015.1, 0023J, 0032.1, 0039.1, 0042.1, 0043.1, 0045.1, 0046.1, 0047.1, 0050.1, 0051.1, 0053.1, 0056.1, 0057.1, 0060.1, 0062.1, 0064.1, 0071.1, 0072.1, 0074.1, 0077.1, 0078.1, 0082.1, 0084.1, 0086.1, 0087.1, 0089.1, 0093, 0094.1, 0095.1,

0096.1, 0099.1, 0100.1, 0107.1, 0109.1, 0111.1, 0114.1, 0117.1, 0121.1, 0122.1, 0123.1, 0124.1, 0126.1, 0129.1, 0135.1, 0139.1, 0140.1, and 0146) supported the proposal. Commenter 0071.1 suggested that EPA should defer any regulation until new rules are in place. Commenters 0078.1 and 0082.1 stated projects (including bio-energy development projects) should not have to face uncertainty and potentially unnecessary costs and delays related to permitting and BACT while EPA deliberates. Commenters 0053.1 and 0062.1 encouraged EPA to differentiate biogenic emissions at municipal wastewater and solid waste facilities from harvested biomass when studying the biogenic permitting program, and commenter 0062.1 stated that Step 2 of the Tailoring Rule will prompt permitting for a very large number of these facilities. Similarly, commenter 0087.1 noted that requiring permitting at certain projects (e.g., methane combustion projects) could be counterproductive because such projects result in lower potential for global warming, and commenter 0077.1 described plans and projects to use methane from wastewater facilities to displace fossil fuels. Commenters 0032, 0043.1, and 0136.1 stated that the deferral is useful to take the time to review the science and engage with experts in order to properly consider how biogenic carbon should be permitted. Commenters 0074.1, 0095.1, 0126.1 and 0063.1 agreed that deferral of permitting is appropriate because science backs biogenic carbon neutrality, precedence has treated them as such, and regulation of *de minimis* emissions should be avoided. Commenter 0074.1 further stated that permitting is administratively infeasible through CAA programs. Commenter 0063.1 argued that the deferral of biogenic permitting requirements is appropriate because it will reduce dependence on fossil fuels, promote the use of renewable sources of energy, and reduce GHG emissions. Commenter 0086.1 supported the deferral and urges the EPA to adopt a categorical permitting exemption in line with EPA's treatment of biogenic emissions in other policies. Commenter 0023A cited court decisions supporting EPA's authority to exempt *de minimis* emissions from permitting and stated that since they pose no endangerment, biogenic emissions should be exempt from permitting.

Commenter 0100.1 provided a list of factors that should be considered to assess the net atmospheric impact of biogenic $CO_2$ emissions. Commenter 0056.1 stated that recognizing the reduced lifecycle footprint of biogenic emissions will lower GHG emissions profiles and avoid major permitting, at projects (such as ethanol production or other alternative fuel ventures) that promote EPA goals under RFS2 by aiding development and availability of alternative fuel sources.

Commenter 0101.1 supported deferral because the following factors indicate permitting biogenic energy development projects would not be good usage of limited permitting resources:

1. Forestland in the United States is a net carbon sink.
2. EPA has sufficient information to conclude that some biogenic fuels have negligible impact on the net carbon cycle.
3. In some cases, the use of biogenic fuel would clearly reduce net atmospheric $CO_2$ levels.
4. EPA has explicitly recognized that a permitting authority might determine that certain types of biomass by themselves represent BACT for GHG.

**Response:** EPA appreciates the commenters' views in support of the deferral. EPA notes that it has received other comments taking an opposing view of the impact of the deferral and the science, which underscores the complexity of the science associated with accounting for biogenic $CO_2$ emissions as part of the PSD and Title V permitting programs. EPA believes that based on information currently before the Agency, including information provided in response to

the CFI and the proposal for this rule, that emissions from certain biomass feedstocks may have a neglible impact on atmospheric concentrations of $CO_2$, but also believes based on the complexity of this evidence that the deferral to allow for further study is warranted. As discussed in the preamble, EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. This interim deferral represents a permissible application of well-established administrative law doctrines, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, to develop a regulatory scheme that implements the CAA consistent with Congressional intent in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution. EPA will consider the information about the carbon lifecycle presented by these commenters, as well as others, as it conducts this study and develops the accounting framework prior to developing subsequent regulations establishing treatment for biogenic emissions under the PSD and Title V programs.

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**Comment:** Commenter 0079.1 advises EPA to defer the implementation of its Tailoring Rule approach for all sources and emissions until at least 2013. If EPA does not implement this recommendation, the commenter supports the deferral of $CO_2$ emissions from biomass combustion.

**Response:** EPA appreciates the commenter's views in support of the deferral but notes that the commenter's request to defer implementation of the Tailoring Rule until 2013 is beyond the scope of this action and is not being reconsidered as part of this action.

## 11.4 Authority to Exempt *de minimis* Emissions

**Comment:** Commenter 0104.1 recognized EPA's authority to exempt emissions based on the *de minimis* doctrine, but stated that the proposal did not clearly specify the timeframe for assessing whether biogenic emissions have *de minimis* impacts on public health and welfare with respect to the urgent need to peak GHG emissions as recognized by U.S. delegates in the 2010 conference in Cancun. The commenter went on to say that the appropriate time frame for assessing carbon neutrality and whether biogenic impacts are *de minimis* is one to three years and suggested that EPA's authority to use the *de minimis* doctrine should be justified on a feedstock-specific basis.

**Response:** EPA appreciates the commenter's views in support of EPA's decision to defer applicability of the PSD and Title V permitting programs to at least certain feedstocks and sources of biogenic emissions. EPA notes that it has received other comments taking an opposing view of the rationale in support of the deferral and the state of the science, which underscores the complexity of the science associated with accounting for biogenic $CO_2$ emissions as part of the PSD and Title V permitting programs. EPA believes that based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that emissions from certain biomass feedstocks may have a neglible impact on atmospheric concentrations of $CO_2$, but also believes based on this and other evidence that the deferral to allow for further study is warranted. As discussed in the preamble, EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. This interim deferral represents a permissible application of well-established administrative law

doctrines, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, to develop a regulatory scheme that implements the CAA consistent with Congressional intent in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution. EPA believes that the full three-year deferral period, as opposed to only one year, is necessary to complete this work and to develop any subsequent regulations to establish treatment of the PSD and Title V programs to specific biogenic sources of $CO_2$ emissions.

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**Comment:** Commenter 0086.1 cited previous EPA assertions of authority to exempt *de minimis* emissions, used the PSD rule's exclusion of certain compounds from the definition of "volatile organic compound" and the PSD rule's use of significant impact concentrations as precedence, and stated that biogenic emissions warrant a similar assertion, because the carbon neutrality and the rapid carbon cycle of biomass are sufficient to support a finding that biogenic $CO_2$ emissions have a *de minimis* effect on human health or the environment.

**Response:** EPA appreciates the commenter's views in support of EPA's decision to defer applicability of the PSD and Title V permitting programs to at least certain feedstocks and sources of biogenic emissions. The deferral is necessitated by the complexity surrounding the accounting of biogenic $CO_2$ emissions, and is needed to give EPA and other permitting authorities time to develop a regulatory scheme that implements the CAA consistent with Congressional intent in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution.

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**Comment:** Commenter 0138.1 disagreed with EPA's justification that some biomass feedstocks have a *de minimis* impact on carbon levels. The commenter stated that EPA has not demonstrated that "residue" materials decompose in a short period of time. It has also not justified treating such emissions, which are assumed to achieve parity with decomposition emissions in 10 – 15 years, are worthy of being treated as instantaneously carbon neutral. Further, the Agency has not demonstrated that such materials constitute the sole or even predominant source of fuel for the current and future biomass industry. EPA thus has not provided the required proofs that regulating biogenic $CO_2$ would yield a gain of trivial or no value. Not only has EPA not provided the required proofs that its exemption is supportable or justified, but it cannot. The science does not exist to show that burning biomass emits only *de minimis* carbon emissions, and the Agency has admitted as much by stating that different kinds of biomass have different effects on emissions.

Burning biomass emits so much more carbon than burning fossil fuels because biomass powered electricity generating facilities are generally much less efficient than fossil fuel powered facilities, meaning whatever the source of biomass – whether it be waste, whole trees, or purpose-grown crops – emissions at the stack are much greater than emissions from generating the same amount of energy using coal, oil, or natural gas. For example, the air permit for the proposed 50 megawatt (MW) We Energies/Domtar biomass to energy plant in Rothschild, WI includes an emissions rate of 3,050 pounds of $CO_2$ per megawatt hour (lb/MWH)–or a total of 634,553 tons per year operating at 95% capacity, as compared with a gas-fired boiler which would generate around 1,130 lb of $CO_2$/ MWH or 235,097 tons of $CO_2$ per year given the same size, operating and capacity assumptions. The commenter provides $CO_2$ emissions for existing facilities using biofuels, and states that those emissions are significant, over 89 million tons, and

in the state of Maine, emissions from biomass burning are larger that emissions from the fossil fuel burning power sector.

**Response:** EPA disagrees with the commenter's characterization of EPA's rationale. As explained in the preamble, EPA believes that based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that emissions from certain biomass feedstocks may have a neglible impact on atmospheric concentrations of $CO_2$, or may be *de minimis* but also believes based on the complexity of this evidence that the deferral to allow for further study is warranted. EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. This interim deferral represents a permissible application of well-established administrative law doctrines, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, to develop a regulatory scheme that implements the CAA consistent with Congressional intent in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution. EPA will consider the information about the carbon lifecycle presented by the commenter, as well as others, as it conducts this study and develops the accounting framework prior to developing subsequent regulations establishing treatment for specific sources of biogenic emissions of $CO_2$ under the PSD and Title V programs.

## 11.5 *De minimis* Authority Does Not Apply

**Comment:** Commenter 0104.1 stated that EPA does not have authority to depart from current regulatory accounting provisions as proposed, because the proposal draws its exemption too broadly by including types of biomass feedstocks that have very different characteristics and whose burning will result in large GHG increases over a period of several decades. The commenter argued that the Agency therefore has not met its burdens to "depart no more than necessary to render the requirement administrable" and cited *Alabama Power v. Costle*, 636 F.2d 323, 359 (D.C. Cir. 1980).

**Response:** EPA disagrees with the commenter's characterization of EPA's rationale. As explained in the preamble, EPA believes that based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that emissions from certain biomass feedstocks may have a neglible impact on atmospheric concentrations of $CO_2$, or may be *de minimis* but also believes based on the complexity of this evidence that the deferral to allow for further study is warranted. EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. This interim deferral represents a permissible application of well-established administrative law doctrines, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, to develop a regulatory scheme that implements the CAA consistent with Congressional intent in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution. EPA will consider the information about the carbon lifecycle presented by the commenter, as well as others, as it conducts this study and develops the accounting framework prior to developing subsequent regulations establishing treatment for specific sources of biogenic emissions of $CO_2$ under the PSD and Title V programs.

**Comment:** Commenters 0104.1 and 0137.1 disagreed with proposal language asserting that biogenic carbon emissions are *de minimis* and stated that EPA did not provide adequate support for invoking the *de minimis* doctrine, because "current science overwhelmingly demonstrates that a blanket assumption of the carbon neutrality of non-wood[-]waste biomass, such as standing trees, is patently unreasonable." These commenters state that standing trees are the only viable feedstock that can satisfy the rapidly increasing demand for biogenic fuels in response to RPS and other incentives in the U.S. and Europe. Based on projections of the growth in demand for whole trees, commenter 0137.1 concluded that EPA is taking an unreasonable risk relying on the unproven potential for standing trees to be carbon neutral to justify this proposal.

**Response:** EPA disagrees with the commenter's characterization of EPA's rationale. As explained in the preamble, EPA believes that based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that emissions from certain biomass feedstocks may have a neglible impact on atmospheric concentrations of $CO_2$, or may be *de minimis* but also believes based on the complexity of this evidence that the deferral to allow for further study is warranted. EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. This interim deferral represents a permissible application of well-established administrative law doctrines, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, to develop a regulatory scheme that implements the CAA consistent with Congressional intent in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution. EPA will consider the information about the carbon lifecycle presented by the commenters, as well as others, as it conducts this study and develops the accounting framework prior to developing subsequent regulations establishing treatment for specific sources of biogenic emissions of $CO_2$ under the PSD and Title V programs.

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**Comment:** Commenter 0350.1 stated EPA has not met its heavy burden of proof under the "*de minimis*" doctrine. The commenter noted that neither of EPA's claims (that some biomass feedstocks emissions are negligible or *de minimis*, and that other biomass feedstocks may be determined to be negligible or de minimis in the future) would be legally sufficient justification for an immediate blanket exemption, and in fact, EPA provides no factual support at all. The commenter stated that EPA knows that the weight of the current and thorough science overwhelmingly demonstrates that biomass feedstocks are not carbon neutral and do not have negligible effects when combusted for energy production, particularly in the near-term timeframes that are most meaningful in addressing climate change. The commenter indicated that studies in the CFI amply demonstrate that near-term $CO_2$ emissions from stationary sources that combust biomass are greater than emissions from sources that combust fossil fuels for the same energy output (see docket items EPA-HQ-OAR-2010-0560-0066.2, EPA-HQ-OAR-2010-0560-0157.1, and EPA-HQ-OAR-2010-0560-0432.1).

**Response:** EPA disagrees with the commenter's characterization of EPA's rationale. As explained in the preamble, EPA believes that based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that emissions from certain biomass feedstocks may have a neglible impact on atmospheric concentrations of $CO_2$, or may be *de minimis* but also believes based on the complexity of this evidence that the deferral to allow for further study is warranted. EPA is using the time under

this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. This interim deferral represents a permissible application of well-established administrative law doctrines, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, to develop a regulatory scheme that implements the CAA consistent with Congressional intent in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution. EPA will consider the information about the carbon lifecycle presented by the commenters, as well as others, as it conducts this study and develops the accounting framework prior to developing subsequent regulations establishing treatment for specific sources of biogenic emissions of $CO_2$ under the PSD and Title V programs.

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**Comment:** Commenter 0350.1 stated EPA's authority to create "*de minimis*" exemptions from statutory requirements is extremely limited. The commenter pointed out that the *de minimis* doctrine is reserved for trifling matters, and EPA bears the burden of proving that any such departure from the language and the structure (the 'legislative design') of the statute truly is a trifle or inconsequential, and EPA's burden is a high one. The commenter quoted the following: "Determination[s] of when matters are truly *de minimis* naturally will turn on the assessment of particular circumstances, and the agency will bear the burden of making the required showing." *Alabama Power*, 636 F.2d 323, 360 (D.C. Cir. 1979); see also *NRDC v. EPA*, 966 F.2d 1292, 1306 (9th Cir. 1992) (rejecting EPA's attempt to create a *de minimis* exemption because of lack of data showing that regulation would be of "trivial or no value").

The commenter noted that the authority for such exemptions is limited to creating a standard only to the minimum extent necessary "to alleviate 'severe' administrative and economic burdens by lifting requirements on 'minuscule' emission increases." *New York v. EPA*, 443 F.3d 880, 888 (D.C. Cir. 2006) (quoting and citing *Alabama Power*, 636 F.2d at 405, as basis for vacatur of a regulatory provision that would have allowed modified sources with non-*de minimis* emissions increases to avoid statutory control requirements).

The commenter further noted that the *de minimis* doctrine does not provide an expansive "ability to depart from the statute, but rather a tool to be used in implementing the legislative design ... to provide an exemption when the burdens of regulation yield a gain of trivial or no value." *AA LJ v. FLRA*, 397 F.3d at 962(quoting, *EDF v. EPA*, 82 F3d 451, 465-66 (D.C. Cir. 1996)); see also *Public Citizen v. FTC*, 869 F.2d 1541, 1556-57 (D.C. Cir. 1989) (doctrine permits exemptions when application of statute would have no benefit). Therefore, "the doctrine obviously is not available to *thwart* a statutory command…. Nor is an agency to apply it on a finding merely that regulatory costs exceed regulatory benefits." *Public Citizen v. Young*, 831 F.2d 1108, 1113 (D.C. Cir. 1987) (quoting *Alabama Power*, 636 F.2d at 360).

**Response:** EPA disagrees with the commenter's characterization of the deferral and EPA's authority to issue the deferral under well-established administrative law doctrines. As explained in the preamble, EPA believes that based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that emissions from certain biomass feedstocks may have a neglible impact on atmospheric concentrations of $CO_2$, or may be *de minimis* but also believes based on the complexity of this evidence that the deferral to allow for further study is warranted. EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to

assist permitting programs and sources. This interim deferral represents a permissible application of well-established administrative law doctrines, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, to develop a regulatory scheme that implements the CAA consistent with Congressional intent in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution. EPA will consider the information about the carbon lifecycle presented by the commenter, as well as others, as it conducts this study and develops the accounting framework prior to developing subsequent regulations establishing treatment for specific sources of biogenic emissions of $CO_2$ under the PSD and Title V programs.

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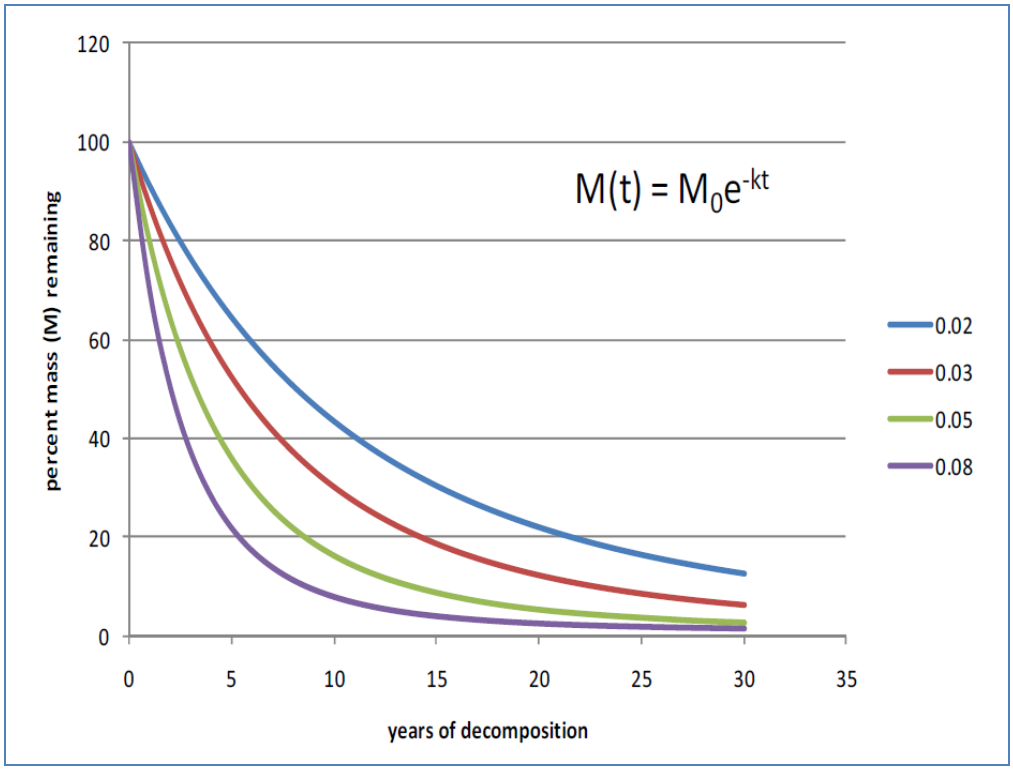
**Comment:** Commenter 0350.1 stated EPA has not met its required burden of proof to support the blanket exemption on the ground[s] that the exempted $CO_2$ emissions will be "*de minimis*" in context. The commenter stated EPA has made no effort to show all biogenic $CO_2$ emissions can be exempted because they are trivial or inconsequential in context. The commenter noted that EPA only states that it "believes" it has the authority to exclude all biogenic $CO_2$ emissions on *de minimis* grounds, provides no justification, and that EPA's failure to provide the legally required support for this rationale demonstrates the unlawfulness of its proposed blanket exemption. The commenter indicated that the science and engineering show that burning biomass emits more carbon than burning fossil fuels for the same energy output. The commenter cited a permit example where 840 lb $CO_2$ per MWH are emitted for a natural gas-fired unit, 1,885 lb $CO_2$ per MWH are emitted for a coal-fired unit, and 3,050 lb $CO_2$ per MWH are emitted for a biomass unit; the biomass unit emits 2 times the coal unit $CO_2$ emissions and almost 4 times the natural gas unit $CO_2$ emissions.

The commenter argued that EPA has insufficient scientific justification for a total exemption for all biomass feedstocks, and in fact, EPA has not even justified a limited exemption for specific feedstocks, for example, for residue materials. The commenter noted that EPA has not shown that residue materials actually do decompose in a short time period, has not shown that instantaneous emissions from biomass combustion are analogous to the emissions that occur over the course of a 10 to 15 year decomposition period, and EPA must at the very least make this showing to meet its burden to justify an exemption for residue material on the grounds that $CO_2$ emissions is *de minimis* in context. The commenter went on to state that EPA has not demonstrated that residue materials constitute the sole or predominant source of fuel for the biomass industry, and if a biomass facility burns other feedstocks than only residues, increased forest harvesting and the resulting net forest loss will create $CO_2$ increases beyond those measured at the stack. The commenter noted that until the last two or three years, when greater scientific scrutiny has been brought to bear on the question, harvesting trees for fuel was widely *assumed* to be "carbon neutral" based on an uncritical acceptance that as long as forests were allowed to regrow, carbon released by harvesting and combustion would be re-sequestered. The commenter indicated that recent science demonstrates that increased forest harvesting to meet increased demand for fuel *dramatically* increases net $CO_2$ emissions above the existing baseline, and cited findings from several recent studies, including: the critical importance of taking ongoing forest carbon sequestration into account when calculating net carbon emissions from biomass energy; the greater carbon emissions per unit energy from biomass than fossil fuels combined with the lost forest carbon sequestration associated with additional fuel harvesting produce net $CO_2$ emission that greatly exceed fossil fuels; and use of standing trees for bioenergy

immediately transfers carbon to the atmosphere, provides relatively smaller GHG benefit from displacing coal or gasoline, and increases overall emissions for several decades.

The commenter provided Energy Information Administration (EIA) data showing that in 2009, the existing biomass power industry emissions were already a significant source of $CO_2$, at 89 million tons $CO_2$. The commenter provided EIA $CO_2$ emissions specifically for Maine, where total power sector emissions are 5.2 million tons of $CO_2$ (where biomass $CO_2$ emissions are counted as zero emissions), and the biomass emissions are another 6.2 million tons $CO_2$ (wood and wood-derived fuels only, excludes municipal waste combustion), i.e., biomass $CO_2$ emissions more than double the total. The commenter noted that residues will not meet the new biomass demand, and increased forest harvesting will be required, which has been shown to significantly increase carbon emissions above fossil fuels. The commenter pointed out that both industry sources and the U.S. Forest Service admit that residues and wastes are not sufficient to meet biomass demand for energy production. In addition, the commenter noted that industries that make wood products have expressed concern that new biomass burning will increase the demand for wood. The commenter provided another example for Florida, where 6 new biomass plants will need the residues from approximately 1.9 million acres per year (based on estimate of 4.46 tons per acre) but the entire acreage for forest cutting in Florida is only approximately 0.33 million acres per year. The commenter stated that these data demonstrate the pressure to increase forest harvesting and wood production, even before EPA's proposed complete exemption for biomass facilities is finalized. The commenter suggested that a significant ramp-up in biomass co-firing at coal plants can be expected in response to the regulatory exemption.

The commenter reiterated that EPA has not shown that burning forestry wastes for energy production would yield only *de minimis* or trivial net $CO_2$ emissions. The commenter argued that burning biomass, even residues, *instantly* transfers more carbon to the air than burning fossil fuels, that decomposition takes time, and that it is not legitimate for EPA to treat $CO_2$ emissions from burning waste wood as if they achieve instant parity with emissions that would occur if decomposition were occurring instead. The commenter provided a graphic that shows significant amounts of decomposing material remains even 10 to 30 years after harvest.




The commenter cited a Finnish study that notes forest energy is not as low in emissions as is generally assumed; harvesting of wood from forests reduces the quantity of atmospheric carbon accumulated in forests; and logging residue would store carbon for a long time if left to rot in the forest. The commenter pointed out that EPA's assertion that burning dead trees killed by mountain pine beetles would reduce $CO_2$ emissions is completely unsupported. The commenter stated that larger wood masses like standing dead trees take far longer to decompose than logging residues, and EPA completely misstates the current scientific understanding of decomposition. The commenter pointed out that EPA has not provided a single example where combustion of biomass actually reduces GHG emissions. The commenter also cited a recent study that indicates the severity of crown fires may be reduced in beetle-killed stands relative to undisturbed stands. The commenter stated that EPA has not adequately distinguished its proposed treatment of the purported future effect from its longstanding approach to regulating criteria pollutants. The commenter went on to note that NOx is regulated at the point and time of emissions, and EPA does not ask the question of what the net balance of NOx will be at some point 10 to 30 years into the future, even though NOx does change after it is emitted. While EPA says the situation is unique to GHG regulation, the commenter noted that EPA provides no support or justification for this distinction.

**Response:** EPA disagrees with the commenter's characterization of the deferral and EPA's authority to issue the deferral under well-established administrative law doctrines. EPA notes that it has received other comments taking an opposing view of rationale in support of the deferral and the science, which underscores the complexity of the science associated with accounting for biogenic $CO_2$ emissions as part of the PSD and Title V permitting programs. As explained in the preamble, EPA believes that based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that

emissions from certain biomass feedstocks may have a neglible impact on atmospheric concentrations of $CO_2$, or may be *de minimis* but also believes based on this evidence that the deferral to allow for further study is warranted. EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. This interim deferral represents a permissible application of well-established administrative law doctrines, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, to develop a regulatory scheme that implements the CAA consistent with Congressional intent in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution. EPA will consider the information about the carbon lifecycle presented by the commenter, as well as others, as it conducts this study and develops the accounting framework prior to developing subsequent regulations establishing treatment for specific sources of biogenic emissions of $CO_2$ under the PSD and Title V programs.

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**Comment:** Commenter 0350.1 stated EPA's proposal, stripped to its most essential points, is entirely made on economic cost/benefit grounds, which cannot justify divergence from statutory requirements. The commenter stated that EPA's blanket exemption proposal is based on a thinly disguised policy argument that regulatory costs exceed regulatory benefits, which is never sufficient, standing alone to justify a *de minimis* exemption. *Public Citizen*, 831 F.2d at 1113. The commenter indicated that EPA nakedly speculates that the permitting requirements of the statute might *someday* prove financially wasteful, should EPA conclude, following a scientific investigation that the Agency has not yet conducted, that some unspecified biomass feedstocks might have a negligible carbon footprint. The commenter noted that an industry group asserts that its member companies will "obtain substantial benefits" under a biomass $CO_2$ exemption, and that biomass energy projects would be at risk of cancellation or delay if the exemption is not finalized, but the commenter stated these are purely economic arguments. The commenter cited additional industry group arguments against regulating the industry, such as reductions in capital investment, job losses, and other economic impacts; however, the commenter pointed out that even if true, there is no indication that these arguments are any more true for the biomass industry than for any other industry that emits $CO_2$ and is subject to EPA regulations. The commenter stated such arguments cannot justify a departure from statutory requirements, on *de minimis* grounds. *Public Citizen*, 831 F.2d at 1113.

**Response:** EPA disagrees with the commenter's view that this action is based purely on policy grounds or costs and is unsupported by the law or science. As EPA explained in more detail in the responses to the commenter's other comments, as well as in the preamble, this interim deferral represents a permissible application of well-established administrative law doctrines, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, to develop a regulatory scheme that implements the CAA in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution. As explained in the preamble, EPA believes that based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that emissions from certain biomass feedstocks may have a neglible impact on atmospheric concentrations of $CO_2$, or may be *de minimis* but also believes based on this evidence that the deferral to allow for further study is warranted. EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. EPA will consider the information about

the carbon lifecycle presented by the commenter, as well as others, as it conducts this study and develops the accounting framework prior to developing subsequent regulations establishing treatment for specific sources of biogenic emissions of $CO_2$ under the PSD and Title V programs.

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**Comment:** Commenter 0118.1 declared that to justify the deferral, EPA asserts that biogenic $CO_2$ emissions that would result from the deferral of regulation would be *de minimis*. However, the commenter contended that scientific materials already in the record from related proceedings in EPA rulemaking concerning these emissions already demonstrate that the assertion is false.

Commenter 0118.1 also noted that permanently making biogenic $CO_2$ sources at or above Tailoring Rule thresholds subject to PSD and Title V would not result in trivial gain and would in fact result in substantial gains and that sources that are clearly *de minimis* would not be regulated. Additionally, the commenter stressed that the available science in the Tailoring Rule record and need to mitigate climate change support any added administrative burdens the alternative may cause.

Commenter 0118.1 stated that applying, for three years, PSD and Title V requirements to all facilities that have the potential for net biogenic $CO_2$ at or above Tailoring Rule thresholds would result in significant overall regulatory gain and would be important for mitigating climate change.

**Response:** EPA disagrees with the commenter's characterization of the deferral and EPA's authority to issue the deferral under well-established administrative law doctrines. EPA notes that it has received other comments taking an opposing view of rationale in support of the deferral and the science, which underscores the complexity of the science associated with accounting for biogenic $CO_2$ emissions as part of the PSD and Title V permitting programs. As explained in the preamble, EPA believes that based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that emissions from certain biomass feedstocks may have a neglible impact on atmospheric concentrations of $CO_2$, or may be *de minimis* but also believes based on this evidence that the deferral to allow for further study is warranted. EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. This interim deferral represents a permissible application of well-established administrative law doctrines, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, to develop a regulatory scheme that implements the CAA consistent with Congressional intent in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution. EPA will consider the information about the carbon lifecycle presented by the commenter, as well as others, as it conducts this study and develops the accounting framework prior to developing subsequent regulations establishing treatment for specific sources of biogenic emissions of $CO_2$ under the PSD and Title V programs.

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**Comment:** Commenter 0078.1 stated EPA has justified the deferral based on the concept of *de minimis* emissions but believed the Agency's conclusion falls somewhat short of linking the soundness of the carbon balance in the U.S that fully supports the proposed action – the reality is clearly much better than *de minimis*. The commenter noted EPA is fully justified in deciding biogenic $CO_2$ emissions should be excluded.

**Response:** EPA appreciates with the commenter's support for the deferral. EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. This interim deferral represents a permissible application of well-established administrative law doctrines, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, to develop a regulatory scheme that implements the CAA consistent with Congressional intent in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution.

## 11.6 *De minimis* Authority Applies

**Comment:** Commenter 0082.1 stated that EPA has the authority to invoke the *de minimis* doctrine and exempt biogenic $CO_2$ emissions from permitting because the LULUCF inventory indicates sequestration capacity at the national scale is greater than demand for forest products. Commenters 0063.1, 0086.1, and 0095.1 agreed that EPA has the authority to apply the *de minimis* doctrine as long as a reasonable explanation has been provided. Commenters 0063.1 and 0095.1 further explained that because there is evidence that biogenic $CO_2$ emissions do not result in any net increases in atmospheric $CO_2$ at the national scale, these emissions do not share the "endangering" characteristic that EPA attributes to other GHG and supported EPA's authority to exempt biogenic emissions from PSD and Title V programs. Commenter 0095.1 stated that exempting these emissions would be consistent with the objective of striking and maintaining the balance Congress sought between economic growth and environmental preservation.

**Response:** EPA appreciates with the commenters views on the *de minimis* rationale and will keep them in mind as it conducts the scientific study, develops an accounting methodology, and undertakes subsequent rulemakings on these issues. EPA notes that the issue of an "endangerment" finding for biogenic $CO_2$ emissions is beyond the scope of this action. As explained in more detail in the "Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act" (74 FR 66496), and the Light Duty Vehicle Rule, the Agency has found that air pollution in the form of elevated concentrations of a group of six individual GHG in the atmosphere, including $CO_2$, may reasonably be anticipated to endanger both public health and public welfare and that emissions from new motor vehicles of an air pollutant composed of this same group of GHG contributes to this air pollution. In the Light Duty Vehicle Rule EPA set standards applicable to emissions of this air pollutant.

## 11.7 Potential for Some Biomass Feedstocks to Have a *De minimis* Impact on Carbon Levels in the Atmosphere

**Comment:** Commenter 0062.1 supported EPA's statement that some biomass feedstocks have a *de minimis* impact and commenter 0104.1 articulated that special provisions may be warranted for some biogenic fuel stocks which may be *de minimis* and divided biomass into three color-coded categories with respect to potential for *de minimis* impacts when used as fuel:

- The commenter described "green" biomass as responsibly-grown perennials that might well qualify as carbon neutral over a one year accounting period, consistent with the current PSD legal framework. This category may also include some crops deemed neutral

over a three year period. The commenter stated that such "green" feedstocks may be eligible for the *de minimis* doctrine.

- The commenter described "red" biomass as fuel stocks such as whole trees that are not carbon neutral in the near-term time scale relevant to curtailing global warming; such feedstocks are not eligible for the *de minimis* doctrine.
- The commenter construed the proposal as asserting that further study might support a *de minimis* conclusion for the "gray" biomass, but stated that EPA must support this conclusion with a record based on available data.

**Response:** EPA agrees with the commenters' view that some biomass feedstocks may have *de minimis* impact on atmospheric levels of $CO_2$. EPA notes that it has received other comments taking an opposing view of the science, which underscores the complexity of the science associated with accounting for biogenic $CO_2$ emissions as part of the PSD and Title V permitting programs. As explained in the preamble, EPA believes that based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that emissions from certain biomass feedstocks may have a neglible impact on atmospheric concentrations of $CO_2$, or may be *de minimis* but also believes based on the complexity of this evidence that the deferral to allow for further study is warranted. EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. This interim deferral represents a permissible application of well-established administrative law doctrines, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, to develop a regulatory scheme that implements the CAA consistent with Congressional intent in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution. EPA will consider the information about the carbon lifecycle presented by the commenters, as well as others, as it conducts this study and develops the accounting framework prior to developing subsequent regulations establishing treatment for specific sources of biogenic emissions of $CO_2$ under the PSD and Title V programs.

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**Comment:** Commenter 0350.1 stated that EPA has not justified even a limited exemption for particular biomass feedstocks. The commenter stated the Act requires EPA to consider all $CO_2$ emissions when determining PSD and Title V applicability, without creating exemptions based on fuel characteristics or sources that emit the pollutant; the statute also mandates case-by-case BACT determinations. See 42 U.S.C. §7479(3) (defining BACT as a case-by-case determination, based in part on the application of clean fuels). The commenter noted that EPA would have to provide sufficient scientific and legal justification for each exempted feedstock. The commenter further indicated that any such exemption would have to be drawn narrowly enough to demonstrate that no facility-specific life-cycle inquiry is necessary for the particular feedstock. The commenter stated that the burden to justify even a limited exemption proposed in the future would be very high.

**Response:** EPA disagrees with the commenter's characterization of the deferral and EPA's authority to issue the deferral under well-established administrative law doctrines. As explained in the preamble, EPA believes that based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that emissions from certain biomass feedstocks may have a neglible impact on atmospheric concentrations of $CO_2$, or may be *de minimis* but also believes based on the complexity of this evidence that the deferral to

allow for further study is warranted. EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. This interim deferral represents a permissible application of well-established administrative law doctrines, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, to develop a regulatory scheme that implements the CAA consistent with Congressional intent in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution. Subsequent regulations to establish treatment of biogenic emissions under the PSD and Title V programs are beyond the scope of this action.

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**Comment:** Commenter 0084.1 stated that because biogenic sources of $CO_2$ emissions, other than combustion of biomass, have not been the focus of recent CAA changes and guidance, generally accepted emission factors have not been developed and reviewed. The commenter declared that this will cause enormous difficulties when trying to determine whether emissions from biogenic sources will trigger PSD/Title V when added to sources of $CO_2$ from combustion of fossil fuels or biomass fuels. The commenter further stated that there are currently no AP-42 emission factors available for those types of biogenic sources and that many of those sources are fugitive in nature. Commenter 0084.1 asserted that unless EPA and then the non-EPA permitting authorities revise the current PSD/Title V rules to permanently recognize the carbon neutrality of most, if not all, biogenic emissions, the lack of emission estimation techniques will result in great regulatory uncertainty and difficulty for affected sources. Those difficulties, the commenter stated will have to be a major factor in EPA's future estimates of paperwork in Information Collection Requests to OMB pursuant to the Paperwork Reduction Act.

**Response:** EPA appreciates the commenter's views. The comment underscores the complexity of the science associated with accounting for biogenic $CO_2$ emissions as part of the PSD and Title V permitting programs. As discussed in the preamble, EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources.

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**Comment:** Commenters 0071.1 and 0332 believe the prevailing science acknowledges significant carbon benefits of energy produced using renewable biomass. The commenter pointed out that biomass energy production avoided the GHG emissions associated with the production of fossil fuels, and it avoids the biogenic greenhouse gas emissions (mainly methane) of the various alternative disposal fates of biomass residues, replacing them with the lower potency greenhouse gas emissions of energy production. Commenter 0071.1 also stated that biomass combustion actually promotes further forest growth by providing landowners with an incentive to maintain forests instead of pursuing other land use options that sequester less carbon.

**Response:** EPA appreciates the commenters' views. The comment underscores the complexity of the science associated with accounting for biogenic $CO_2$ emissions as part of the PSD and Title V permitting programs. As discussed in the preamble, EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources.

**Comment:** Commenter 0093.1 cited a white paper on alternative fates for biomass. The commenter noted that according to the white paper, of all of the alternative fates for biomass the use of fuels for energy production leads to lower levels of biogenic greenhouse gases over time than the alternative disposal of the resources. The commenter stated that biogenic emissions from energy production using all of these kinds of biomass resources, which include biomass diverted from landfill disposal, biomass diverted from open burning, and biomass that results from forest treatment operations (thinning) designed to reduce the risks of destructive wildfires and insect and disease outbreaks, should be granted exemptions from the Tailoring Rule based on a finding of *de minimis* impact.

**Response:** EPA appreciates the commenter's views. The comment underscores the complexity of the science associated with accounting for biogenic $CO_2$ emissions as part of the PSD and Title V permitting programs. As discussed in the preamble, EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. This interim deferral represents a permissible application of well-established administrative law doctrines, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, to develop a regulatory scheme that implements the CAA consistent with Congressional intent in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution.

**Comment:** Commenter 0089.1 stated that sufficient data exist for permanent exemptions for certain biomass feedstocks and fuels. The commenter recommends that EPA permanently exempt those biomass fuels that had been clearly demonstrated to be carbon neutral and apply the deferral rule only to those biomass fuels that EPA needs to resolve the uncertainty as to the impact on the carbon cycle.

**Response:** EPA appreciates the commenter's views. As explained in the preamble, EPA believes that based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that emissions from certain biomass feedstocks may have a neglible impact on atmospheric concentrations of $CO_2$, or may be *de minimis* but also believes based on the complexity of this evidence that the deferral to allow for further study is warranted. EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. This interim deferral represents a permissible application of well-established administrative law doctrines, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, to develop a regulatory scheme that implements the CAA consistent with Congressional intent in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution. Subsequent regulations to establish treatment of biogenic emissions under the PSD and Title V programs are beyond the scope of this action.

## 11.8 Administrative Burdens of Permitting Projects Involving Biogenic $CO_2$

**Comment:** Commenter 0104.1 argued that EPA has not demonstrated that permitting major facilities which are sources of biogenic emissions will be burdensome since they have already

been accounted for under Step 2 of the Tailoring Rule. Furthermore, the commenter requests that EPA provide information on the degree of burden from permitting that any state will incur and what types of feedstocks the facilities within those states will use. The commenter provided some history on the tiered system in the Tailoring Rule and requests that EPA explain why the tiered system is an excessive burden which justifies the potential for categorical exclusion of biogenic $CO_2$ emissions despite the scientific evidence surrounding the impacts of certain feedstocks. However, the commenter did anticipate that accounting for the complexity of which feedstocks should be considered *de minimis* (e.g., highly productive perennial grasses, MSW and wastewater biogas generation, etc.) and which should be subject to permitting (e.g., feedstocks with unknown lifecycle impacts or those which have clear impacts such as whole trees) will add some necessary and prudent burdens. Commenter 0045 argued that the deferral will eliminate administrative burdens that could otherwise encumber the biomass industry and that the deferral will facilitate construction of countless bioenergy facilities at tremendous costs in terms of state and federal bioenergy subsidies. Commenter 0045 stated that such projects will cause substantial losses of American forests, and that such projects will be completed at the expense of our planet's climate and public health.

**Response:** EPA disagrees with the commenters' views on the burdens associated with the accounting of biogenic emissions of $CO_2$. As explained in the preamble, EPA believes that based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that emissions from certain biomass feedstocks may have a neglible impact on atmospheric concentrations of $CO_2$, or may be *de minimis* but also believes based on the complexity of this evidence that the deferral to allow for further study is warranted. EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. This interim deferral, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, provides EPA with time to develop a regulatory scheme that implements the CAA consistent with Congressional intent in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution. EPA will consider the information about the carbon lifecycle presented by the commenters, as well as others, as it conducts this study and develops the accounting framework prior to developing subsequent regulations establishing treatment for specific sources of biogenic emissions of $CO_2$ under the PSD and Title V programs.

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**Comment:** Commenter 0145.1 stated that the proposal sets permitting authorities up for the insurmountable task of trying to determine lifecycle emissions for an extremely broad classification of biogenic materials, and that instead of reducing the regulatory burden of GHG regulations the proposal increases burdens associated with properly permitting bioenergy facilities. Commenter 0145.1 characterized the proposed deferral as "exempting an entire industry from regulation legally mandated by Massachusetts v. EPA" at the expense of public health and the environment.

**Response:** EPA disagrees with the commenter's views that the deferral increases the regulatory burden. As explained in the preamble, EPA believes that based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that emissions from certain biomass feedstocks may have a neglible impact on atmospheric concentrations of $CO_2$, or may be *de minimis* but also believes based on the complexity of this

evidence that the deferral to allow for further study is warranted. EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. This interim deferral, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, provides EPA with time to develop a regulatory scheme that implements the CAA consistent with Congressional intent in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution. EPA will consider the information about the carbon lifecycle presented by the commenters, as well as others, as it conducts this study and develops the accounting framework prior to developing subsequent regulations establishing treatment for specific sources of biogenic emissions of $CO_2$ under the PSD and Title V programs.

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**Comment:** Commenter 0053 stated that municipal wastewater management agencies warrant special treatment because they manage waste for the benefit of people and the environment, not for profit. Such public services would be significantly and unproductively burdened by the Tailoring Rule if biogenic emissions are not exempted. Similarly, Commenter 0116.1 further added that a small portion is non-biogenic (e.g., from combustion of non-recyclable plastic) and under EPA's proposal larger WTE facilities will remain subject to the costly and burdensome PSD-Title V permitting regimen, regardless of the biogenic ruling. Imposing PSD-Title V regulation for WTE facilities' insignificant non-biogenic $CO_2$ emissions will only serve to discourage WTE and encourage land-filling, resulting in higher GHG emissions. Commenter 0116.1 provides several references in support of the environmental and GHG-mitigating benefits of WTE over land-filling.

**Response:** EPA appreciates the commenters' views. As explained in the preamble, EPA believes that based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that emissions from certain biomass feedstocks may have a neglible impact on atmospheric concentrations of $CO_2$, or may be *de minimis* but also believes based on the complexity of this evidence that the deferral to allow for further study is warranted. EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. This interim deferral, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, provides EPA with time to develop a regulatory scheme that implements the CAA consistent with Congressional intent in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution. Subsequent regulations to establish treatment of specific sources of biogenic emissions under the PSD and Title V programs are beyond the scope of this action.

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**Comment:** Commenter 0070.1 suggested that biomass deferral, and then permanent exemption should be expanded to $CO_2e$ because the $CH_4$ and $N_2O$ emissions from biomass combustion typically account for a small fraction of the GWP. Inclusion of in the deferral would promote the construction of biomass facilities and compliance with state voluntary or mandatory renewable energy standards. Another option is for EPA to invoke the *de minimis* doctrine to $CH_4$ and $N_2O$ from biomass combustion. Commenter 0032 stated that small facilities which use wood byproducts for combined heating and power would incur unreasonably high costs to meet the

permitting requirements under the original rule. The commenter articulated that administrative burdens may result in lost jobs or the diversion of by-products to waste streams and significantly impact the forest products industry, particularly in rural areas with vulnerable economies. Commenter 0062.1 argued that EPA has not adequately assessed the additional number of PSD permits or the added complexity in permit development that will be entailed by permitting biogenic emissions. The commenter expects that inclusion will greatly increase the complexity of PSD review by requiring lifecycle analyses and interpretation of the GHG implications associated with new projects. Commenter 0062.1 projected that the addition of GHG (particularly biogenic $CO_2$ emissions) will subject many more landfill projects (e.g., expansions, control devices, new LFGTE projects etc.) to PSD permitting in part because there is no available control device for $CO_2$. Additionally, commenter 0062.1 stated that if biogenic $CO_2$ emissions from landfill gas projects are regulated under the PSD program, the facilities would need carbon credits to offset pollution control devices required by the NSPS program which reduces methane and other organic compounds to $CO_2$. Therefore, EPA would require carbon credits for the operation of a system which has been internationally recognized as a means of generating legitimate, tradable carbon credits, and Commenter 0062.1 argued that requiring permits for landfill generation of biogenic $CO_2$ could thwart the development of new landfill gas to energy projects even though the projects can be beneficial by converting methane to $CO_2$. Commenters 0074.1, 0087.1 and 0091.1 stated that any environmental effect of biomass combustion on atmospheric concentrations of $CO_2$ is a beneficial one. The commenters supported EPA's assessment that placing the burdens of those studies on local permitting authorities that already face permitting backlogs from existing and new air quality standards would be unmanageable, especially during a time when budgets and workforces have been cut. Further, commenter 0087.1 stated that BACT analyses required to determine the net impact of biomass projects would impose even more time-consuming and novel considerations on state PSD permitting programs above a beyond current challenges completing BACT determinations for $CO_2$ from fossil fuels. Commenter 0102.1 articulated that an extension of PSD permitting requirements to biogenic $CO_2$ emission sources would not be only burdensome to state and local permitting agencies, but would also affect Minnesota's commitment to renewable energy through the Next Generation Energy Act.

**Response:** EPA disagrees with the commenters seeking expansion of the deferral to $CO_2e$. While non-$CO_2$ GHG are produced when biomass is combusted, the level of emissions and resulting impact on atmospheric concentrations of these gases are primarily related to the feedstock handling and combustion conditions at the specific plant rather than to the source of the feedstocks. We finalized this rule as proposed and included only biogenic $CO_2$ emissions for this reason, and we note further that emissions of non-$CO_2$ GHG are typically a small proportion of the total GHG emissions from combustion of biologically based material. Since the non-$CO_2$ GHGs are so small relative to $CO_2$, the deferral of biogenic $CO_2$ emissions will ensure the biomass combustion projects will likely not meet the applicability thresholds based on their $CH_4$ and $N_2O$ emissions alone.

EPA appreciates the views of the commenters who expressed concern about the burdens faced by permitting authorities to account for biogenic emissions of $CO_2$ and the impact permitting delays will have on industries that use biomass. EPA is using the time under this interim deferral to study the science surrounding accounting for biogenic $CO_2$ emissions in order to develop an accounting framework to assist permitting programs and sources. Subsequent regulations to

establish treatment of specific sources of biogenic emissions under the PSD and Title V programs are beyond the scope of this action.

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**Comment:** Commenter 0070.1 suggested that biomass deferral, and then permanent exemption should apply to $CO_2$ and $CO_2e$. $CO_2e$ of these other greenhouses gases are typically a small fraction of the total carbon dioxide emitted during biomass combustion. Inclusion of $CH_4$ and $N_2O$ in the deferral would promote the construction of biomass facilities and compliance with state voluntary or mandatory renewable energy standards. To the extent EPA chooses not to do this, as an alternative, $CH_4$ and $N_2O$ should be deemed *de minimis* for purposes of the threshold determination, so as not to undermine EPA's stated purpose for proposing the deferral.

**Response:** EPA disagrees with the commenters seeking expansion of the deferral to $CO_2e$. While non-$CO_2$ GHG are produced when biomass is combusted, the level of emissions and resulting impact on atmospheric concentrations of these gases are primarily related to the feedstock handling and combustion conditions at the specific plant rather than to the source of the feedstocks. We finalized this rule as proposed and included only biogenic $CO_2$ emissions for this reason, and we agree with the commenter that emissions of non-$CO_2$ GHG are typically a small proportion of the total GHG emissions from combustion of biologically based material. Since the non-$CO_2$ GHGs are so small relative to $CO_2$, the deferral of biogenic $CO_2$ emissions will ensure the biomass combustion projects will likely not meet the applicability thresholds based on their $CH_4$ and $N_2O$ emissions alone. Subsequent regulations to establish treatment of specific sources of biogenic emissions under the PSD and Title V programs are beyond the scope of this action.

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**Comment:** Commenter 0084.1 stated that under PSD permitting guidelines whether a project is "new" depends on rules that often take the form of "grandfather" exemptions, and whether a project is "major" depends, of course, on the complex "algebra" of "before and after" emissions, as well as netting. The commenter expressed that it appears when EPA takes its final action, it plans to remove $CO_2$ emissions from that applicability "algebra" immediately upon the effective date of the final action. Therefore, the commenter contended, a project could be "major" for PSD or Title V purpose on one day and "minor" the next. The commenter stressed that it is critical for avoiding wasted effort, unnecessary delay, and sound planning that EPA time its final action and the effective date of that action so as to occur well before July 1, or at least as of July 1. The commenter is concerned that EPA may have difficulty accomplishing this because of the volume of comments on the present proposal or competing priorities. As a result, the commenter noted that the EPA must make sure to avoid what could be a de facto construction moratorium if EP A is delayed or does not time the effective date well.

**Response:** EPA agrees with the commenter that accounting for biogenic emissions, as part of determining applicability of PSD and Title V programs, is complex. As discussed in the preamble, EPA is using the time under this interim deferral to study the science surrounding accounting for biogenic $CO_2$ emissions in order to develop an accounting framework to assist permitting programs and sources. EPA believes that the full three year deferral period is necessary to complete this work and to develop any subsequent regulations to establish treatment of the PSD and Title V programs to specific biogenic sources of $CO_2$ emissions.

**Comment:** Commenter 0118.1 noted that with the deferral EPA seeks to avoid the absurd result of an excessive permitting burden; however, the commenter contended that the deferral creates the even more absurd result of allowing major biogenic $CO_2$ sources to escape regulation permanently and irreversibly if they utilize the three year window. Commenter 0118.1 expressed that this is a direct contradiction to the legal requirement for EPA to regulate $CO_2$ emissions. The commenter stated that the deferral can be expected to result in a stampede of hastily-filed applications, made by corporations and other entities in an effort to avoid $CO_2$ regulation, which the commenter contended will result in regulatory burden. Commenter 0118.1 also noted that the deferral will create an unfair competitive advantage for those entities that construct facilities under the loophole, over those entities that construct later, when emissions are regulated. The commenter believes the deferral is illegal.

**Response:** EPA disagrees with the commenter's characterization of the deferral and EPA's authority to issue the deferral under well-established administrative law doctrines. EPA notes that it has received other comments taking an opposing view of rationale in support of the deferral and the science, which underscores the complexity of the science associated with accounting for biogenic $CO_2$ emissions as part of the PSD and Title V permitting programs. As explained in the preamble, EPA believes that based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that emissions from certain biomass feedstocks may have a neglible impact on atmospheric concentrations of $CO_2$, or may be *de minimis* but also believes based on the complexity of this evidence that the deferral to allow for further study is warranted. EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. This interim deferral represents a permissible application of well-established administrative law doctrines, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, to develop a regulatory scheme that implements the CAA consistent with Congressional intent in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution. Subsequent regulations to establish treatment of specific sources of biogenic emissions under the PSD and Title V programs, based on the results of the study and development of the accounting framework, are beyond the scope of this action.

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**Comment:** Commenter 0129.1 stressed that EPA has not adequately addressed the regulatory burdens associated with permitting biogenic emissions under the PSD and Title V programs citing EPA's technical support document for the Tailoring Rule. The commenter noted that the land fill section evaluation of technical support document did not include the number of new facilities impacted nor did it account for biogenic emissions in the analysis. Thus, the commenter stated, the administrative burdens for including biogenic emissions have clearly not been evaluated based on EPA's technical support, and concluded that the inclusion of biogenic emissions will increase the number of permits and create an unnecessary regulatory burden even when there is no climate change impact.

**Response:** EPA conducted the regulatory burden analysis for the Tailoring Rule proposal utilizing the Information Collection Requests for PSD and Title V Programs, along with earlier analyses performed and data gathered to develop emission thresholds for the proposed and final GHG Mandatory Reporting Rule. During the public comment period, some commenters

requested that, in calculations of emissions for determining applicability of PSD and Title V, EPA exempt emissions from biogenic activities or biomass combustion or oxidation activities. Revisions were made to the burden analysis based on comments received during proposal and updates to key assumptions. However, commenters did not provide information to demonstrate that an overwhelming permitting burden would still exist, thereby justifying an exclusion for biomass sources.

EPA acknowledges the commenter's concern that the administrative burdens for including biogenic emissions have not been evaluated. At that time, EPA had not examined burdens with respect to specific source categories impacted by the rule and thus had not analyzed the administrative burden of permitting projects that specifically involve biogenic $CO_2$ emissions taking account of the threshold-based approach. Thus, the Agency indicated its intent to seek further comment on how to address emissions of biogenic $CO_2$ under the PSD and Title V programs through a future action. After soliciting views from the public through the CFI and granting NAFO's petition for reconsideration, EPA initiated a detailed examination of the science associated with biogenic $CO_2$ emissions from stationary sources is conducted, including engaging with federal partners, technical experts, and an independent scientific panel to consider technical issues. Based on the feedback from the scientific and technical review, EPA will then undertake rulemaking to determine how biogenic $CO_2$ emissions should be treated and accounted for in PSD and Title V permitting.

## 11.9 Applying the Tailoring Rule Rationale for Biomass

**Comment:** Commenter 0118.1 noted that deferral of the Tailoring Rule is itself an "absurd result," an outcome the EPA set out to avoid. The commenter expressed that a better alternative needs to be chosen.

**Response:** EPA disagrees with the commenter's characterization of the Tailoring Rule and considers reconsideration of it outside the scope of the action. This interim deferral, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, provides EPA with time to develop a regulatory scheme that implements the CAA consistent with Congressional intent in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* sources of air pollution.

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**Comment:** Commenter 0129.1 encouraged EPA to finalize the deferral no later than July 1, 2011 which is a critical deadline for the PSD Tailoring rule implementation.

**Response:** EPA agrees with the commenter.

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**Comment:** Commenter 0064.1 stated that the extension of PSD permitting to $CO_2$ emissions from biomass sources is counter to EPA's own technical and policy findings and programs based on current science. The Tailoring Rule is the first rule in the world to regulate emissions of GHG from biomass to the same degree as emissions from fossil fuels. It is contradictory for the EPA to recognize biomass as a potential tool for Best Available Control Technology for emissions reduction while simultaneously treating biomass emissions as equal to fossil fuel emissions within the permitting requirements.

**Response:** EPA disagrees with the comment. As explained in the preamble, EPA believes based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that emissions from certain biomass feedstocks have a neglible impact on atmospheric concentrations of $CO_2$, or may be *de minimis* but also believes based on the complexity of this evidence that the deferral to allow for further study is warranted. EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. This interim deferral represents a permissible application of well-established administrative law doctrines, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, to develop a regulatory scheme that implements the CAA consistent with Congressional intent in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution. Subsequent regulations to establish treatment of specific sources of biogenic emissions under the PSD and Title V programs, based on the results of the study and development of the accounting framework, are beyond the scope of this action.

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**Comment:** Commenter 0071.1 stated that EPA should use the method it has already employed in the Tailoring Rule—adopting an "enforceable commitment" to carrying through the study and rulemaking. 40 CFR §§ 50.22, 70.12, 71.13, 75 Fed. Reg. at 31,607-08. Thus EPA would commit in its regulations to complete the review and new rules within three years. That course would utilize an already-existing EPA policy regarding ongoing regulatory review and be more legally consistent with the parallel Tailoring Rule.

**Response:** EPA disagrees with the comment. As explained in the preamble, EPA believes based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that emissions from certain biomass feedstocks have a neglible impact on atmospheric concentrations of $CO_2$, or may be *de minimis* but also believes based on the complexity of this evidence that the deferral to allow for further study is warranted. EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. This interim deferral represents a permissible application of well-established administrative law doctrines, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, to develop a regulatory scheme that implements the CAA consistent with Congressional intent in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution. Subsequent regulations to establish treatment of specific sources of biogenic emissions under the PSD and Title V programs, based on the results of the study and development of the accounting framework, are beyond the scope of this action.

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**Comment:** Commenter 0082.1 articulated that the application of the PSD and Title V programs to stationary source GHG is ill-advised, whether with or without the Agency's temporary modification of applicability thresholds. The commenter stated that EPA compounded the problems when it reversed national and international precedent and policy by requiring facilities to include their biogenic $CO_2$ emissions in the temporary applicability thresholds established in the final PSD Tailoring Rule.

**Response:** EPA disagrees with the comment. EPA notes it did consider treatment of biogenic emissions during the development of the Tailoring Rule but determined the information before the Agency at that time did not provide sufficient basis to exclude emissions of $CO_2$ from biogenic sources in determining permitting applicability provisions at that time. In the final Tailoring Rule we indicated that the decision not to provide this type of an exclusion at that time did not foreclose EPA's ability to either (1) provide this type of exclusion at a later time with additional information about overwhelming permitting burdens due to biomass sources, or (2) provide another type of exclusion or other treatment based on some other rationale. Although we did not take a final position, we noted that some commenters' observations about a different treatment of biomass combustion warranted further exploration as a possible rationale.

Therefore, although we did not establish a permanent exclusion from PSD or Title V applicability based on specific characteristics of biogenic $CO_2$, we indicated our intent to seek further comment on how we might address emissions of biogenic $CO_2$ under the PSD and Title V programs through a future action. This action fulfills that intent, and enables the Agency to make its final decision on the treatment of these emissions based on a thorough analysis of applicable science and policy concerns.

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**Comment:** Commenter 0089.1 asked for a clarification of the actual effect of the deferral on new facilities or modifications completed during the three year deferral that would have otherwise triggered GHG BACT requirements without the deferral rule. The commenter stated that the language in the proposal created some uncertainty as to whether the deferral fully exempts new and modified sources permitted during the three year period or only delays applicability.

**Response:** EPA notes that the issue of subsequent applicability of the PSD and Title V programs to facilities that may be permitted during the deferral period (also referred to as "grandfathering") is beyond the scope of this action and an is addressed in more detail in Section II.C of the preamble.

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**Comment:** Commenter 0350.1 stated that EPA has not justified a blanket exemption for biogenic $CO_2$ on "administrative necessity" grounds. The commenter noted EPA's reliance in part on the same rationale used to justify the Tailoring Rule phase-in approach, namely the administrative necessity and absurd results doctrines; however EPA does not come close to justifying proposed exemption for biogenic $CO_2$ on either of those grounds. In the Tailoring Rule, the commenter noted that EPA conducted the appropriate 3-step process (included streamlining administration, justifiably concluding that remaining administrative tasks are impossible for the Agency, and phasing in or adjusting the requirements so they are administrable); calculated the number of permits, the work hours, and the cost required under the statute's threshold emission levels and demonstrated the efforts exceeded the current program by orders of magnitude; and then calculated the same impacts for 8 alternative approaches and discussed each at length. The commenter stated the availability of the administrative necessity doctrine is limited to cases involving proven impossibility and cited the supporting cases. The commenter stated that the evidentiary bar for an Agency's claims of administrative necessity is extremely high, and such claims must be rejected in all but impossibly burdensome circumstances.

**Response:** EPA disagrees with the commenter's characterization of the deferral and the view that this action is unsupported by the law. As EPA explained in the responses to the commenter's other comments, as well as in the preamble, this interim deferral represents a permissible application of well-established administrative law doctrines, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, to develop a regulatory scheme that implements the CAA in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution. As amply demonstrated in the record and in the preamble, the complexity and uncertainty of the science surrounding biogenic emissions of $CO_2$ from various sources and their role in the carbon cycle, as well as the lack of established accounting methodologies, create significant challenges for permitting authorities and sources already burdened by their obligations under the PSD and Title V programs to regulate GHG. EPA believes that based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that emissions from certain biomass feedstocks may have a neglible impact on atmospheric concentrations of $CO_2$, or may be *de minimis* but also believes based on the complexity of this evidence that the deferral to allow for further study is warranted. EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and to develop an accounting framework to assist permitting programs and sources.

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**Comment:** Commenter 0350.1 stated EPA provides no evidence or analysis supporting assertions of extensive workload or administrative impossibility in its exemption proposal. The commenter stated EPA attempts a short-cut to piggy-back on the Tailoring Rule's meticulous analysis but this short-cut is fatally flawed. The commenter stated the Tailoring Rule already calculated the annual administrative burdens arising from all GHG PSD permits, including the very PSD permits at issue here, and concluded that, at the new applicability thresholds, permits for all sources emitting $CO_2$ could indeed be processed. The commenter noted that EPA is missing a quantification of what the workload consists of, how many biomass feedstock sources will need permits over what time period, additional work hours needed to issue the permits, what costs would be incurred, what delays would result, and why it would be impossible for EPA to process the required permits. The commenter indicated EPA presents no further evidence in this proposal demonstrating that permitting biogenic feedstocks sources as required by the statute would increase permitting burden, beyond the evidence it presented to justify the Tailoring Rule's new thresholds. The commenter further noted that absent any additional evidence of impossibility, EPA cannot now simply ignore its previous reasoning, see Sierra Club v. Martin, 168 F.3d 1, 4 (11th Cir. 1999) (holding agency must follow regulations and procedures it has previously established), and its sudden departure from its own pronouncements less than a year earlier casts serious doubt on validity of changed analyses. See also, Mt. Graham Red Squirrel v. Madigan, 954 F.2d 1441, 1457 (9th Cir. 1992) (granting no deference to agency expertise when its position has fluctuated). Even assuming that permitting for sources using biogenic feedstock did cause an "extensive additional workload," the commenter noted that such a circumstance falls far short of meeting the requirements in case law to show real impossibility to justify divergence from statutory mandates. The commenter stated EPA makes no attempt to quantify that additional burden as applied to currently prevailing permitting case loads or to prove that impossible administrative conditions currently prevail.

**Response:** EPA disagrees with the commenter's characterization of the deferral and the view that this action is unsupported by the law. As EPA explained in the responses to the

commenter's other comments, as well as in the preamble, this interim deferral represents a permissible application of well-established administrative law doctrines, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, to develop a regulatory scheme that implements the CAA in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution. As amply demonstrated in the record and in the preamble, the complexity and uncertainty of the science surrounding biogenic emissions of $CO_2$ from various sources and their role in the carbon cycle, as well as the lack of established accounting methodologies, create significant challenges for permitting authorities and sources already burdened by their obligations under the PSD and Title V programs to regulate GHG. EPA believes that based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that emissions from certain biomass feedstocks may have a neglible impact on atmospheric concentrations of $CO_2$, or may be *de minimis* but also believes based on the complexity of this evidence that the deferral to allow for further study is warranted. EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and to develop an accounting framework to assist permitting programs and sources.

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**Comment:** Commenter 0350.1 stated EPA cannot manufacture "administrative necessity" where it does not exist. The commenter noted that EPA manufactures complexities in determining the net carbon impacts of various biomass fuels, from what EPA asserts is the need to reconcile facility-based and land-based sequestration accounting systems, which is a need not cognizable under the statute nor adequately supported by the Agency. The commenter stated EPA's complexity argument is a red herring, in that counting these emissions from sources is a straightforward process that is exactly the same regardless of whether the sources use biogenic or fossil fuel feedstock. The commenter went on to cite that the CAA demands that "[n]o major emitting facility on which construction is commenced may be constructed . . . unless (1) a permit has been issued for such proposed facility . . . setting forth emission limitations for such facility which conform to the requirements of this part." 42 U.S.C. § 7475(a)(1). The commenter stated that because sources are "major" based on the amount of $CO_2$ they emit, not based on the lifecycle $CO_2$ analysis of the feedstock they use, lifecycle analysis complexities do not in any way affect the determination of whether a permit is required. The commenter pointed out that EPA can and must make that determination, and can and must issue permits if emission thresholds are exceeded regardless of lifecycle questions. The commenter supported EPA's decision to engage in lifecycle analyses that compare overall $CO_2$ emissions among various energy sources as part of the 5-step, top-down BACT emissions limit determination process; however, the fact that the full resolution of all uncertainties concerning this inquiry may take some time is neither novel to how PSD permitting has been administered for decades, nor an impediment to permit issuance. The BACT process is the proper venue for addressing remaining lifecycle analysis uncertainties based on the currently existing state of knowledge, just as the case-by-case BACT inquiry relating to the "best available control technologies" and fuel sources, 42 U.S.C. § 7479(a)(3), functions well despite the fact that the "best" technology or "clean fuel" may currently be neither available nor known. The commenter noted that the BACT process itself contains the answer to the difficulties EPA cites. The commenter went on to say that EPA's unsubstantiated fear that such analysis might prove "complex" in no way excuses the complete exclusion of $CO_2$ pollution sources from mandatory PSD permitting requirements.

The commenter stated EPA's attempt to rely on administrative necessity completely reverses the applicable burdens of proof under the doctrine. The commenter indicated that EPA does not even attempt to provide proofs of impossibility here or to demonstrate that its proposed exemption is consistent with or protective of congressional intent, and indeed, it cannot, in light of its admission that it simply does not know whether particular biogenic feedstocks indeed meet the newly created permitting off ramp of carbon neutrality. That, EPA says, can be determined only after further study.

**Response:** EPA disagrees with the commenter's characterization of the deferral and the view that this action is unsupported by the law. As EPA explained in the responses to the commenter's other comments, as well as in the preamble, this interim deferral represents a permissible application of well-established administrative law doctrines, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, to develop a regulatory scheme that implements the CAA in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution. As amply demonstrated in the record and in the preamble, the complexity and uncertainty of the science surrounding biogenic emissions of $CO_2$ from various sources and their role in the carbon cycle, as well as the lack of established accounting methodologies, create significant challenges for permitting authorities and sources already burdened by their obligations under the PSD and Title V programs to regulate GHG. EPA believes that based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that emissions from certain biomass feedstocks may have a neglible impact on atmospheric concentrations of $CO_2$, or may be *de minimis* but also believes based on the complexity of this evidence that the deferral to allow for further study is warranted. EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and to develop an accounting framework to assist permitting programs and sources. EPA appreciates the commenter's view on BACT and notes that the interim BACT guidance EPA released in March 2011 is beyond the scope of this action.

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**Comment:** Commenter 0350.1 stated EPA has not demonstrated that regulating sources of biogenic $CO_2$ would create "absurd results." The commenter argued that it is the permitting exemption that would cause an absurd result rather than the statutorily mandated regulation of biogenic $CO_2$ emissions, because the exemption will lead to increased, not decreased, near-term $CO_2$ emissions. The commenter stated that EPA fails to show that requiring permitting for these sources and discouraging use of biomass is an absurd result, or an undesirable outcome from the perspective of environmental protection, in that it would stall or avoid the rush to biomass and avoid increased near-term $CO_2$ emissions. The commenter stated EPA's proposal relieves all sources that emit biogenic $CO_2$ emissions of all permitting requirements for these emissions, no matter how many millions of tons of $CO_2$ are emitted, for 3 full years, even though EPA has before it a great deal of thorough, recent scientific study showing that all biomass is not equal, and some feedstocks exceed even coal's $CO_2$ emissions, whether evaluated at the stack or on a lifecycle basis. The commenter noted that the entire Proposed Rule is premised on the fact that highly significant differences in lifecycle $CO_2$ emissions among biomass feedstocks do exist, and yet, EPA offers blanket relief from regulation for all. The commenter further stated that the exemption will result in unregulated plants that unless and until major modifications are later undertaken, will never become subject to permitting requirements.

**Response:** EPA disagrees with the commenter's characterization of the deferral and the view that this action is unsupported by the law. As EPA explained in the responses to the commenter's other comments, as well as in the preamble, this interim deferral represents a permissible application of well-established administrative law doctrines, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, to develop a regulatory scheme that implements the CAA in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* sources of air pollution. EPA notes that the issue of subsequent applicability of the PSD and Title V programs to facilities that may be permitted during the deferral period (also referred to as "grandfathering") is beyond the scope of this action and will be addressed in any rulemakings subsequent to the conclusion of the scientific study and development of the accounting methodologies.

## 11.10 Tailoring Rule Phase-in Approach is Inappropriate

**Comment:** Commenter 0087.1 argued that EPA has sufficient information at this time to conclude that the combustion of some biomass feedstocks has a negligible impact on the net carbon cycle and that any gain by regulating that combustion would be trivial. The commenter requested that EPA delete the clause "prior to [DATE 3 YEARS AFTER THE EFFECTIVE DATE OF THE FINAL DEFERRAL RULE]." The commenter stated that if EPA feels a need to impose a deadline on itself to do so, that should be in the form of an enforceable commitment similar to the deadline for addressing sources smaller than the Tailoring Rule thresholds.

**Response:** EPA appreciates the commenter's views but disagrees that it has sufficient information at the present time to establish treatment under the PSD and Title V programs for specific biomass fuel stocks. As explained in the preamble, EPA believes based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that emissions from certain biomass feedstocks may have a neglible impact on atmospheric concentrations of $CO_2$, or may be *de minimis* but also believes based on the complexity of this evidence that the deferral to allow for further study is warranted. EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. Subsequent regulations to establish treatment of specific sources of biogenic emissions under the PSD and Title V programs, based on the results of the study and development of the accounting framework, are beyond the scope of this action.

## 11.11 Supports Tailoring Rule Phase-in Approach

**Comment:** Commenter 0083.1 supported the "one-step-at-a-time" doctrine and notes that it also applies well to EPA's decision to delay regulation of biogenic $CO_2$ emissions under the PSD and Title V programs. With the Tailoring Rule, EPA has already chosen not to regulate GHG under PSD and Title V in "one fell regulatory swoop" (75 Fed. Reg. 31544), and there appears to be no reason that same deliberate approach, allowing EPA time to develop the information it needs to make appropriate policy decisions, could not be applied to support the deferral.

**Response:** EPA agrees with the commenter that the deferral is also supported under the "one-step-at-a-time" doctrine. In effect, this deferral is a step back from the Tailoring Rule's approach, but the decision to defer the applicability of PSD and Title V to biogenic $CO_2$

emissions is nonetheless supported, in part, on the same rationale as EPA used to justify the Tailoring Rule's phase-in approach. This action constitutes a refinement of the approach EPA has taken to regulate GHG emissions from stationary sources through a phased-in approach, based on an evolving understanding of the complexities and nuances associated with biogenic emissions.

## 11.12 Subjecting Biogenic $CO_2$ Emissions to Permitting may be Counterproductive because it could Discourage Utilization of the Biomass Feedstock as Fuel

**Comment:** Commenter 0051.1 stated that an onerous regulatory structure could discourage future investments in bioenergy.

**Response:** EPA appreciates the commenter's views. EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. This interim deferral represents a permissible application of well-established administrative law doctrines, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, to develop a regulatory scheme that implements the CAA consistent with Congressional intent in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution. Subsequent regulations to establish treatment of specific sources of biogenic emissions under the PSD and Title V programs, based on the results of the study and development of the accounting framework, are beyond the scope of this action.

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**Comment:** Commenter 0042.1 cited a study by the Green Power Institute that over the pasts 30 years in California, biomass energy production has avoided the GHG emissions associated with the production of fossil fuels and avoided the biogenic greenhouse gas emissions (mainly methane) of the various alternative disposal fates of biomass residues, replacing them with the lower potency greenhouse gas emissions of energy production. Thus, the commenter noted, science acknowledges the carbon benefits of biomass energy.

**Response:** EPA appreciates the commenter's views, which underscore the complexity of the science associated with the accounting of biogenic emissions, including issues associated with the role of forest residues in the carbon cycle.

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**Comment:** Multiple commenters (0064.1 and 0071.1) stated that regulating biogenic carbon the same as fossil fuels has several unintended consequences, including encouraging fossil fuel use, increased greenhouse gas emissions from National Forests, and lost U.S. manufacturing jobs.[1] Commenter 0064.1 attached an article that stated that the greatest threat to deforestation is the conversion of private forests to more economically competitive, non-forest uses. Biomass energy

[1] *The Unintended Consequences of the EPA Tailoring Rule*. Bruce Lippke and Dr. Elaine Oneil. 2010. http://www.corrim.org/pubs/reports/2010/biomass_vs_fossil/BiomassVSFossilEmissionsNov2010.pdf. *See also A Developing Bioenergy Market and Its Implications on Forests and Forest Products Markets in the United States*. Dr. Mike Clutter et. al. 2010. http://nafoalliance.org/wp-content/uploads/NAFO-Executive-Summary-Clutter-Et-Al-Final.pdf

can be an important new market to replace other declining markets and add economic value to private forest ownership.

Commenter 0140.1 stated that additional consequences of regulating biogenic carbon the same as fossil fuels are the negative effect on electric utilities and other environmental programs, such as state-based RES requirements and the development of domestic offsets based on biomass, increased consumer costs, and could result in a competitive disadvantage or stranded investments for those companies that already have invested in biomass facilities, relying on existing regulations that treat such emissions as carbon neutral.

**Response:** EPA appreciates the views of the commenters but notes the commenter's views on the economics of the biomass industry are beyond the scope of this action. Subsequent regulations to establish treatment of specific sources of biogenic emissions under the PSD and Title V programs, based on the results of the study and development of the accounting framework, are beyond the scope of this action. EPA notes that a variety of Federal and State policies have recognized that some types of biomass can be part of national strategy to reduce dependence on fossil fuels and to reduce emissions of GHG.

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**Comment:** Commenter 0140.1 stated that an advantage of using biomass to generate electricity is that it can reduce other emissions. When co-fired with coal, biomass may lower emissions of criteria pollutants (or relevant criteria pollutant precursors) such as sulfur dioxide (SO2), particulate matter (PM) and NOx.

**Response:** EPA appreciates the views of the commenter and notes that treatment of non-$CO_2$ emissions from biomass are not the subject of this action.

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**Comment:** Commenters 0015.1, 0089.1, 0090.1, and 0135.1 supported EPA's position that subjecting certain $CO_2$ biogenic emissions to permitting may be counterproductive because it could discourage utilization of the biomass feedstock as fuel.

**Response:** EPA appreciates the views of the commenters but notes the commenter's views on the economics of the biomass industry are beyond the scope of this action. Subsequent regulations to establish treatment of specific sources of biogenic emissions under the PSD and Title V programs, based on the results of the study and development of the accounting framework, are beyond the scope of this action.

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**Comment:** Several commenters (0053.1, 0059.1, 0062.1, 0080.1 and 0117.1) stated that requiring permits for waste- and wastewater-derived biogas combustion would discourage utilization of landfill and wastewater energy sources. Commenters 0053.1 and 0117.1 stated that regulation of biogenic emissions from combustion of biogas serves as a disincentive for use of a green renewable energy resource which converts methane to $CO_2$ and displaces fossil fuel use. Commenter 0015.1 stated that EPA should finalize the deferral to avoid discouraging the use of fuels that would decrease dependence on fossil fuels and dependence on imported fuels. Commenter 0080.1 described the uniqueness of waste as a renewable resource and reviews the results of an EPA Landfill Methane Outreach Program (LMOP) program study which identified the energy benefits of avoided GHG emissions at existing LFGTE facilities as well as the benefits of new projects at existing landfills for converting methane to energy and displacing

more fossil fuel. The commenter also provided a chart illustrating each state's RPS which involve utilizing waste for energy. Commenters 0053.1 and 0070.1 stated that waste-derived biogas can serve as a reliable green renewable energy resource that complements other intermittent energy resources such as wind and solar. Commenters 0080.1 and 0117.1 provided information from CARB's fuel standards showing biogas as a low carbon intensity fuel source and quoted EPA's statements on the energy potential of sludge; they also provided international references on the energy potential of waste- and wastewater-derived biogas. Commenters 0059.1 and 0080.1 further supported the importance of maintaining positive incentives for promoting such WTE projects. Commenters 0059.1 and 0062.1 also stated that many local governments have invested in waste-based energy and stated that burdening these facilities with additional regulations requiring carbon neutrality would have significant impacts on local governments using waste-based energy as a source of income. Commenter 0117.1 requested that EPA use the deferral period to investigate the benefits of waste- and biosolids-derived fuels, and the commenter indicates that such wastes contain up to 10 times the energy needed for treatment. The commenter also encouraged EPA to consider the possibility that requiring WTE projects to go through major source permitting might compel facilities to choose traditional fossil-fuel burning treatments.

**Response:** EPA appreciates the views of the commenter and notes that treatment of non-$CO_2$ emissions from biomass and incentives for the biomass industry are beyond scope of this action. Subsequent regulations to establish treatment of specific sources of biogenic emissions under the PSD and Title V programs, based on the results of the study and development of the accounting framework, are beyond the scope of this action. EPA notes that a variety of Federal and State policies have recognized that some types of biomass can be part of national strategy to reduce dependence on fossil fuels and to reduce emissions of GHG.

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**Comment:** Commenters 0146, 0052.1, 0095.1 and 0125.1 argued that any attempt to regulate $CO_2$ emissions from biomass combustion would disadvantage U.S. manufacturers and combustion facilities in both domestic and international markets by increasing administrative time and costs as well as negatively misrepresenting the environmental and sustainability characteristics of biogenic products as compared to international conventions that do not require reporting or permitting biogenic $CO_2$ emissions. Similarly, commenter 0086.1 stated that a failure to exempt biofuels production and combustion from $CO_2$ permitting would have devastating impacts on the existing bioenergy industry and would significantly threaten further development of renewable energy sources and economic expansion in rural areas. Commenter 0146 supported this statement by referencing a 2010 study which found that regulating biogenic carbon would cost between 12,000-28,000 renewable energy jobs, $18 billion fewer dollars of capital investment in renewable energy, and over 5,384 fewer megawatts of renewable electricity generation in up to 30 states. Commenter 0087.1 stated that the uncertainty of a new permitting program requiring case-by-case life-cycle analyses in order to construct biogenic energy projects introduces delays and risks to capital that favor more traditional permitting approaches such as fossil fuels. Additionally, a PSD permitting approach that gives no recognition to the carbon cycle attributes of biomass discourages or even prevents use of biomass in lieu of fossil fuel in a new facility or for a repowering project, frustrating the purposes of the CAA as well as national energy policy. Similarly, commenter 0095.1 stated that EPA should not discourage use of biomass as an energy source for generating electricity and states that EPA should develop an appropriate methodology for assessing emissions and sinks to ensure the selection and use of

fuels that can help limit GHG emissions. Commenter 0023C stated that the Tailoring Rule frustrates the President's agenda and states that EPA must clearly recognize the benefits of forest carbon in air quality policy to remove uncertainty and to advance the President's renewable energy priorities. Commenter 0077.1 stated that investment to bring biomass energy sources into wider use should not be penalized by rules that would create a greater regulatory burden. Similarly, commenter 0063.1 stated that exempting biogenic emissions would allow new biomass combustion facilities to be constructed or existing sources modified without increasing GHG concentrations, whereas imposing PSD regulation on emissions from biomass combustion would discourage the use of biomass fuels and be at odds with Section 160(3) of the CAA. The commenter further requested that an appropriate methodology at the national scale be developed to investigate sources and sinks of biogenic carbon. Commenter 0077.1 stated that deferral allows EPA to engage in further study and to propose amended rules, if needed, based on sound science.

**Response:** EPA appreciates the views of the commenters but notes the commenter's views on the economics of the biomass industry are beyond the scope of this action. As explained in the preamble, EPA believes based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that emissions from certain biomass feedstocks may have a neglible impact on atmospheric concentrations of $CO_2$, or may be *de minimis* but also believes based on the complexity of this evidence that the deferral to allow for further study is warranted. EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. Subsequent regulations to establish treatment of specific sources of biogenic emissions under the PSD and Title V programs, based on the results of the study and development of the accounting framework, are beyond the scope of this action.

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**Comment:** Commenter 0072.1 stated that regulating biomass will lead to American manufacturing job loss, since international competitors follow IPCC and do not regulate biogenic emissions. Commenter 0078.1 stated their products compete in global markets with countries that recognize net neutrality of biogenic $CO_2$ emissions.

**Response:** EPA appreciates the views of the commenters but notes the commenter's views on the economics of the biomass industry are beyond the scope of this action.

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**Comment:** Commenter 0086.1 stated increased use of biomass and biofuels as an energy source in lieu of fossil fuels also addresses urbanization air quality concerns by promoting rural economies and preserving agricultural lands, because with the added incentive of using agricultural feedstocks for biofuel production, agricultural lands are more likely to stay agricultural lands, and EPA's National Inventory has consistently shown net sequestration of cropland that remained cropland since 1990. The commenter concluded that concerns of increased biofuel production resulting in loss of forestland are wholly misplaced and without empirical support, and stated that promotion of agricultural lands furthers the goals of the Act.

**Response:** EPA appreciates the commenter's views, which underscore the complexity of the science associated with the accounting of biogenic emissions, including issues associated with the roles of agricultural and forestland in carbon sequestration as part of the carbon cycle.

**Comment**: Commenter 0093.1 stated that the risks of a three-year deferral in order to get the science right are negligible, while the risks of seriously harming the industry in its formative stages, and preventing it from delivering the greenhouse gas benefits it is capable of are large.

**Response:** EPA appreciates the commenter's views. As explained in the preamble, EPA believes based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that emissions from certain biomass feedstocks may have a neglible impact on atmospheric concentrations of $CO_2$, or may be *de minimis* but also believes based on the complexity of this evidence that the deferral to allow for further study is warranted. EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources.

**Comment:** Commenter 0111.1 stated that displacing finite fossil heating fuels with locally-sourced biomass is one of the most efficient and economical pathways to energy independence, rural economic growth, and promotion of forest health.

**Response:** EPA considers the commenter's views about the role of locally sourced biomass to be beyond the scope of this action.

## 11.13 EPA Should Not Promote Biomass Use

**Comment:** Commenters 0104.1 and 0023G stated that the potential for wood demand is significant and that only a tiny minority of the facilities now proposed intend to use agricultural residues or purpose-grown energy crops for fuel. Commenter 0104.1 quoted a data source indicating about 117 new direct-fired biomass facilities will use wood in addition to new projects to co-fire wood. Additionally, the commenter reviewed U.S. Forest Service data to show that wood residues are too scarce to meet emerging "energy wood" needs and provides example calculations and testimonies indicating a trend toward unsustainable forest harvests. The commenter argued that although looking to woody biomass to meet renewable energy goals is tempting, safeguarding U.S. sequestration capacity and reducing carbon emissions from fossil fuel sources should be instrumental in solving the climate change problem. Commenters 0110, 0115.1, and 0137.1, 0166 further stated that the deferral period will spur companies to rapidly build or convert facilities before the three-year period expires. Similarly, commenters 0145.1 and 0030 argued that the proposed regulation provides biomass combustion power plants with undeserved preferential treatment and incentives while potentially driving up health care costs due to pollution. Commenter 0030 further stated that biomass combustion already accounts for about half of US renewable generation and competes directly for the same subsidies that also support non-polluting renewables such as wind and solar. Commenter 0145.1 stated that any $CO_2$ and climate benefits from closing or cleaning up coal plants are neutralized by the current construction of new biomass combustion power facilities that emit more $CO_2$ per megawatt than coal power. The commenter provided examples and estimates of the wood-burning electricity, biomass pellet, and coal conversion plants in the process of planning and permitting, as well as rough estimates of the biogenic $CO_2$ that the facilities will emit during their lifetime. Furthermore, the commenter listed the multiple subsidies, tax credits, renewable energy credits and incentives that biomass plants receive as a renewable energy generator without having to account for the potential environmental and public health impacts of biogenic $CO_2$ emissions.

Commenter 0145.1 also discussed the low job creation (20-40 permanent jobs over the facility lifetime) associated with biomass power projects, especially when compared to the grants and incentives provided to each facility and the possible competition it places on other wood-dependent industries with high job creation potential. The commenter cited several corporations which indicate that they will face competition from the increased biomass combustion industry and contrasts several other industries that promote energy efficiency and renewable energy with a higher job creation potential. Commenters (0023E, 0030, and 0166) also stated that unqualified exemption of biomass will incent numerous uncontrolled GHG sources and use of fuels worse for the climate (in GHG emissions per megawatt produced) than coal, all while eliminating proven sinks. Commenters 0023E and 0023G stated that American forests cannot keep pace with the rapid expansion of biomass combustion projects being planned. Commenter 0023G opposed deferral and rejects the justification that EPA needs to come up with a biogenic accounting system, because there will be no federal oversight of the feedstocks permitted and used during the deferral period. Furthermore, the commenter argued that weak maximum achievable control technology (MACT) standards for biomass boilers allow them to emit as much or more hazardous air pollution as coal plants. Commenter 0030 supported this statement by further adding that the hazardous air pollution will escalate as the number of biomass facilities increase. Commenter 0045 stated that in addition to the potential for whole tree clearing, fallen organic material on the forest floor is integral to the health of the forest and to species in the forest, and that the urgency to reduce GHG emissions is of utmost importance to avoid the impacts of climate change.

**Response:** EPA considers the commenters' views about economic incentives for the biomass industry beyond the scope of this action. As explained in the preamble, EPA believes that based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that emissions from certain biomass feedstocks may have a neglible impact on atmospheric concentrations of $CO_2$, or may be *de minimis* but also believes based on the complexity of this evidence that the deferral to allow for further study is warranted. EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. This interim deferral represents a permissible application of well-established administrative law doctrines, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, to develop a regulatory scheme that implements the CAA consistent with Congressional intent in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution. Subsequent regulations to establish treatment of specific sources of biogenic emissions under the PSD and Title V programs, based on the results of the study and development of the accounting framework, are beyond the scope of this action.

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**Comment:** Commenter 0350.1 stated EPA has not met its burden of proof to support the blanket exemption on grounds that regulating biogenic $CO_2$ will be of trivial or inconsequential value. The commenter cited industry statements that the exemption will encourage a biomass industry boom by creating significant incentives to choose uncontrolled biomass sources rather than other truly renewable or low-carbon energy sources. The commenter stated EPA provides nothing in the record to show or support that there would not be any, or trivial, increased $CO_2$ emissions resulting from the growing biomass industry that results from a blanket exemption for

all biogenic $CO_2$, and does not show that encouraging the biomass boom through the proposed exemption will yield *de minimis* impacts. The commenter stated that EPA cannot make this showing because, far from *de minimis*, the blanket exemption will yield significant increases in uncontrolled biogenic $CO_2$ emissions. The commenter stated that EPA's identification of some unspecified subset of biomass feedstocks with purportedly *de minimis* climate impacts cannot justify a blanket exemption for every form of biomass, EPA assertions that feedstocks are "negligible" are unsupported, and nowhere does EPA describe the particular types of feedstocks it believes have *de minimis* climate impacts, in that it provides only a few unsupported examples. The commenter noted that EPA does not even attempt to explain why converting residue feedstocks immediately to atmospheric $CO_2$ is "negligible" or *de minimis*. The commenter stated that short-term climate impacts of combusting such feedstocks may be highly significant given that climate studies show that global $CO_2$ emissions must peak within the next decade and then decline significantly thereafter to avoid catastrophic climate change. In that context, the commenter stated EPA has not met its burden.

The commenter stated that EPA's assertion that regulation of all biomass emissions can be deferred because scientific study might reveal the existence of other "negligible" feedstocks is even more egregious. The commenter noted that mere speculation and conjecture about what might occur after further scientific review is not sufficient justification for a present blanket exemption from statutory requirements.

**Response:** EPA disagrees with the commenter that the deferral is not supported by the complexity of the science surrounding biogenic sources of $CO_2$ emissions or well-established administrative law doctrines. EPA notes that it has received other comments taking an opposing view of rationale in support of the deferral and the science, which underscores the complexity of the science associated with accounting for biogenic $CO_2$ emissions as part of the PSD and Title V permitting programs. As explained in the preamble, EPA believes that based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that emissions from certain biomass feedstocks may have a neglible impact on atmospheric concentrations of $CO_2$, or may be *de minimis* but also believes based on the complexity of this evidence that the deferral to allow for further study is warranted. EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. This interim deferral represents a permissible application of well-established administrative law doctrines, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, to develop a regulatory scheme that implements the CAA consistent with Congressional intent in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution. Subsequent regulations to establish treatment of specific sources of biogenic emissions under the PSD and Title V programs, based on the results of the study and development of the accounting framework, are beyond the scope of this action.

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**Comment:** Commenter 0350.1 stated EPA's proposed blanket exemption for all biomass sources is arbitrary and capricious. The commenter stated EPA's proposal would have the effect of increasing near-term emissions of $CO_2$, and the Agency should be well aware that is the case. A decision to finalize the proposed blanket exemption, even on a temporary basis, under these circumstances is a textbook case of arbitrary and capricious decision making, and cited Motor

Vehicle Mfrs Ass'n v. State Farm Mutual Auto. Ins. Co., 463 U.S. 29(1983)(there must be a *rational relationship* between the facts at hand and the choice made). The commenter stated that a decision to finalize an exemption as proposed on the basis asserted would be contrary to the evidence before the Agency, would ignore important aspects of how to craft programs that can yield significant $CO_2$ emissions reductions in the near term, and would certainly constitute a "clear error in judgment." Id. citing *Bowman Transportation, Inc. v. Arkansas-Best Freight System, Inc.*, 419 U.S. 281, 285 (1974); *Citizens to Preserve Overton Park v. Volpe*, 401 U.S. 402, 416 (1971).

**Response:** EPA disagrees with the commenter's characterization of the deferral and the view that this action is unsupported by the law or science. As EPA explained in the responses to the commenter's other comments, as well as in the preamble, this interim deferral represents a permissible application of well-established administrative law doctrines, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, to develop a regulatory scheme that implements the CAA in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* sources of air pollution. As explained in the preamble, EPA believes that based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that emissions from certain biomass feedstocks may have a neglible impact on atmospheric concentrations of $CO_2$, or may be *de minimis* but also believes based on this evidence that the deferral to allow for further study is warranted. EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. Subsequent regulations to establish treatment of specific sources of biogenic emissions under the PSD and Title V programs, based on the results of the study and development of the accounting framework, are beyond the scope of this action.

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**Comment:** Commenter 0350.1 stated that because EPA's proposal prejudges the outcome of its study, it is internally contradictory and therefore arbitrary and capricious. The commenter stated EPA's proposal is fundamentally contradictory, as EPA states that determining the lifecycle of $CO_2$ impacts of biomass combustion is so complex and burdensome that a three-year hiatus is necessary to allow study, but at the same time announces its conclusions, without providing scientific support, that certain feedstocks either have "negligible" climate impacts or "clearly reduce $CO_2$ emissions." The commenter indicated EPA cannot conclude on the basis of information presented in the Proposal that emission from combustion of these feedstocks are "negligible", *de minimis*, or otherwise not worth regulating. The commenter stated the Agency's conclusion that biomass feedstocks which decompose over 10 to 15 years have negligible climate impacts is not supported by science. The commenter cited a recent study that determined energy production from logging residues results in significant $CO_2$ emissions over a short timeframe, and these emissions are overlooked by accounting methods that follow IPCC guidance and the Kyoto Protocol, and are in fact an order of magnitude larger than the harvest, processing, and transport emissions that are included in analyses. The commenter noted the critical time for $CO_2$ emissions reductions is in the near term, a point which EPA's assertions ignore, as they are based on some net effect of assumed re-sequestration in the future. The commenter stated emissions from combustion of feedstocks are not "negligible" and will actually increase global $CO_2$ concentration during the precise period when the science indicates those concentrations must peak and begin to decline. The commenter stated that even if a particular

biomass feedstock could be considered "carbon neutral" over a longer period of time, it cannot be consider carbon neutral now or during the proposed deferral period.

**Response:** EPA disagrees with the commenter's view that this action is unsupported by the law or science. As EPA explained in responses to the commenter's other comments, as well as in the preamble, this interim deferral represents a permissible application of well-established administrative law doctrines, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, to develop a regulatory scheme that implements the CAA in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution. As explained in the preamble, EPA believes that based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that emissions from certain biomass feedstocks may have a neglible impact on atmospheric concentrations of $CO_2$, or may be *de minimis* but also believes based on this evidence that the deferral to allow for further study is warranted. EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. Subsequent regulations to establish treatment of specific sources of biogenic emissions under the PSD and Title V programs, based on the results of the study and development of the accounting framework, are beyond the scope of this action.

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**Comment:** Commenter 0048.1 stated biomass burners and burning the biomass in garbage is dirtier than coal and produces more $CO_2$.

**Response:** EPA appreciates the commenter's views. The comment underscores the complexity of the science associated with accounting for biogenic $CO_2$ emissions as part of the PSD and Title V permitting programs.

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**Comment:** Commenter 0119.1 expressed skepticism that biomass is a net carbon sink. The commenter asserted that the best available science indicates that bioenergy is a net carbon emitter and in some scenarios a more significant carbon emitter than existing energy technology (see EPA-HQ-OAR-2011-0083-0119.1 for studies). However, the commenter noted that typically science does not look at carbon impact of forest management which may be the biggest point of release.

Commenter 0119.1 also noted that the increased competition of the bioenergy industry in the South's forests could challenge paper producers striving to meet goals for improvement in forest management and undermine the movement in the US wood and paper market to improve fiber sourcing.

Commenter 0019.1 noted that US forests are more useful as forests than as a source of fuel. The commenter further expressed that policies should focus on increasing forest protection, restoration of degraded forests, and improvement of industrial logging techniques, all of which would be a better strategy to solving the climate crisis. The commenter concluded that energy policy and investment should focus on conservation and efficiency and alternatives like wind and solar.

**Response:** EPA appreciates the views of the commenter and will keep them in mind as it develops subsequent regulations to establish treatment of specific sources of biogenic emissions

under the PSD and Title V programs, based on the results of the study and development of the accounting framework. The commenter's views in support of other renewable energy sources is beyond the scope of this action.

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**Comment:** Commenters 0065.1 and 0143.1 noted that a three-year exemption would allow for the development of large biomass combustion facilities, which appears to lack legal or scientific merit, endangers public health, and is fiscally irresponsible. Commenter 0143.1 further stated that allowing biomass facilities to be constructed, without regard to their $CO_2$ emissions, will seriously undermine the intent of the Tailoring Rule.

Commenter 0143.1 contended that permitting the construction of large biomass combustion operations is fiscally irresponsible. The commenter provided examples of grants from the American Recovery and Investment Act of 2009 (ARRA) and loans from the DOE and U.S. Department of Agriculture (USDA) which are underwritten by taxpayers who envision their funds being used to support clean, "green" renewable energy. Finally, the commenter claimed that biomass combustion will continue to be favored if it is exempted from permitting, setting our nation on course to a future of polluted air, ill health, degraded lands and increased greenhouse gas emissions.

Commenter 0065.1 stated that an increase in large unregulated facilities and biomass co-firing in coal plants, which will lead to expanded use of whole trees, will not be carbon neutral in any timeframe meaningful to addressing climate change. Regardless of these plants' plans to use slash and logging residues, the available slash is insufficient to fuel the plants at the scale proposed, thus suggesting that these facilities will burn whole trees. (The data used in this analysis comes from the USDA Forest Service (Smith et al., 2007)).

**Response:** EPA disagrees with the commenters' views that the deferral is not support by science or the law. EPA considers the commenters' views about economic incentives for the biomass industry beyond the scope of this action. As explained in the preamble, EPA believes that based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that emissions from certain biomass feedstocks may have a neglible impact on atmospheric concentrations of $CO_2$, or may be *de minimis* but also believes based on the complexity of this evidence that the deferral to allow for further study is warranted. EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. This interim deferral represents a permissible application of well-established administrative law doctrines, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions, to develop a regulatory scheme that implements the CAA consistent with Congressional intent in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution. Subsequent regulations to establish treatment of specific sources of biogenic emissions under the PSD and Title V programs, based on the results of the study and development of the accounting framework, are beyond the scope of this action.

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**Comment:** Commenter 0048.1 stated biomass incinerators are getting federal stimulus dollars that could go to truly clean renewable energy sources like solar.

**Response:** EPA considers the commenter's views about economic incentives for the biomass industry beyond the scope of this action.

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**Comment:** Commenter 0065.1 noted that biomass combustion emissions per unit of useful energy are usually higher than those from common fossil fuels. Even if source areas eventually re-sequester carbon, they need to accumulate more than the business as usual (BAU) levels in order to repay the carbon debt. This difference would be reflected in emissions reporting if all emissions were reported to EPA regardless of source. Emissions from biogenic sources might be permitted, however, to internally "offset" a portion of their emissions that do not result in a net increase of atmospheric biogenic $CO_2$. Indirect emissions from processing and transport also contribute to the biogenic $CO_2$ impacts of both biomass fuels and fossil fuels. Presumably, EPA‟s regulation under discussion would not apply to these indirect emissions and energy facilities would not be responsible for them, but these emissions sources should be regulated and limited by other means in order not to bias uses toward those with higher indirect emissions.

**Response:** EPA appreciates the views of the commenter. EPA notes that it has received other comments taking an opposing view of the science, which underscores the complexity of the science associated with accounting for biogenic $CO_2$ emissions as part of the PSD and Title V permitting programs. Any subsequent regulations to establish treatment of specific sources of biogenic emissions under the PSD and Title V programs, based on the results of the study and development of the accounting framework, are beyond the scope of this action.

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**Comment:** Commenter 0138.1 quoted statements by a forest owners' organization that the deferral will spur greater use of biomass for fuel while continued uncertainty may cause the industry to "stagnate." The commenter contended that the industry has been stagnant "for years" and presented EIA data as the basis for his conclusion that the purpose or existing biogenic combustors is "as much about waste disposal as it is about energy generation." The commenter sees no need to suddenly ramp up biogenic energy capacity prior to EPA doing due diligence on carbon impacts, because the commenter believes such action runs counter to EPA's goal of reducing GHG emissions, and states that EPA's concerns about discouraging use of biomass are inappropriate given the Agency's failure to determine net carbon impacts. EPA's acknowledgement that carbon accounting is complex, and that time is needed to study the question, does not justify leaving carbon emissions from the industry unregulated for three years. Far from representing a *de minimis* impact, the action will itself "spur" industrial development, and will increase the likelihood that large and essentially permanently unregulated facilities will be built in the three-year period.

**Response:** EPA disagrees with the commenter's characterization of the state of the science supporting the deferral. As explained in the preamble, EPA believes that based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that emissions from certain biomass feedstocks may have a neglible impact on atmospheric concentrations of $CO_2$, or may be *de minimis* but also believes based on the complexity of this evidence that the deferral to allow for further study is warranted. EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. This interim deferral represents a permissible application of well-established administrative law doctrines, necessitated by the scientific uncertainty surrounding the accounting of biogenic $CO_2$ emissions,

to develop a regulatory scheme that implements the CAA consistent with Congressional intent in a step-wise fashion designed to minimize administrative burdens and avoid unnecessary regulation of *de minimis* amounts of air pollution. Subsequent regulations to establish treatment of specific sources of biogenic emissions under the PSD and Title V programs, based on the results of the study and development of the accounting framework, are beyond the scope of this action.

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**Comment:** Commenters 0065.1, 0138.1 stated that EIA's projected reductions in carbon emissions that would occur if a federal renewable electricity standard were passed reveals that the majority of the "reductions" are the result of replacing coal with biomass and simply not counting the emissions. There is good reason to assume that net emissions from the ramp-up in biomass energy that EIA envisions would be substantial. Considering biomass carbon neutral also incentivizes forest cutting and turns forests from carbon sinks into carbon sources.

**Response:** EPA considers the commenter's views about economic incentives for the biomass industry and other renewable energy policies beyond the scope of this action. As explained in the preamble, EPA believes that based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that emissions from certain biomass feedstocks may have a neglible impact on atmospheric concentrations of $CO_2$, or may be *de minimis* but also believes based on the complexity of this evidence that the deferral to allow for further study is warranted.

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**Comment:** Commenter 0132.1 listed negative environmental impacts from using poultry litter, yard waste and municipal solid waste as fuel for power plants: 1) waste is diverted from existing recycling facilities with no benefit to the public or the environment; 2) poultry waste could otherwise be used as fertilizer; and 3) burning poultry waste releases nitrogen into the air. The commenter provided a comparison of emissions between power plants fueled with new wood, existing and new coal, existing biomass, and poultry litter, with the conclusion that for many pollutants, biomass fuel is dirtier than coal. Commenter 0141 provided similar arguments against the use of biomass fuels, and asked EPA to regulate all bioenergy emissions and stop construction of biomass facilities before more study is done.

**Response:** EPA notes that non-$CO_2$ emissions from biogenic sources are not the subject of this deferral. EPA is using the time under this interim deferral to study the science surrounding biogenic $CO_2$ emissions and is developing an accounting framework to assist permitting programs and sources. Subsequent regulations to establish treatment of specific sources of biogenic emissions under the PSD and Title V programs, based on the results of the study and development of the accounting framework, are beyond the scope of this action.

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**Comment:** Commenter 0275 stated that subsidies for biomass burning should be denied because they make climate change worse in at least six significant ways. The commenter focused on wood burning electrical generating facilities:

1. Wood-burning biomass facilities emit more carbon dioxide per unit of electricity generated than any other energy source, converting on 15 to 25 percent of the energy in wood to electricity (versus 45 percent for coal and 60 percent for natural gas). The commenter compared three proposed biomass incinerators in Massachusetts to those of

the then highest $CO_2$ emitting power plants in the Northeast. The biomass incinerators would emit 1.4 to 3.4 times the $CO_2$ emissions of power plants. The commenter then compared these proposed incinerators to average values for other combustible fuel types, and found emissions would be significantly higher than coal, natural gas, and the national average.

2. Wood-burning biomass facilities damage and destroy forests and their capacity to remove $CO_2$ from the atmosphere. The commenter cited a study that states "harvesting existing forests for electricity adds net carbon to the air".
3. Wood-burning biomass facilities require significant petroleum inputs (to cut, chip, and transport trees). Facility construction, incinerator start-ups, and transport of waste materials all require significant petroleum inputs.
4. When other countries see the U.S. slashing and burning our own forests, they are less inclined to preserve their own forests.
5. When biomass incinerators are subsidized, it is more difficult for green energy technologies to compete. Subsidies should be reserved for clean energy technologies, not incinerators.
6. Typically, the wood not converted to electricity (75 to 85 percent of total energy in wood) is wasted as waste heat, which directly warms the atmosphere.

**Response:** EPA considers the commenter's views about economic incentives for the biomass industry and other renewable energy policies beyond the scope of this action. As explained in the preamble, EPA believes that based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that emissions from certain biomass feedstocks may have a neglible impact on atmospheric concentrations of $CO_2$, or may be *de minimis* but also believes based on the complexity of this evidence that the deferral to allow for further study is warranted. Subsequent regulations to establish treatment of specific sources of biogenic emissions under the PSD and Title V programs, based on the results of the study and development of the accounting framework, are beyond the scope of this action.

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**Comment:** Commenter 0049.1 stated it is not appropriate for EPA to create perverse incentives for indiscriminately burning biomass without safeguards in place to prevent use of unsustainable biomass sources such as forests. The commenter stated the biomass exemption will create incentives for regulated facilities to shift from burning coal to biomass, and expanding of biomass power means burning more whole trees. The commenter indicated that while fossil fuel carbon emissions [under CAA] are finally being properly accounted for, biomass emissions will be ignored for the next 3 years. The commenter noted that current laws and regulations already offer incentives for biomass use, i.e., American Recovery and Reinvestment Acts, 2008 Farm Bill, state portfolio standards, and Boiler MACT, and EPA's deferral will further encourage wood biomass consumption.

**Response:** EPA considers the commenter's views about economic incentives for the biomass industry and other renewable energy policies beyond the scope of this action. As explained in the preamble, EPA believes that based on information currently before the Agency, including information provided in response to the CFI and the proposal for this rule, that emissions from certain biomass feedstocks may have a neglible impact on atmospheric concentrations of $CO_2$, or may be *de minimis* but also believes based on the complexity of this evidence that the deferral to allow for further study is warranted. Subsequent regulations to establish treatment of specific

sources of biogenic emissions under the PSD and Title V programs, based on the results of the study and development of the accounting framework, are beyond the scope of this action.

# 12.0 Mechanism for Deferral and State Implementation

## 12.1 Implementing "Subject to Regulation" Definition

**Comment:** Commenter 0084.1 urged EPA to take a proactive stance in pressing the jurisdictions with EPA-approved programs to apply their PSD and Title V programs to GHG emissions. The commenter noted that this could be done by committing to "jawboning" the states or to expedite the approval process. Furthermore, the commenter suggested that EPA could issue, and encourage states to issue, so-called "no action assurances" on a blanket basis, as an exercise of prosecutorial discretion under Section 113 of the CAA, 42 U.S.C. § 7413, and state law. Commenter 0084.1 encouraged EPA to consider using its powers under Section 110(k)(6) of the Act, 42 U.S.C. § 7410(k)(6), to "correct" its mistakes in the SIP context unilaterally, without gaining the advance consent of the relevant jurisdiction. Without this action, the commenter contended that PSD/Title V applicability for biogenic $CO_2$ emissions may be fulfilled only in some jurisdictions which would be an outcome at odds with a PSD program purpose to ensure a fairly "level playing field" from the standpoint of competition in the marketplace.

Commenter 0079.1 stated that EPA's proposed deferral does not provide relief in SIP-approved states that either do not use the "Subject to Regulation" language in their PSD rules or that must conduct rulemaking to adopt EPA's new interpretation of the term. Most states that required legislation/rulemaking have undertaken expedited or emergency laws or rulemakings in order to adopt EPA's thresholds and definition of "subject to regulation." EPA has approved some, but not all, of these SIP revisions. Presumably, these same states will require the same legislative or rulemaking actions to adopt EPA's new deferral into their "subject to regulation" definition. There is no practical way that the deferral can be accomplished before July 1, 2011. Even then, if EPA issues a utility or refinery NSPS, additional rulemaking will be required by both EPA and the states to address the inclusion of any NSPS pollutant as a regulated NSR pollutant under EPA's regulations.

To the extent EPA is going to defer regulation of biogenic $CO_2$ emissions, it needs to do so in a manner that will last the full 3 years of the deferral, that can be adopted into SIPs quickly and efficiently, and that does not overly burden the states with serial rulemaking processes and SIP revisions.

Commenter 0094.1 believes EPA did not adequately address how states with SIP-approved PSD programs would implement the deferral. Most states with SIP-approved PSD programs have to go through their state rulemaking process in order to make changes to their PSD program, which can take about a year in many cases. In addition, EPA requires the state to submit, and get approved by EPA, a revision to the SIP to incorporate the change into the federally approved PSD program for that state. Under the CAA, EPA has up to 18 months to review such a submittal. EPA should address all these issues in the final rule preamble. EPA should specifically address what measures can be taken by the state or EPA to expedite the process for a SIP-approved state to be able to implement the deferral.

Four States (0033.1, 0038.1, 0069.1, and 0124.1) provided comments regarding implementation of the deferral amendments prior to July 1, 2011. Commenter 0038.1 noted Florida will not need to update its SIP for the deferral since Florida did not implement the federal mandate to add

GHG to its Title V and PSD programs; EPA is implementing Florida's program through a Federal Implementation Plan (FIP), and when EPA updates 40 CFR 52.21(b)(49) as proposed, the FIP will automatically include the three-year deferral for biogenic $CO_2e$ without any action by Florida. Similarly South Carolina (0124.1) has taken legislative action that will ensure the deferral is incorporated into state permitting regulations upon promulgation. However, both Arkansas (0033.1) and Connecticut (0069.1) indicated that additional state rulemaking would be required following promulgation of the deferral, and these amendments cannot be completed prior to July 1, 2011. Commenter 0069.1 added that the limited number of expected biogenic applications did not warrant rule amendments and that any new applications for biogenic sources would be processed consistent with current state regulations without any expectation of "administrative hardship" based on EPA's BACT guidance for biogenic sources.

Commenter 0086.1 stated that EPA must provide relief to SIP-approved states that either do not use the "subject to regulation" language in their PSD rules or that must conduct rulemaking to adopt the proposed deferral revisions, and went on to say that there is no practical way that the deferral can be codified in all state permitting rules before July 1, 2011.

Commenter 0064.1 stated that it is imperative that EPA finalize the deferral as soon as possible, so that states such as Washington State which have already incorporated the Tailoring Rule by reference have sufficient time to enact their own deferral. The Washington State Department of Ecology has already adopted the Tailoring Rule by reference, effective April 1, 2011. Thus, upon enactment of a deferral by EPA, Ecology will have to engage in a new round of rulemaking to respond accordingly. Therefore, EPA should enact a deferral immediately upon conclusion of the comment period after an appropriate time to consider and respond to comments, so that Ecology can enact its deferral prior to July 1, 2011.

**Response:** Many commenters seem to believe that the deferral for biogenic $CO_2$ must be adopted into their permitting programs and approved by EPA as of the beginning of step 2 of the Final Tailoring Rule (July 1, 2011). Neither the proposed deferral rule nor the final deferral rule requires States to adopt the three-year deferral or to adopt it by any specific deadline, thus the deferral is entirely voluntary for state, local, and tribal Title V and PSD programs. Because the deferral is voluntary, EPA does not need to conduct any SIP correction procedures under the authority of Section 110(k)(6) of the Act to revise state programs, or for states to revise their PSD SIPs by July 1, 2001, as commenters suggested. The preamble for the proposal discusses the beginning of step 2 of the Tailoring Rule as a time when more sources would be subject to permitting, including because sources could be subject to Title V without a prerequisite that they also be subject to PSD and because they could be subject to PSD for GHG without being subject first for another regulated NSR pollutant, but not in the context of a requirement for deferral implementation by States. EPA notes that the deferral will be mandatory when it takes effect for purposes of the PSD program under part 52 and the Title V program under part 71, where EPA is the permitting authority.

As for encouraging states to adopt the deferral, the proposal discusses that states should defer biogenic $CO_2$ emissions for the same reasons that EPA thought they should be deferred (e.g., the need for more time to figure out how to address technical, scientific, and practical issues related to biogenic $CO_2$ without disrupting the proper functioning and timeliness of the permitting programs). Also, the preamble strongly encourages states that wish to adopt the three-year

deferral to submit SIP revisions or Title V program revisions, but it does not mandate such submittals, recognizing that some States may not have any sources that combust biomass, or may have only a few, and may have adequate information and resources as to the nature of biogenic emissions from those sources.

Also concerning states where the deferral will not be effective, EPA provided some guidance in the preamble concerning PSD for Biogenic $CO_2$ Sources. In that guidance, EPA stated that biogenic $CO_2$ emissions might need to be addressed in PSD permitting until such time as the deferral took effect. Thus, PSD permit programs might require PSD permits issued prior to the deferral becoming effective to meet BACT requirement for GHG, including biogenic $CO_2$ emissions.

We appreciate the suggestion on how to expedite state approvals for programs changes.

With reference to one commenter's request for prosecutorial discretion, EPA retains such discretion to be applied for purposes of enforcement action against specific owners and operators but such discretion would not apply to state agencies because the deferral for biogenic $CO_2$ that is the subject of this rulemaking is voluntary for states.

## 12.2 Public Health and the Environment

**Comment:** Commenter 0048.1 stated that due to state budget cuts targeting regulatory and enforcement agencies, states will not be able to protect public health and the environment without critical federal leadership and support.

**Response:** We appreciate the concern of the commenter but we have no evidence that the approach we are taking in this deferral will have any negative effects on public health and the environment. We explained in the preamble to the final rule that the deferral is designed to reduce burdens on states and sources alike for purposes of PSD and Title V applicability while we conduct a detailed examination of the science and technical issues associated with biogenic $CO_2$ emissions. We also explained that the extensive workload requirements that PSD and Title V permit applications for bioenergy facilities and other sources of biogenic $CO_2$ emissions would strain permitting authority resources. This would result in delays in processing permits for other applicants. We also explained that devoting limited resources to biomass would not be productive in light of the previously described possibility that EPA may ultimately determine that the utilization of some biomass feedstocks for bioenergy has a negligible or *de minimis* impact on atmospheric concentrations of $CO_2$. Subjecting biogenic $CO_2$ emissions to permitting may be counterproductive because it could discourage utilization of the biomass feedstock as fuel which, in some cases, would clearly reduce net atmospheric $CO_2$ levels. Requiring permitting before conducting the detailed scientific examination we discussed in the proposal might actually discourage projects that would have a net benefit for the atmosphere. For example, requiring permitting for facilities seeking to generate energy from the combustion of dead trees, including those killed due to a widespread event like the mountain pine beetle epidemic, is likely to discourage the utilization of a readily available resource that would clearly reduce $CO_2$ emissions (e.g., by removing and utilizing biomass material that would otherwise be susceptible to fire or decompose in the forest, leading to $CO_2$ and $CH_4$ emissions from decomposition). Likewise, combustion of $CH_4$-laden biogas (e.g., from landfills or other large

sources of methane) for energy production reduces overall $CO_2e$ emissions because of the higher GWP for $CH_4$.

## 12.3 Consistency of Deferral Regulations Amongst the States

**Comment:** Commenter 0049.1 noted that states have inadequate regulations for biomass. The commenter indicated that only Massachusetts is capable of adopting sound regulations for biomass, citing their imminent requirement that projects provide significant near-term net reductions in GHG emissions, and noted that Tennessee and most of the South are not capable of putting in place adequate carbon pollution safeguards for the next 3 years.

Commenter 0087.1 objected to the possibility that variations in SIPs could lead to a non-uniform deferral that could treat biogenic $CO_2$ emissions differently from state to state. The commenter believes EPA should promulgate regulations that require states to follow the three-year deferral for biogenic $CO_2$ and should disapprove any state programs that do not. Commenter 0074.1 stated that EPA should limit approval of SIPs that are inconsistent with the proposed deferral rule using the same mechanism used for the Tailoring Rule.

Commenter 0078.1 urged EPA to adopt and implement a uniform approach to this deferral that will ensure consistency and predictability from state-to-state. The commenter stated EPA should strongly encourage states to adopt the provision.

**Response:** The proposal did not specifically require each State to revise its PSD and Title V permitting programs (required under parts 51.166 and 70) to impose the deferral for 3 years, although it was clear that the proposal was intended to revise the permitting programs that EPA implements (required under parts 52.21 and part 71) for this purpose and it was clear that EPA intended to implement the deferral by changing its implementing regulations. Many State commenters on the proposal seemed to assume that the deferral was mandatory for the States and questioned how they would revise their SIPS and Title V programs by July 1 2011, as they read EPA's proposal to require.

For the purposes of this final rule, EPA is clarifying that each State may decide if it wishes to adopt the deferral and proceed accordingly, with appropriate program changes, if needed. Also, EPA suggests that each state communicate with its stationary sources its intent in this regard. Because the deferral is voluntary, States that do not wish to revise their current permit programs do not need to make any program changes in response to this final rule. Also, States that do wish to adopt the deferral do not need to make any necessary changes by July 1, 2011, the start of step 2 under the Tailoring Rule.

However, although state programs changes are not mandatory under today's final rule, EPA sees several reasons why a state should adopt the deferral in its State programs, and many of these reasons are the same reasons why EPA is adopting the deferral for the permit programs we implement (e.g., the need for more time to figure out how to address technical, scientific, and practical issues related to biogenic $CO_2$ without disrupting the proper functioning and timeliness of the permitting programs). Also, the proposal strongly encouraged states that wish to adopt the three-year deferral to submit SIP revisions or Title V program revisions, but it did not mandate such submittals, recognizing that some States may not have any, or may have only a few, sources

that combust biomass, and may have adequate information and resources as to the nature of biogenic emissions from those sources, and this is the approach of this final rule.

EPA also issued interim guidance entitled, "Guidance for Determining Best Available Control Technology for Reducing Carbon Dioxide Emissions from Bioenergy Production" to help permitting authorities establish a basis for concluding that under PSD Program the combustion of biomass fuels can be considered BACT for biogenic $CO_2$ emissions at stationary sources until such time as the deferral becomes effective. EPA wishes to clarify that the guidance is non-binding and BACT determinations made in accordance with the guidance may nonetheless be subject to challenge in each permitting action. Accordingly, the interim guidance does not provide the same level of certainty to sources and decrease in administrative burdens to permitting authorities and sources that the deferral does.

## 12.4 Effect of Regulating GHG through NSPS

**Comment:** Commenter 0086.1 recognized that EPA's use of the definition of "subject to regulation" as the foundation for the proposed deferral language makes the duration of the deferral period contingent upon EPA's treatment of biogenic $CO_2$ in NSPS proceedings conducted during deferral, because upon promulgation of any Section 111 standard for $CO_2$, the PSD applicability language at 51.166(a)(7)(iv)(a) and the definition of "regulated NSR pollutant" at 51.166(b)(49)(ii) can make $CO_2$ subject to PSD via applicability criteria that are independent of the definition of "subject to regulation" unless biogenic $CO_2$ emissions are exempted or congruently deferred from applicability under the GHG NSPS; the commenter specifically referenced EPA's intent to promulgate Section 111 standards for GHG for the utility and refining sectors by May 26, 2012. Commenter 0086.1 recommends adding the following language at the end of the proposed deferral amendments to provide certainty regarding the effect of a future GHG NSPS on the PSD deferral:

> Notwithstanding section 52.21(b)(50)(ii) [or section 51.166(b)(49)(ii) for the SIP guideline], the emissions identified in the preceding sentence shall not be included in any determination of applicability under this section prior to [DATE 3 YEARS AFTER THE EFFECTIVE DATE OF THE FINAL DEFERRAL RULE].

**Response:** EPA appreciates the views of the commenter but notes that regulation of $CO_2$, including from biogenic sources, under the CAA Section 111 NSPS program is beyond the scope of this action. EPA will keep the commenter's views in mind in the development of any such regulations in the future.

## 12.5 Effect of the Deferral when Co-fired Feedstocks or Mixed Fuels

**Comment:** Commenter 0079.1 stated that EPA needs to also clarify how facilities that co-fire biogenic feedstocks and fossil fuels will conduct PSD applicability analyses in states that have adopted the 2002 NSR rules and states that have not. As an example, if a source is installing a new emissions unit that will have biogenic fuels as a primary feedstock, and fossil fuels as a backup, the source should not be required to calculate future potential emissions based on fossil fuel firing 100% of the time. EPA needs to clarify these points since many facilities will use fossil fuels as backup or alternate fuels. Moreover, in states that apply an actual-to-potential

emissions test, potential emissions should not be calculated based on use of 100% of a back-up fossil fuel but rather an allocation should be made and emissions attributable to biogenic feedstocks should not be included.

If EPA requires emissions to be based on a fossil fuel that is a backup, the deferral proposed here will have little effect on PSD and Title V applicability determinations because the fossil fuel-based emissions will likely result in PSD or Title V being triggered for GHG.

**Response:** In the preamble for the proposal EPA stated that the portion of the $CO_2$ emissions from a facility that result from biologically-derived material is deferred and not included for purposes of determining PSD applicability during the deferral period. If fossil-derived fuel is used within a facility to provide energy for a process that also uses biological material, the emissions associated with the fossil fuel must be counted toward PSD applicability regardless of the use of the biological material. Specifically, the emissions that are deferred from applicability include, but are not limited to:

- $CO_2$ generated from the biological decomposition of waste in landfills, wastewater treatment or manure management processes;
- $CO_2$ from the combustion of biogas collected from biological decomposition of waste in landfills, wastewater treatment or manure management processes;
- $CO_2$ from fermentation during ethanol production;
- $CO_2$ from combustion of the biological fraction of municipal solid waste or biosolids;
- $CO_2$ from combustion of the biological fraction of TDF; and
- $CO_2$ derived from combustion of biological material, including all types of wood and wood waste, forest residue, and agricultural material.

In the final rule, we have not significantly added to the guidance provided in the proposal on this subject and this request for further detailed additional guidance on the implementation of PSD under various circumstances is outside of the scope of this rulemaking. In the interim, this question is best addressed by the specific permitting authority based on source-specific considerations after reviewing the state regulation in effect in the state where the analysis occurs

## 12.6 State Numbers of Sources, Resource Constraints, and Preferences

**Comment:** Regarding EPA's request in the proposal for States to advise of numbers and types of existing biomass facilities, expectations for new facilities during the deferral, and resource constraints, fifteen States provided comments as summarized in the following table:

| State | Number/Type of Existing Sources | Estimated Major Biomass Projects During Deferral | Resource Constraints |
|---|---|---|---|
| Alaska (0114.1) | No comment | No comment | No comment |

| State | Number/Type of Existing Sources | Estimated Major Biomass Projects During Deferral | Resource Constraints |
|---|---|---|---|
| Arkansas (0033.1) | 27 facilities, all with Title V permits:<br>1. Landfills – 13<br>2. Facilities with wood fired boilers - 6<br>3. Paper mills – 6<br>4. Grain processing facilities (rice hull burning) – 2 | One or two PSD permits per year for biomass sources expected. Big increase in permits not expected. Landfill expansions could trigger PSD. | ADEQ cannot estimate resource impacts and constraints. |
| Connecticut (0069.1) | 2 permits have been issued under NSR PSD permit program, but neither have begun construction. The state also has several smaller wood-fired boilers, several landfills that flare landfill gas, and one TDF facility. | A limited number is expected. | The state is not concerned with resource constraints. |
| Florida (0038.1) | 9 biomass facilities:<br>1. FB Energy (wood waste/energy crops)<br>2. ADAGE (wood)<br>3. Highlands ethanol (energy crops)<br>4. St. Lucie County (MSW)<br>5. University of Florida (cellulosic biomass)<br>6. American Renewables (wood)<br>7. INEOS Bioenergy (waste)<br>8. Southeast Renewable Fuels (sorghum)<br>9. Palm Beach Renewable Energy Facility (MSW) | Currently processing applications for 2 bioenergy projects, and 7 additional projects are in planning and development. Number of future applications difficult to estimate. | No comment |
| Georgia (0094.1) | Eight sources are permitted which may be subject to Step 2 of the Tailoring Rule. | Five pending applications | No comment |
| Kentucky (0047.1) | No comment | No comment | No comment |
| Louisiana (0100.1) | No comment | No comment | No comment |

| State | Number/Type of Existing Sources | Estimated Major Biomass Projects During Deferral | Resource Constraints |
|---|---|---|---|
| Massachusetts (0101.1; 0105.1) | 30 facilities reported biogenic emissions In 2009, 24 with Title V permits:<br>1. 16 landfill with gas combustion (flare or power generation)<br>2. 6 municipal waste incineration<br>3. 5 industrial, commercial or institutional facility with bio-fuel boiler or engine<br>4. 1 biomass-fueled electric utility steam generator<br>5. 1 wastewater treatment plant burning sludge digester gas<br>6. 1 food processor with wood-fired smoker oven | 2 proposed biomass-fueled electric utility steam generator facilities currently under review, each with potential biogenic $CO_2$ emissions greater than 100,000 tons per year. | Massachusetts has adequate information and resources as to the nature of biogenic emissions from Massachusetts facilities for the purposes of our air pollution control program. Massachusetts is not inclined to defer inclusion of biogenic $CO_2$ emissions. |
| Minnesota (0102.1) | 42 biomass facilities of the following types:<br>1. Wood products/paper – 20<br>2. Power plants – 8<br>3. Universities/schools/hospitals – 6<br>4. Ethanol and mining – 8 | 1-2 | No comment |
| Oklahoma (0037.1) | Four major sources that utilize wood as fuel. Sources that burn biogas were not included. | No significant changes. | Short-term impacts reduced by deferral but concerned about resources needed to implement GHG and other core program areas (i.e. NAAQS and area toxics). |
| Oregon (0058.1) | 16 major sources of biogenic $CO_2$ including pulp and paper, wood products, EGUs, and landfills. | Expect 3-5 new biogenic EGU projects. | 2 additional staff are needed to implement GHG program. |

| State | Number/Type of Existing Sources | Estimated Major Biomass Projects During Deferral | Resource Constraints |
|---|---|---|---|
| Pennsylvania (0135.1) | Stationary sources that combust biomass materials:<br>1. MSW combustors – 6<br>2. MSW landfills – 34<br>3. Wood burners – 9<br>4. Sewage sludge incinerators – 9 | Unable to estimate | No comment |
| South Carolina (0124.1) | 1. Approximately 5 biomass power generation sources<br>2. Seven pulp/paper sources (black liquor, wood chips)<br>3. Approximately 50 boilers/ furnaces/kilns | Four biomass power generation applications being processed at this time. Number of future applications difficult to estimate. | Plan to use scarce resources on other revised EPA rules. |
| Vermont (0355) | No comment | No comment | No comment |
| Wisconsin (109.1) | Sources that will be impacted:<br>1. 100 companies with over 250 combustion units (wood/wood waste)<br>2. 100 wastewater treatment plants burning bio-gas.<br>3. 60 large landfills with some energy recovery.<br>4. 20 ethanol plants | No comment | Significant workload implications for WDNR's air permitting staff would have been expected without a deferral. |

Commenter 0102.1 noted that 31 of the 42 facilities in Minnesota that are permitted to combust biomass already hold Title V permits and 23 of those are also major for NSR. Only 11 facilities have state-only permits. With EPA's proposed three-year deferral of permitting requirements for biogenic sources, the commenter could defer requiring an application for those 11 facilities should they otherwise need to revise permit limits or obtain a federal operating permit. The commenter also stated that while another one or two applications may be expected during the deferral, no new applications have been submitted at this time. The commenter also stated that nine Minnesota permitted ethanol facilities – that would not otherwise trip the 100,000 ton threshold from purely fossil fuel $CO_2$ emissions (plus $CH_4$ and $N_2O$ for EGUs) – would trip the July 1 threshold (as new facilities) if biomass $CO_2$ totals were to be included in GHG totals for PSD applicability determinations. Of the nine, two are newer facilities (or units) added since 2000. These data are from the Minnesota GHG emission inventory, for years 2006- 2008.

Commenter 0069.1 offered information concerning the number and types of biogenic $CO_2$ emissions sources in Connecticut, and the intentions of Connecticut Department of Environmental Protection (CTDEP) with regard to permitting such sources. The CTDEP has issued two permits under the commenter's NSR PSD permit program. Both permits were issued prior to January 2, 201 l, to Plainfield Renewable Energy and Montville Power. Neither Plainfield Renewable Energy nor Montville Power has begun construction. In addition to the utility biomass sources, Connecticut has several smaller wood-fired boilers, several landfills that flare landfill gas and one tire-fired incinerator.

**Response:** EPA thanks the State commenters for the detailed information relevant to implementation of the deferral of biogenic $CO_2$ in the states. In the context of encouraging states to revise SIPs and/or Title V programs to adopt the three-year deferral, EPA requested that each State advise EPA as to the number and type of biomass sources in the State and what the State expects to be the number and type of biomass sources over the next three years. EPA also asked about the State's resource constraints. EPA notes that this information seems to support EPA's assumption of the proposal that the deferral not be mandatory because of the limited number of sources that combust biomass in various states and the lack of information and resources, in some cases, as to the nature of biogenic emissions from those sources.

# 13.0 Calculation Methods During Deferral

## 13.1 Methods for Determining Biogenic $CO_2$ Emissions (general)

**Comment:** Commenter 0087.1 suggested that every project is different and contain a varying amount of uncertainty therefore the EPA should not select a unified approach or method but rather evaluate each permit application individually. The commenter also suggests that while the GHG Mandatory Rule can be used as a reference, the accounting approach should not be required for all facilities.

**Response:** The final rule does not contain any specific methods or requirements to use specific methods for calculating biogenic $CO_2$ emissions. EPA agrees the methodologies in the GHG Reporting Program for biogenic $CO_2$ emissions can serve as a reference.

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**Comment:** Commenter 0052.1 suggested that the deferral and final resolution should specify that biogenic $CO_2$ emissions at the point of combustion are zero, consistent with the EU and a recent EPA lifecycle greenhouse gas assessment approach.

**Response:** EPA is considering the issues the commenter raised in its detailed examination of the science and technical issues associated with accounting for biogenic $CO_2$ emissions. They are outside the scope of this rulemaking.

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**Comment:** Conversely, another commenter (0104.1) suggested that EPA has long maintained that for PSD purposes applicability must be determined based solely upon a source's direct emissions and that all direct emissions from operation of a source "under its physical and operational design" must be counted in determining applicability.

**Response:** EPA is granting the deferral of biogenic $CO_2$ emissions from stationary source permitting requirements because the issue of accounting for the net atmospheric impact of biogenic $CO_2$ emissions is complex enough that further consideration of this important issue is warranted. During the three year deferral period, EPA will conduct a detailed examination of the science associated with biogenic $CO_2$ emissions from stationary sources, including engaging with federal partners, technical experts, and an independent scientific panel to consider technical issues. Based on the feedback from the scientific and technical review, EPA will then undertake a rulemaking to determine how biogenic $CO_2$ emissions should be treated and accounted for in PSD and Title V permitting programs. The deferral focuses on biogenic $CO_2$ emissions from stationary sources subject to the PSD and Title V programs.

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**Comment:** Commenter 0114.1 requests that EPA either amend 40 CFR 98 to address fish oil or allow methods other than those in 40 CFR 98 for calculating the $CO_2$ emissions from biomass should no emission factors or heating values be provided by EPA for a given biomass fuel (such as fish oil).

**Response:** The final rule does not contain any specific methods or requirements to use specific methods for calculating biogenic $CO_2$ emissions. EPA agrees the methodologies in the GHG Reporting Program for biogenic $CO_2$ emissions can serve as a reference.

**Comment:** One commenter (0124.1) requests that EPA issue guidance with examples on how to determine a source's biological fraction and the $CO_2$ emissions from that fraction. The commenter also requested that EPA address how the deferral impacts projects utilizing the actual-to-projected-actual applicability test. In determining a project's significant emission increases, facilities have the option to use the actual-to-potential or the actual-to-projected-actual applicability tests. Under §52.21(r)(d)(iii), facilities using the actual-to-projected-actual applicability test must calculate and record actual annual emissions for a period of 5 years or, if there was an increase in capacity or potential to emit, for 10 years. Three years from the deferral, $CO_2$ emissions from the biogenic source may or may not be exempt, depending on the outcome of the deferral. The EPA should clarify that biogenic $CO_2$ emissions will not have to be included in the emissions calculations under §52.21(r)(d)(iii) for the remaining time frame if the project occurred during the deferral period.

**Response:** The purpose of the three-year deferral is to better understand the impacts of biogenic $CO_2$ emissions. Stationary sources that combust biomass and construct or modify during the three-year deferral period will avoid the application of PSD to the biogenic $CO_2$ emissions resulting from those actions. Note that the deferral applies only to $CO_2$ emissions and does not affect non-GHG pollutants or other greenhouse gases.

No decision has yet been made regarding permit applications and permits issued after the three-year deferral period expires. During the three year deferral period, EPA will conduct a detailed examination of the science associated with biogenic $CO_2$ emissions from stationary sources, including engaging with federal partners, technical experts, and an independent scientific panel to consider technical issues. Based on the feedback from the scientific and technical review, EPA will then undertake a rulemaking to determine how biogenic $CO_2$ emissions should be treated and accounted for in PSD and Title V permitting, including concerns such as those raised by the commenter above.

To date, EPA issued interim guidance entitled, "Guidance for Determining Best Available Control Technology for Reducing Carbon Dioxide Emissions from Bioenergy Production" and various methods are available to calculate both the biogenic and fossil portions of $CO_2$ emissions, including those methods contained in the GHG Reporting Program (40 CFR part 98). EPA will decide at the time of the rulemaking for treatment and accounting of biogenic $CO_2$ emissions whether further guidance, examples, and other supporting materials will be needed.

## 13.2 Methods for Determining Biogenic $CO_2$ Emissions (mixed fuels)

**Comment:** Three comments were received which specifically addressed determining biogenic $CO_2$ Emissions for mixed fuels. Two commenters (0052.1 and 0095.1) both endorsed flexible approaches in which the facilities should document and use the best available information to calculate biogenic emissions. The third commenter (0077.1) recommended that facilities use standard gas metering devices or standard engineering calculations for gas combustion to account for mixed fuels. Commenter 0106.1 suggested that wood fuel sources meet FSC certification standards. Furthermore commenter 0022 recommended that stationary sources combusting mixed fuels use ASTM D6866 testing to accurately measure their biogenic $CO_2$ emissions. This standard method is used to determine the exact percentage of biogenic $CO_2$ emissions produced from combusting fuels that are partly fossil and partly biomass, e.g.

municipal solid waste, used tires, and sewage sludge. ASTM D6866 has already been incorporated in the EPA's Mandatory Greenhouse Gas Reporting Rule (40 CFR Part 98) and Western Climate Initiative's Mandatory Reporting Requirements, among others.

**Response:** The final rule does not contain any specific methods or requirements to use specific methods for calculating biogenic $CO_2$ emissions. For stationary sources co-firing fossil fuel and biologically-based fuel, and/or combusting mixed fuels (*e.g.*, TDF, MSW, *etc.*), the biogenic $CO_2$ emissions from that combustion are included in this deferral. However, as stated above, the fossil $CO_2$ emissions are not. Various methods are available to calculate both the biogenic and fossil portions of $CO_2$ emissions, including those methods contained in the GHG Reporting Program (40 CFR part 98). Further, EPA issued interim guidance entitled, "Guidance for Determining Best Available Control Technology for Reducing Carbon Dioxide Emissions from Bioenergy Production" and various other methods are available to calculate both the biogenic and fossil portions of $CO_2$ emissions, including those methods contained in the GHG Reporting Program (40 CFR part 98). EPA will decide at the time of the rulemaking for treatment and accounting of biogenic $CO_2$ emissions whether further guidance, examples, and other supporting materials will be needed, but for most permitting purposes, the source should work with the permitting authority to determine the best methods for calculating these emissions considering site-specific factors.

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**Comment:** Commenter 0022 pointed out an oversight in the EPA GHG Reporting Rule concerning the biogenic $CO_2$ emissions of stationary sources that combust sewage sludge as fuel. Based on the commenter's internal lab tests using ASTM D6866, sewage sludge/biosolids are only about 80 percent biogenic. The commenter cited the work of researchers that have demonstrated that sewage sludge contains a significant amount of fossil carbon due to detergents, shampoos, and other petroleum-based consumer products that enter the waste stream. The commenter encouraged EPA to take into account the fossil inputs in materials assumed to be 100 percent biomass or renewable, such as sewage sludge and demolition wood with petroleum-based paint or adhesives.

**Response:** We acknowledge the commenter's suggestion for the GHG Mandatory Reporting Rule. We note that this comment is outside the scope of the deferral rule under consideration, but we may further consider this comment as we develop accounting methodologies for biogenic $CO_2$.

# 14.0 Interim Guidance for Biogenic $CO_2$ Sources Under PSD Review

EPA issued interim guidance entitled, "Guidance for Determining Best Available Control Technology for Reducing Carbon Dioxide Emissions from Bioenergy Production," in March 2011 concurrent with the proposal for this action. EPA received a number of comments on the contents of the guidance, which EPA considers to be beyond the scope of this deferral action. We are not intending to revise the interim guidance at this time. EPA is granting the deferral of biogenic $CO_2$ emissions from stationary source permitting requirements because the issue of accounting for the net atmospheric impact of biogenic $CO_2$ emissions is complex enough that further consideration of this important issue is required. Nevertheless we are summarizing a number of the significant comments raised about the guidance and providing clarity on the nature of the guidance, where appropriate.

## 14.1 Interim Guidance to Address Biogenic $CO_2$ Sources Under PSD Review

**Comment:** Commenter 0101.1 noted that if EPA chooses to follow precedent and regulate biofuels like other fuels, then at a minimum, emissions will be reduced because projects will be required to utilize efficient combustion technologies, as is the case for fossil fuel-fired projects. If EPA chooses to treat biogenic emissions differently, then EPA should move forward immediately to develop appropriate guidance which accounts for impacts of biomass combustion.

Commenter 0070.1 suggested if EPA cannot permanently exclude biomass combustion emissions, a rational alternative to a complete exemption could be to issue a (non-interim) BACT guidance document laying out credible scientifically sound accounting methodologies that take into account the carbon debt associated with burning biomass for energy which concludes that the combustion of biomass fuel is considered BACT.

**Response:** EPA issued its "Guidance for Determining Best Available Control Technology for Reducing Carbon Dioxide Emissions from Bioenergy Production" on March 21, 2011. This Guidance elaborates on the November 2010 GHG Permitting Guidance, and encourages states to consider energy efficiency as part of their permitting process for bioenergy projects. The interim guidance was intended to help permitting authorities establish a basis for concluding that under the PSD Program the combustion of biomass fuels can be considered BACT for biogenic $CO_2$ emissions at stationary sources until such time as the deferral becomes effective. The unique lifecycle characteristics of biogenic feedstocks, and the extent to which characterizing the full carbon cycle of the fuel source is appropriate when considering the net atmospheric impact of emissions from a stationary source, are the subject of EPA's ongoing detailed examination of the science and technical issues associated with biogenic $CO_2$ emissions. Once that work is complete the Agency intends to undertake a rulemaking to establish the treatment of these emissions in the PSD and Title V programs. Thus, EPA is unable to provide more specific guidance of the type requested by these commenters until it completes these actions.

**Comment**: Commenter 0350.1 stated that EPA's approach in the Bioenergy BACT Guidance is arbitrary, unsupportable, and all but certain to encourage legally and factually deficient BACT determinations. The commenter stated that biomass feedstocks and the resulting $CO_2$ emissions must be analyzed in the context of facility-specific, case-by-case BACT determinations, and to the extent that biological feedstocks have unique lifecycle characteristics such that biogenic $CO_2$ emissions warrant different treatment under CAA from other pollutants, these characteristics cannot form the basis of a broad exemption from PSD and Title V permitting. The commenter stated the Bioenergy BACT Guidance fails to provide necessary technical support for case-by-case Bioenergy BACT determinations. The commenter noted the BACT Guidance is a departure from past EPA practice and explicitly encourages permitting authorities to substitute broad policy judgments for the case-by-case analysis required by statute and regulations.

Commenter 0106.1 opposed EPA's March 2011 interim guidance for BACT for reducing $CO_2$ from bio-energy production, because the interim guidance inappropriately supports all biomass burning for energy as BACT for $CO_2$, and this interim policy provides no consideration of the source of the fuel used or whether that proposed facility would be a net source or sink for $CO_2$. The commenter believes it is scientifically more appropriate, to consider the full carbon cycle of the fuel source during BACT analyses, as is discussed but not applied in the interim guidance for BACT.

**Response:** EPA is not revising the guidance at this time. However, commenters may raise these concerns about the guidance in the context of individual permitting actions where the guidance is applied. The guidance is non-binding and BACT determinations made on a case-by-case basis may reflect consideration of additional information. As stated in the March 2011 interim guidance document, EPA has not provided a final determination of BACT for any particular source, since such determinations can only be made by individual permitting authorities on a case-by-case basis after consideration of the record in each case. Upon consideration of the record in an individual case, if a permitting authority has a reasoned basis to address particular issues in a different manner than EPA recommends in guidance, they have the discretion to do so. In addition, BACT determinations based on the reasoning in the guidance may be subject to challenge in each permitting action. The unique lifecycle characteristics of biogenic feedstocks, and the extent to which characterizing the full carbon cycle of the fuel source is appropriate when considering the net atmospheric impact of emissions from a stationary source, are the subject of EPA's ongoing detailed examination of the science and technical issues associated with biogenic $CO_2$ emissions. Once that work is complete the Agency intends to undertake a rulemaking to establish the treatment of these emissions in the PSD and Title V programs. Thus, EPA is unable to provide more specific guidance on considering the full carbon cycle in the context of BACT reviews until it completes these actions.

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**Comment**: Commenter 0350.1 stated that EPA has not shown that biomass is a "clean fuel." The commenter stated if EPA determines it has authority to determine that biomass constitutes a clean fuel based on a full lifecycle analysis, then the analysis must be conducted in accordance with the CAA requirements, i.e., using top-down, 5-step process from the 1990 NSR Workshop Manual and a case-by-case analysis. The commenter noted that while EPA may prefer to determine that certain types of biomass probably constitute BACT, it must conduct an analysis at the facility to demonstrate that this is the case. The commenter noted that historically, whether a

given fuel type constitutes a "clean fuel" has focused on a facility's at-the-stack emissions, that is, whether the fuel is "inherently cleaner" in terms of at-the-stack emissions than an alternative. In these terms, biomass could never qualify as BACT because, per unit of energy, biomass combustion emits more $CO_2$ than coal and significantly more than natural gas. Therefore, any determination that biomass is "cleaner" than fossil fuels must necessarily be based on an accounting of the $CO_2$ emissions associated with the full lifecycle of the feedstock.

The commenter stated the CAA requires each BACT determination be made on a case-by-case basis, where the permitting authority may take into account energy, environmental, and economic impacts and other costs. The commenter noted they are aware of no authority that allows a permitting authority to deviate from this requirement. The commenter indicated that EPA has not offered facts or evidence demonstrating a case-by-case analysis would be complex and time-consuming in every instance and has not adequately explained why the complexity justifies a de facto exemption from the case-by-case BACT requirement, and this contravenes the plain language of the statute.

The commenter stated that EPA's application of the top-down BACT analysis in the Bioenergy BACT Guidance is misguided. The commenter noted that EPA's own guidance which has been in effect and applied by permitting authorities for decades demonstrates that the available BACT options, including clean fuels, must be determined at Step 1, and then may be discounted at further steps in the analysis. The commenter stated that if permitting authorities are to conclude that biomass constitutes an available control technology based on lifecycle analysis, this must occur at Step 1 and not at Step 4. The commenter objected to EPA's conclusion that a lifecycle analysis may be conducted at Step 4, as this is contrary to decades-long precedent that requires that a fuel be listed as a control technology at Step 1 because of its effectiveness in reducing emissions.

**Response:** The interim guidance was intended to help permitting authorities establish a basis for concluding that under PSD Program the combustion of biomass fuels can be considered BACT for biogenic $CO_2$ emissions at stationary sources until such time as the deferral becomes effective. EPA is not revising the guidance at this time. However, commenters may raise these concerns about the guidance in the context of individual permitting actions where the guidance is applied. The guidance is non-binding and BACT determinations made on a case-by-case basis may reflect consideration of additional information. As stated in the March 2011 interim guidance document, EPA has not provided a final determination of BACT for any particular source, since such determinations can only be made by individual permitting authorities on a case-by-case basis after consideration of the record in each case. Upon consideration of the record in an individual case, if a permitting authority has a reasoned basis to address particular issues in a different manner than EPA recommends in guidance, they have the discretion to do so. In addition, BACT determinations based on the reasoning in the guidance may be subject to challenge in each permitting action. The unique lifecycle characteristics of biogenic feedstocks, and the extent to which characterizing the full carbon cycle of the fuel source is appropriate when considering the net atmospheric impact of emissions from a stationary source, are the subject of EPA's ongoing detailed examination of the science and technical issues associated with biogenic $CO_2$ emissions. Once that work is complete the Agency intends to undertake a rulemaking to establish the treatment of these emissions in the PSD and Title V programs.

**Comment:** Commenter 0065.1 disagreed that indirect impacts should be considered by permitting authorities when evaluating the environmental, energy, and economic benefits of biomass fuel. The commenter stated that some indirect impacts, such as employment opportunities are not relevant to GHG calculations, and those contemplating bio-energy investments will naturally balance any social and other non-emissions environmental benefits against the GHG emissions costs so that incorporating such ancillary benefits in emissions regulations essentially double-counts those unrelated benefits. The commenter acknowledged that it may be appropriate to some extent to consider certain federal and state policies, which are part of a national strategy to reduce emissions of GHG, as indirect factors. However, the commenter believes that EPA inappropriately emphasizes the importance of federal and state programs that encourage biomass, but that are unrelated to $CO_2$ emissions, such as indirect economic and energy factors that could be used to accept biomass fueled plant practices as BACT, because many of these policies were implemented before $CO_2$ emissions became a priority of energy programs, and most of these policies have not acknowledged the complexities of GHG accounting from biomass-fired and other biogenic sources.

**Response:** The interim guidance was intended to help permitting authorities establish a basis for concluding that under PSD Program the combustion of biomass fuels can be considered BACT for biogenic $CO_2$ emissions at stationary sources until such time as the deferral becomes effective. EPA is not revising the guidance at this time. However, commenters may raise concerns about the guidance in the context of individual permitting actions where the guidance is applied. The guidance is non-binding and BACT determinations made on a case-by-case basis may reflect consideration of additional information. As stated in the March 2011 interim guidance document, EPA has not provided a final determination of BACT for any particular source, since such determinations can only be made by individual permitting authorities on a case-by-case basis after consideration of the record in each case. Upon consideration of the record in an individual case, if a permitting authority has a reasoned basis to address particular issues in a different manner than EPA recommends in guidance, they have the discretion to do so. In addition, BACT determinations based on the reasoning in the guidance may be subject to challenge in each permitting action.

## 14.2 Guidance Should be Expanded

**Comment:** Commenter 0117.1 pointed out that very few of the approximately 16,000 POTWs in the U.S. are regulated as major sources due to pollutants other than GHG. If EPA does not defer biogenic emissions from PSD and Title V, many new sources could be brought into these complex permitting programs. Detailed calculations of biogenic and non-biogenic fossil $CO_2$ emissions at specific units are beyond the scope of the existing published methods and impose permitting and administrative burdens on the regulated community and regulatory agencies. No peer-reviewed methods have been established for $CO_2$ emissions, and currently available methods do not allow for a unit-by-unit calculation. If EPA proceeds with permitting biogenic sources, the commenter urged EPA to expand the interim guidance for PSD permitting to allow states to conclude that BACT for $CO_2$ emissions from wastewater treatment is simply the treatment process itself. This approach is consistent with the approach regarding combustion of biomass fuels.

**Response:** This rulemaking defers for a period of three years the application of the PSD and Title V programs to biogenic $CO_2$ emissions from stationary sources. This includes the BACT requirement where GHG emissions, not counting biogenic $CO_2$, are below 75,000 TPY $CO_2$e. As noted in the preamble, the definition of biogenic $CO_2$ emissions includes $CO_2$ emissions from wastewater treatment. Since the value of additional guidance is lessened while the deferral is effective, EPA believes its resources are best focused on the study and subsequent rulemaking rather than developing guidance for additional types of sources. During this deferral period, EPA is conducting a detailed examination of the science and technical issues associated with accounting for biogenic $CO_2$ emissions. Once that work is complete the Agency intends to undertake a rulemaking to establish the treatment of these emissions in the PSD and Title V programs. If and when it is appropriate after these actions are completed, EPA will consider updating or revising BACT guidance. In the meantime, EPA notes that methods for calculating emissions of biogenic $CO_2$ from wastewater treatment facilities are described the December 2010 methodology "DRAFT - Greenhouse Gas Emissions Estimation Methodologies for Biogenic Emissions from Selected Source Categories: Solid Waste Disposal, Wastewater Treatment, Ethanol Fermentation."[2]

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**Comment:** Commenter 0101.1 noted that EPA's PSD regulation also requires the applicant to perform an Additional Impact Analysis. As an alternative to BACT, EPA could develop guidance for considering fuel sources and associated climate effects in this context.

**Response:** The additional impacts analysis (40 CFR 52.21(o); 40 CFR 51.166(o) and the BACT requirement (40 CFR 52.21(j); 40 CFR 51.166(j)) are based on distinct provisions of EPA regulations and the CAA. Although the findings of the additional impacts analysis may inform the consideration of "environmental impacts" in the BACT analysis, EPA does not believe applicable legal authorities give EPA the discretion to treat the additional impacts analysis as an alternative to the BACT requirement.

## 14.3 Agree BACT is Biomass

**Comment:** Commenters 0087.1, 0070.1, and 0023C supported the concept of EPA guidance laying out credible scientifically sound accounting methodologies that take into account the carbon debt associated with burning biomass for energy to assist state permit writers with BACT determinations for biogenic emissions, prior to the time that biogenic $CO_2$ emissions are excluded from coverage under the PSD program. Several commenters (0070.1, 0087.1, 0117.1, 0023C) agreed that BACT for biogenic $CO_2$ emissions at stationary sources is simply the combustion of biomass fuels.

**Response:** As stated in the March 2011 interim guidance document, EPA has not provided a final determination of BACT for any particular source, since such determinations can only be made by individual permitting authorities on a case-by-case basis after consideration of the record in each case. However, for the reasons described in its March 2011 guidance, EPA agrees that permitting authorities may be able to support the conclusion that BACT for biogenergy facilities is the combustion of biomass fuels alone. The commenters should be advised that the

[2] http://www.epa.gov/ttn/chief/efpac/esttools.html

March 2011 guidance applicable to bioenergy facilities is interim guidance pending completion of further analysis by EPA in accordance with the process described in the deferral rule.

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**Comment:** Similarly, commenter 0087.1 encouraged EPA to revise the guidance to state more clearly that utilization of biomass fuel usually will be sufficient to constitute BACT for $CO_2$. The commenter was concerned that EPA's Guidance document does not make the case for that conclusion as clearly as it should, and provided an example supporting this statement. Specifically, the commenter noted EPA's "top-down" policy is not required by any statute or regulation, and EPA should not adhere slavishly to that procedure if it really does not fit well with the considerations for determining BACT for bioenergy facilities.

**Response:** EPA is not revising the guidance at this time. The guidance is non-binding and BACT determinations made on a case-by-case basis may reflect consideration of additional information. Upon consideration of the record in an individual case, if a permitting authority has a reasoned basis to address particular issues in a different manner than EPA recommends in guidance, they have the discretion to do so. The commenter thus has the opportunity to supply information to permitting authorities that it believes makes the case more clearly than EPA's guidance that biomass is BACT for a particular stationary source.

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**Comment:** One commenter (0140.1) stated that biomass should be considered BACT as a matter of policy until the deferral is final. The fact that EPA has issued Biomass BACT Guidance highlights that, until the deferral is finalized, biomass facilities may still be subject to EPA's PSD and Title V programs with respect to $CO_2$ emissions. Consistent with EPA's Biomass BACT Guidance, proposed biomass facilities or major modifications to biomass facilities that are permitted before the deferral is finalized should not have to complete BACT analyses if $CO_2$ emissions exceed threshold permitting levels.

**Response:** EPA does not believe applicable statutes and regulations authorize the approach suggested by this commenter. Until the amendements to EPA regulations reflected in this rule are final and effective, biogenic $CO_2$ emissions are included among the GHG pollutant that is subject to regulation. Thus, a BACT analysis for GHG should continue to be conducted where a source has the potential to emit 75,000 tpy $CO_2e$ or more when including biogenic $CO_2$ emissions in the calculation. While EPA's guidance provides reasoning that may be used to simplify a BACT analysis for GHG at a biogenergy facility, the guidance does not eliminate the requirement to complete such an analysis for GHG where applicable under regulations in effect at the time a permit is issued. As stated in the March 2011 interim guidance document, EPA has not provided a final determination of BACT for any particular source, since such determinations can only be made by individual permitting authorities on a case-by-case basis after consideration of the record in each case.

## 14.4 Disagree BACT is Biomass

**Comment:** Commenter 0030 disagreed that BACT for biogenic $CO_2$ emissions at stationary sources is simply the combustion of biomass fuels. Commenter 0030 stated that the result would be to have more large coal plants converting to biomass combustion, requiring very large quantities of "biomass" to operate.

**Response:** Commenters may raise points such as this in context of individual permitting actions where the guidance is applied. The guidance is non-binding and BACT determinations made on a case-by-case basis may reflect consideration of additional information. As stated in the March 2011 interim guidance document, EPA has not provided a final determination of BACT for any particular source, since such determinations can only be made by individual permitting authorities on a case-by-case basis after consideration of the record in each case. Upon consideration of the record in an individual case, if a permitting authority has a reasoned basis to address particular issues in a different manner than EPA recommends in guidance, they have the discretion to do so. In addition, BACT determinations based on the reasoning in the guidance may be subject to challenge in each permitting action.

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**Comment:** Commenter 0350.1 stated that EPA has not demonstrated that biomass combustion per se constitutes BACT. The commenter stated further that the Bioenergy BACT Guidance effectively constitutes "presumptive" BACT. The commenter stated that the Bioenergy BACT Guidance advises permitting authorities to presume that biomass combustion is BACT, and if a bioenergy facility advances policies promoting bioenergy, then the BACT analysis for $CO_2$ is presumed to be satisfied. The commenter noted this conclusion tells permitting authorities absolutely nothing about the environmental, economic, or energy impacts of a particular biomass fuel or facility. The commenter stated that any such presumption is unlawful, as the requirement that BACT be conducted on a case-by-case basis is statutory requirement.

**Response:** The March 2011 Guidance does not change this fundamental requirement that the BACT determination be conducted on a case-by-case basis. The guidance provides the outline of reasoning that may be used to demonstrate that biomass fuel alone meets the BACT requirement for GHG at sources that emit primarily biogenic $CO_2$, but it does not reflect a final determination or create a presumption regarding BACT. The Guidance emphasizes that the BACT process may include considerations about the direct and indirect impacts of the emissions control option or strategy being evaluated. It also highlights the potential economic and energy benefits of utilizing biomass, but to apply this rationale. Permitting authorities still need to identify the energy and economic benefits of utilizing particular biomass feedstocks that support the type of policies promoting their utilization described in the guidance. The ultimate decision about BACT for the proposed facility rests with the permitting authority, not with the facility or with EPA. The determination about whether or not the proposed facility meets certain objectives with respect to environmental, economic, and energy impacts is thus made on a case-by-case basis, by the particular permitting authority.

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**Comment:** Commenter 0118.1 believes that BACT analyses for GHG emissions should include wind, solar, geothermal, energy conservation, increased energy efficiency, and seasonal thermal energy storage.

**Response:** Commenters may raise points such as this in context of individual permitting actions where EPA guidance is applied. The guidance is non-binding and BACT determinations made on a case-by-case basis may reflect consideration of additional information. As stated in the March 2011 interim guidance document, EPA has not provided a final determination of BACT for any particular source, since such determinations can only be made by individual permitting authorities on a case-by-case basis after consideration of the record in each case. Upon consideration of the record in an individual case, if a permitting authority has a reasoned basis to

address particular issues in a different manner than EPA recommends in guidance, they have the discretion to do so. EPA notes that the ultimate decision about BACT rests with the permitting authority, which is free to include whatever considerations at Step 4 it deems appropriate.

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**Comment:** Commenter 0128.1 noted that certain language (see EPA-HQ-OAR-2011-0083-0128.1) from the interim guidance to states does not mean that use of any type of biogenic fuel should be considered BACT. The commenter also expressed concern that EPA's supplemental guidance to states provides inadequate bases for states to proceed with the BACT determination process. The commenter noted that the guidance will confuse and deter states from considering BACT. The commenter asserts that the broad nature of this guidance creates a slippery slope for energy developers and regulatory agencies to side-step appropriate CAA review.

**Response:** The interim guidance provides the outline of reasoning that may be used to demonstrate that biomass fuel alone meets the BACT requirement for GHG at sources that emit primarily biogenic $CO_2$, but it does not eliminate the need for a BACT analysis for GHG and the application of independent judgement by permitting authorities. The guidance is non-binding and BACT determinations made on a case-by-case basis may reflect consideration of additional information. Upon consideration of the record in an individual case, if a permitting authority has a reasoned basis to address particular issues in a different manner than EPA recommends in guidance, they have the discretion to do so. EPA notes that the Guidance is based on past Guidance documents, including the November 2010 GHG Permitting Guidance whiche was revised in March 2011. While these documents do not and cannot resolve every question, EPA believes this body of guidance material is, on the whole, helpful to permitting authorities.

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**Comment:** Commenter 0125.1 asked that EPA modify its interim guidance and future rules to make it clear that direct combustion of biomass that can best be used for higher value, environmentally-friendly products (such as crude tall oil and crude sulfate turpentine) is not BACT for $CO_2$ emissions.

**Response:** EPA will consider this point as it develops additional rules and guidance.

## 14.5 Biomass Fuels Alone

**Comment:** Commenter 0101.1 stated that the current PSD program could be used to control emissions from biomass projects without modification. At a minimum, BACT analyses of control strategies that address direct emissions from facilities, such as energy efficiency measures, should be required, as is standard practice for fossil fuels.

**Response:** EPA notes that energy efficiency is an option for inclusion in the set of control options in the BACT analysis at Step 1 for all facilities. EPA agrees that this should become standard practice for all facilities, and notes that the Bioenergy BACT Guidance does not intend to remove energy efficiency as a control option for bioenergy facilities. Although the guidance provides a rationale that may support eliminating this option in the case of this type of facility, the guidance is non-binding and BACT determinations made on a case-by-case basis may reflect consideration of additional information. Upon consideration of the record in an individual case, if a permitting authority has a reasoned basis to address particular issues in a different manner than EPA recommends in guidance, they have the discretion to do so.

## 14.6 Step 4 - Energy, Environmental, and Economic Impacts

**Comment:** Commenter 0350.1 stated EPA's proposed expansion of the Step 4 analysis is unprecedented and unlawful. The commenter stated that EPA proposes that the Step 4 inquiry be used to avoid the necessity for analysis in the first place. The commenter further noted that, in essence, EPA counsels permitting authorities to conduct a rigged analysis that substitutes preconceived policy judgments for pollution control technologies and ignores the environmental, economic, and energy drawbacks of widespread biomass energy generation. The commenter then stated the real purpose of EPA's proposal, to create a de facto exemption from real BACT analysis for bioenergy facilities that cannot avail themselves of the broader exemption in the proposal, is as unlawful as it is obvious.

**Response:** The commenter does not demonstrate there is any regulatory or statutory provision that restricts EPA's ability to offer guidance on how to interpret the term "energy, environmental, and economic impacts" in the context of the BACT provisions. The interim guidance provides the outline of reasoning that may be used to demonstrate that biomass fuel alone meets the BACT requirement for GHG at sources that emit primarily biogenic $CO_2$, but it does not eliminate the need for a BACT analysis for GHG and the application of independent judgement by permitting authorities. Nor does the guidance reflect a final determination or create a presumption that biomass is BACT for such sources. The Guidance highlights the potential economic and energy benefits of utilizing biomass, but to apply this rationale permitting authorities still need to identify the energy and economic benefits of utilizing particular biomass feedstocks that support the type of policies promoting their utilization described in the guidance. EPA notes the November 2010 GHG Permitting Guidance (updated in March 2011) recommends that permitting authorities continue to use the Agency's five-step "top-down" BACT process to determine BACT for GHG. The March 2011 interim guidance states (p. 42), "In BACT Step 4, the applicant and permitting authority should consider both direct and indirect impacts of the emissions control option or strategy being evaluated." EPA and other permitting authorities may take "into account energy, environmental, and economic impacts and other costs," when evaluating a method or fuel as BACT and therefore EPA finds that consideration of these impacts in the BACT Step 4. The ultimate decision about BACT for the proposed facility rests with the permitting authority. The determination about whether or not the proposed facility meets certain objectives with respect to environmental, economic, and energy impacts is thus made on a case-by-case basis, by the particular permitting authority.

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**Comment:** Commenter 0138.1 stated that considering biomass as BACT is not justified. Using the example of the We Energies Domtar biomass to energy plant in Rothschild, WI, the commenter stated that the permitted emission rate from the Domtar biomass boiler with a natural gas burner shows how consideration of biomass as BACT is poorly justified, because EPA's argument is that burning waste wood emits no more carbon than is emitted in decomposition, and therefore represents no net addition of carbon to the atmosphere. The commenter further states that leaving aside the fact that decomposition takes years to decades, while burning is instantaneous, no record has been provided to the public that demonstrates that the Domtar plant will burn solely "residues" that would "decompose anyway[,]" and the commenter believes there is good reason to assume this plant will have to rely on increased whole-tree harvesting to provide fuel. The commenter concluded that when a biomass facility does not just burn waste,

and instead turns to increased forest harvesting to provide fuel, net emissions are significantly increased, and stated that the widely held assumption that harvesting trees for fuel is "carbon neutral", has been disproved by several cited studies.

**Response:** Commenters may raise points such as this in context of individual permitting actions where the guidance is applied. The guidance is non-binding and BACT determinations made on a case-by-case basis may reflect consideration of additional information. At Step 4 of the five-step "top-down" BACT process, permitting authorities should consider the relevant environmental, economic, and energy impacts of proposed facilities. For biogenergy facilities, this analysis should include direct and indirect impacts of the proposed emissions control strategies, including consideration of the desired regional energy mix and the available supply of the proposed feedstock.

The unique characteristics of biogenic feedstocks, and the extent to which characterizing the full carbon cycle of the fuel source is appropriate when considering the net atmospheric impact of emissions from a stationary source, are the subject of EPA's ongoing detailed examination of the science and technical issues associated with biogenic $CO_2$ emissions. As stated in the March guidance, the possibility remains that more detailed examination of the science of biogenic $CO_2$ may show that some biomass feedstocks for bioenergy production are *de minimus* and that other may have a significant impact on the net carbon cycle. Thus, EPA's guidance is interim and EPA is finalizing the proposed temporary, rather than a permanent, deferral of PSD requirements for biogenic $CO_2$ emissions from such sources at this time. Once the detailed examination of the scientific and technical issues associated with biogenic $CO_2$ feedstocks, the Agency intends to undertake a rulemaking to establish the treatment of these emissions in the PSD and Title V programs.

## 14.7 Step 4 - Environmental Impacts

**Comment:** Commenter 0030 noted that $CO_2$ emissions resulting from the harvesting and transportation of such large quantities of woody biomass will add substantially to the climate impacts of emissions from the facility's smoke stacks.

**Response:** As explained in the preamble of the rule, EPA has concluded that it the science of biogenic $CO_2$ emissions are sufficiently complex and requires further discussion with partners and scientists both inside and outside the federal government, as well as engagement with an independent scientific panel, before it can make more qualitative characterizations about biogenic feedstocks. Therefore, the complexities of accounting for $CO_2$ emissions from biomass-fired and other biogenic sources including identifying unique characteristics of biogenic feedstocks and characterizing important considerations for various feedstocks when considering the net atmospheric impact of emissions from a stationary source are the subject of EPA's ongoing detailed examination of the science and technical issues associated with accounting for biogenic $CO_2$ emissions. Once that work is complete the Agency intends to undertake a rulemaking to establish the treatment of these emissions in the PSD and Title V programs.

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**Comment:** Commenter 0350.1 stated EPA's guidance for assessment of environmental impacts is deeply problematic and deviates from past practice by suggesting that the analysis consider the effects of $CO_2$ emissions. The commenter stated that EPA's statement that production of

biomass entails carbon sequestration does not mean that combustion of biomass entails carbon sequestration, because burning biomass does not by itself guarantee future land-based sequestration. The commenter noted that EPA's land-based BAU sequestration baseline is underdeveloped and needs to be far more robust, to include effects of policy action and incentives on forest and land management, to account for short-term climate impacts from combustion of materials that would otherwise decompose over time, and to account for lost capacity for additional sequestration for biomass removal and combustions. The commenter stated EPA's skeletal "baseline" proposal does not seem to consider lost sequestration capacity at all. The commenter noted that EPA's conclusion that certain biomass feedstocks have negligible climate impacts lacks scientific support and cannot be used to justify a determination that burning feedstocks constitutes BACT. The commenter noted that the Bioenergy BACT Guidance ignores wider environmental impacts such as the resulting increased demand for wood biomass fuel that affects forest and land management, degrades forest habitat, results in more aggressive logging operations that degrade water quality, and results in conventional pollutant emissions from biomass facilities that affect human health. The commenter stated that EPA advises permitting authorities to consider only the purported benefits of biomass energy generation and none of the drawbacks. The commented noted that a BACT analysis should include an honest assessment of the environmental consequences of any particular control technology, however the Bioenergy BACT Guidance rigs the game, sending permitting authorities on an outcome-oriented path toward a preordained conclusion.

**Response:** The commenter illustrates the complexities that have motivated EPA's decision to study this important issue further and how the complex nature of this analysis will increase the burden on permitting authorities to address this issue in the context of individual permitting decision.

The guidance is non-binding and BACT determinations made on a case-by-case basis may reflect consideration of additional information. EPA has previously said that Step 4 includes both positive and negative impact considerations. In the March 2011 guidance, EPA emphasized that "the environmental impacts analysis in Step 4 should concentrate on impacts other than direct impacts due to emissions of the regulated pollutant that is the subject of the BACT analysis" (page 18). This includes possible consideration of a variety of environmental impacts, such as solid or hazardous waste generation, discharges of polluted water from a control device, and emissions of other pollutants subject to NSR or air toxics.

EPA has recognized a permitting authority is not limited to evaluating the impacts of only the "top" or most effective technology but can assess the impacts of all technologies under consideration. This approach may include an evaluation of the energy, environmental, and environmental benefits of all options under consideration without explicitly eliminating options based on adverse impacts. For biomass facilities, the Step 4 analysis may include direct and indirect impacts of the proposed facilities, such as including consideration of the desired regional energy mix and the available supply of the proposed feedstock.

As explained in the preamble to the rule, EPA concluded that it the science of biogenic $CO_2$ emissions are sufficiently complex and requires further discussion with partners and scientists both inside and outside the federal government, as well as engagement with an independent scientific panel, before it can make more qualitative characterizations about biogenic feedstocks.

Therefore, the complexities of accounting for $CO_2$ emissions from biomass-fired and other biogenic sources including identifying unique characteristics of biogenic feedstocks and characterizing important considerations for various feedstocks when considering the net atmospheric impact of emissions from a stationary source are the subject of EPA's ongoing detailed examination of the science and technical issues associated with biogenic $CO_2$ emissions. Once that work is complete the Agency intends to undertake a rulemaking to establish the treatment of these emissions in the PSD and Title V programs. Thus, EPA is unable to provide more specific guidance on the types of issues identified by commenter until it completes these actions.

## 14.8 Step 4 - Economic Impacts

**Comment:** Commenter 0350.1 stated EPA deviates from past practice in recommending that permitting authorities consider "indirect" economic impacts or the "potential economic benefits" of bioenergy generation, and EPA does not explain why such analysis is appropriate for bioenergy facilities when it has not been appropriate for any other type of facility. The commenter went on to state that these objectives, goals, and policy judgments related to biomass have nothing to do with whether the choice of any particular facility to burn biomass will have any particular economic impact. The commenter stated that the Step 4 analysis should be concerned with establishing the cost-effectiveness of pollution control measures, not with advancing unrelated goals and objectives, and the commenter stated that policy judgments have no place in BACT analysis.

**Response:** The commenter does not demonstrate that the term "economic impacts" cannot be interpreted to incorporate additional considerations beyond those previously emphasized in prior EPA guidance.

Under Step 4 of the top-down BACT analysis, permitting authorities consider the economic, energy, and environmental impacts arising from each option remaining under consideration, and this may include potential economic benefits under the circumstances described in the guidance. Given the case-by-case nature of the BACT analysis and the importance of considering impacts on the local environment and community (including in this case the availability of employment opportunities generated within a particular region or community by the utilization of biomass fuels), EPA believes this flexibility provided for permitting authorities for deciding how best to weigh the trade-offs associated with a particular emissions control option continues to be appropriate when evaluating BACT for GHG.

## 14.9 Step 4 – Energy Impacts

**Comment:** Commenter 0350.1 stated EPA advises permitting authorities to "broaden the scope" of energy impacts analysis beyond what has traditionally occurred at Step 4, EPA recommends that permitting agencies substitute policy judgments for analysis under Step 4, and stated that this EPA policy-driven guidance will skew the analysis away from other renewable fuels. The commenter noted that making a policy judgment in favor of a carbon-intensive, low-efficiency, and highly polluting biomass facility could have the effect of foreclosing a far cleaner and less carbon-intensive alternative. The commenter stated that by focusing solely on the purported

benefits of biomass energy generation, and by resolutely ignoring any possible drawbacks, EPA precludes any real analysis of indirect energy impacts.

**Response:** EPA has previously said that Step 4 includes both positive and negative impact considerations. The guidance is non-binding and BACT determinations made on a case-by-case basis may reflect consideration of additional information. The interim guidance provides the outline of reasoning that may be used to demonstrate that biomass fuel alone meets the BACT requirement for GHG at sources that emit primarily biogenic $CO_2$, but it does not eliminate the need for a BACT analysis for GHG and the application of independent judgement by permitting authorities. EPA notes that the ultimate decision about BACT rests with the permitting authority, which is free to include the energy, environmental, and economic impact considerations at Step 4 that it deems appropriate. Under Step 4 of the top-down BACT analysis, permitting authorities consider the economic, energy, and environmental impacts arising from each option remaining under consideration, including potential costs and benefits. As explained in the March 2011 guidance, this could include consideration of renewable energy policies as part of the BACT analysis. If a particular fuel is scarce in the localized area of the proposed project, then the scarcity of available fuel for the project might be considered a negative energy impact influencing whether it is selected as BACT.

# 15.0 Accounting Approaches

EPA appreciates the comments received on this topic. Many of the issues raised in these comments will be included in EPA's subsequent work on biogenic $CO_2$ emissions from stationary sources, including the Agency's detailed examination of the science and technical issue and any subsequent rulemakings. However, these are comments are outside the scope of this rulemaking.

## 15.1 Reconciling Accounting Systems: Facility-based Emissions and Land-based Sequestration

**Comment:** Commenter 0102.1 recommended that EPA revise the language within Section C of the proposal, entitled *Complexity of Determining Net Atmospheric Impact of $CO_2$ Emissions and Incorporating This Information Into the PSD and Title V Programs*, to more precisely describe the land-based and facility-level accounting systems that EPA intends to incorporate into PSD determinations, and commenter 0260 urges EPA to provide proper accounting for "biomass incineration."

**Response:** EPA appreciates the commenter's suggestions and notes the description of accounting systems is beyond the scope of this action. EPA plans to address the scientific and technical issues involved in developing such an accounting system during the three-year deferral. The outcome of this analysis will be reviewed by the SAB, and the public will have further opportunity for comment on these accounting issues. In the meantime, EPA has made an effort to clarify the text in Section C in the final rule.

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**Comment:** Commenter 0082.1 stated that EPA's authority is limited to regulating impacts of U.S. GHG emissions on the global concentrations. Given this limitation on jurisdiction relative to a global problem, the commenter suggested that it is practical to use a national scale for assessments and stated that EPA is improperly using the Act when attempting to fit the facility-scale PSD program to a global problem. Commenter 0095.1 stated that the only reasonable and scientifically defensible approach to assessing the $CO_2$ impacts of using biomass as fuel for electricity production is to compare biomass-related $CO_2$ emissions and sinks on at least a national scale. The commenter believed that only at such a scale is forest health and volume relevant to atmospheric concentrations of $CO_2$, and smaller-scale assessments simply ignore the relevant information and the realities of forest management and biomass use, including the wide variety of geographic sources of and types of biomass used by any given facility. The commenter also stated that the only consistently produced, reliable data are assessed at the national scale. Along similar lines, commenter 0078.1 also stated EPA should analyze biogenic emissions on a national scale.

**Response:** EPA recognizes the importance of the spatial scale and will consider it carefully in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions.

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**Comment:** Commenter 0086.1 stated that biogenic emissions are purposefully and appropriately allocated to the land use inventory and reasoned that otherwise the carbon uptake

must also be credited to the biomass user and the biofuel producer (resulting in an emissions factor of zero in any event), though the land-use changes may not be accurately depicted. The commenter stated, policies expressly addressing land use will have an actual and direct influence on management decisions to reduce land use changes. Those management decisions will influence emissions associated with the land use inventory and result in real reductions of GHG emissions from that sector. The commenter argued that if these emissions are included in the PSD program, it could influence biomass users to continue to use fossil fuels undermining clear and important national energy and national security policies. Commenter 0082.1 also explained that the CAA does not direct or authorize EPA to regulate land use.

**Response:** EPA will consider these issues carefully in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions.

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**Comment:** Commenter 0101.1 stated, if EPA decides to limit BACT analyses for biomass projects to direct emissions from facilities, then EPA should develop another regulatory strategy to address net impacts of biomass combustion on global warming. Furthermore, the commenter argued that, use of biomass as fuel has atmospheric effects unaddressed by simply quantifying direct flue gas emissions, such as avoiding decomposition emissions. The commenter suggested that since net impacts of biomass projects are hard to quantify, and time consuming, EPA should work with industry and state agencies to develop guidance that ensures that carbon cycle impacts are considered, but also allows flexibility to permitting authorities to limit the analysis to fuels that are truly available for use at a particular project.

**Response:** EPA will consider these issues carefully in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions, as well as in the subsequent rulemaking to establish the treatment of these emissions in the PSD and Title V programs.

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**Comment:** Commenter 0055.1 directed EPA's attention to the commenter's recent research results associated with biogenic $CO_2$ emissions from stationary sources. The commenter listed a link for additional details but the listed reference was not attached. The methodology is based on the elaboration of Impulse Response Functions to predict atmospheric decay of $CO_2$ emissions from biomass combustion. The contribution of those emissions to global warming is measured with an index, the GWPbio, which is suitable to be adopted in GHG accounting and balances. The value of this index ranges between 0 and 1 (so that the climate impact of biogenic $CO_2$ is never higher than $CO_2$ from fossil fuels) and is to be multiplied by the direct $CO_2$ emissions from biomass combustion (occurring at plant). Since this index is expressed as a function of the rotation period of the biomass, the results can be routinely applied to $CO_2$ emissions from combustion of all the different biomass species, from annual row crops to slower growing boreal forest.

**Response:** EPA thanks the commenter for the reference to this work, and will review the research as part of our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions.

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**Comment:** Commenter 0111.1 disagreed with EPA's assessment of the appropriate carbon cycle timeframe. The commenter stated that the earth's carbon cycle is continuous, occurs across the globe, and that the previous effect of vegetation growth and sequestration should not

be discounted. Emissions should be analyzed from a system level. However, EPA appears to be pursuing a carbon debt approach with atmospheric impact timeframes of 10-15 years. An accounting model that arbitrarily decides a single location's starting point for biogenic emissions ignores the continuous and system-wide cycle of biomass growth and carbon sequestration. The commenter believes that it is premature to reverse biomass carbon neutrality conclusions based upon a new accounting methodology.

**Response:** EPA will consider temporal scales carefully in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions.

## 15.2 Complexity in Accounting for Land-based Sequestration

**Comment:** Commenter 0146 stated that carbon accounting should reflect that the carbon cycle is continuous over time. The commenter believed that the carbon debt-dividend accounting method is flawed, as it establishes an arbitrary starting point for a continuous cycle. The commenter cited a study that concluded the carbon cycle encompasses all recurring plant growth, is constantly in flux and cannot be arbitrarily constrained by time and space. The commenter further argued that carbon accounting should be at the national scale rather than at the stand or plot scale. Since forests are managed across the landscape, not on individual plots, the carbon stock changes need to emulate the way forests are managed. The commenter suggested using the Forest Inventory & Analysis (FIA) data base since EPA relies on it for its annual inventory of U.S. greenhouse gas emissions and sinks.

**Response:** EPA will consider these comments carefully in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions.

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**Comment:** Commenter 0049.1 stated EPA has two concerns: understanding the carbon cycle in biomass incineration, and whether our forests have a sustainable supply of biomass for incineration. The commenter noted concerns that whole-tree incineration is unsustainable in Tennessee. The commenter stated that existing biomass supply studies are unrealistic, and cited several reasons, including: supply, rapid land use changes, limits of sampling design, changing markets, limited sustainable time limits, logging residue, demand exceeds supply of logging residue, competition, upward price movement, and chip mills (see docket letter for additional details).

**Response:** EPA will consider the dynamics of biomass supply in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions.

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**Comment:** Commenter 0023C stated that EPA should measure forest carbon change at the national scale. The commenter argued that restricting forest carbon accounting to local areas and specific timeframes places arbitrary limits on the carbon cycle that distort the forest carbon picture. The commenter stated that such distortions had been used to declare that forest biomass combustion adds more overall carbon to the atmosphere than coal combustion. The commenter stated that the "carbon debt" approach where the carbon cycle is assumed to begin at the time of harvest, is arbitrary, because, (i) it ignores the carbon removed through the atmosphere through tree growth prior to the time of harvest, and (ii) it ignores that the harvest is only occurring on one part of the total forest landscape that continuously removes carbon. Therefore, the

commenter urged EPA to avoid arbitrarily declaring a beginning point for the carbon cycle and instead to measure changes in carbon stocks at regular intervals to determine net carbon change.

**Response:** EPA will consider spatial and temporal scales in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions.

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**Comment:** Commenter 0023D stated that the basic carbon cycle holds true regardless of time or scope. However, biomass carbon neutrality accounting is a function of both time and scope of analysis, which must be analyzed on a basis broader than a single plot analysis, where the area of review is defined as the forested acreage required to feed a utility boiler for one year and the analysis reviews how long it would take for the biomass use to grow back. Since the generating facilities obtain biomass from a variety of different sources that constantly change (mostly wood that would not have been used for other purposes and wood waste), the commenter recommends EPA to consider carbon neutrality on a real world basis and also recommends EPA consider carbon stocks nationally as the U.S. Forest Service does through its FIA program.

**Response:** EPA will consider system boundaries, and spatial and temporal scales in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions.

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**Comment:** Commenter 0052.1 stated that issues that arise when attempting to reconcile facility-based emissions with land-based sequestration do not exist when the biogenic carbon cycle is examined at the national level. The commenter indicated that forest growth has exceeded harvest for years, resulting in a 50% increase in the national average of standing volume of wood per acre since 1952 and the average volume per acre has almost doubled during that same period in the Eastern United States. The commenter emphasized use of USDA FIA data for tracking changes in national carbon stocks, and further argues that the carbon cycle is a continuum and cannot be arbitrarily constrained in time and space. The commenter cited some of the natural causes such as, the bark beetle epidemic in the western United States and hurricanes resulting in an unavoidable "pulse" of $CO_2$ or "dip" in carbon stock over several years, and further argues that the biological reality of tree growth makes plot- or stand-specific considerations unrealistic and impractical. The commenter claimed, forests are managed as systems across a landscape, not on an individual plot-by-plot basis, and the commenter referenced a study of a forward-looking perspective that has been used for decades in many forestry projection models in which future expectations are built into management decisions. This forward-looking type of management assumes that net biomass growth and corresponding atmospheric $CO_2$ sequestration will precede the use of biomass for energy or manufacturing.

**Response:** EPA will consider spatial and temporal scales in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions.

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**Comment:** Commenters 0059.1 and 0062.1 stated that many landfills can be considered carbon neutral, or even an overall "anthropogenic sink" of GHG when taking into account both the carbon storage capability along with highly efficient landfill gas collection and destruction. According to calculations undertaken by commenter 0062.1, the amount of carbon sequestered in the commenter's landfills for the 2009 calendar year: (1) is 2.5 times greater than the biogenic GHG emissions from these landfills; (2) represents 96 percent of the anthropogenic GHG emissions from these landfills; and (3) represents 70 percent of the combined biogenic and

anthropogenic GHG emissions from these landfills. The commenter recommends that carbon sequestration must be subtracted from total GHG emissions for any PSD analysis of a landfill's potential to emit. Similarly, in analyzing the potential to emit GHG from an MSW WTE plant, the biogenic $CO_2$ emissions should be subtracted from the total $CO_2$ emissions thus maintaining consistency with the renewable status of the electricity produced from combusting biogenic components of MSW.

**Response:** EPA will consider carbon sequestration in landfills in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions.

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**Comment:** Commenter 0065.1 stated that an accounting system that seeks to reconcile facility-based emissions with land-based sequestration will need to consider spatial and temporal scale. The regions over which carbon intensity factors are calculated should be determined by area with relatively uniform ecosystem type and management practices. Whatever the geographic scope, the accounting should be based on change relative to a without-biomass-use baseline rather than using carbon present in a fixed year as a baseline. If regional carbon stocks are trending upward, and intensified use for biomass energy deflects that trend downward, then biomass energy use will cause a net increase in atmospheric greenhouse gases. Since climate change is a global phenomenon and $CO_2$ is a global pollutant, the geographic source of material should be irrelevant, so factors may also need to be developed for imported materials. This approach would set a useful precedent for European countries that currently do not accurately account for the GHG impacts of importing U.S. wood for energy use.

In regard to the temporal scale, some biomass facilities increase the harm from GHG in the short run even when they offset that harm in the longer run. The harm associated with generating new emissions today may take decades to mitigate as gases are reabsorbed through natural growing cycles. Thus, EPA should be explicit about how it balances the near-term harm against potential long-term net benefits. The commenter recommends that EPA require biomass projects to demonstrate through a careful life-cycle analysis that they would result in lower cumulative net GHG emissions within 20 years compared to the energy source they replace or compete with.

**Response:** EPA will consider system boundaries, spatial and temporal scale, and imports/exports in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions.

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**Comment:** Commenter 0074.1 stated on the issue of spatial and temporal scale, that though forest carbon cycle is best measured on a national, long-term time scale, choosing appropriate time and geographical scale to measure biomass emissions is an important policy question. The commenter argues that any attempt to account for $CO_2$ fluxes at a smaller spatial scale would ignore the realities of the forest products industry and create arbitrary boundaries that distort the forest products market. Therefore, the commenter urged EPA to select an accounting system that reflects the national scale on which the carbon cycle and forestry industry operate. Furthermore, the commenter argued that forest carbon sequestration and emission occur simultaneously and the quantity of carbon emitted during combustion is offset by the quantity of carbon sequestered through the continuous growth of trees on forested land throughout the United States. To capture the continuous nature of the carbon cycle, an accounting system must measure changes in the national carbon stocks at regular intervals to determine net changes in carbon stocks rather than

implementing a debit and credit system for individual tracts of land. The commenter believed that this approach would be consistent with national inventory approach applied by the U.S. Forest Service that has demonstrated a net increase in overall forest carbon stocks in the U.S. of nearly 50% over the second half of the 20th Century, which has come during a time of unprecedented increase in demand for forest products for home construction, consumer goods, and energy. The commenter asserted that accounting systems that incorporate large spatial scales and continuous temporal scales consistently demonstrate that biomass provides a carbon neutral energy supply with significant carbon benefits through displaced fossil fuel consumption. At the same time, the commenter critiqued the recent studies which challenge carbon neutrality of biomass energy, such as Manomet study (Walker et al. 2010). The commenter argued the Manomet study was based on an inappropriate stand-based spatial scale that ignored the reality of rotational harvesting, and arbitrarily "began" the carbon cycle at the time of harvest to emphasize emissions over sequestration. Though these studies are based on the same scientific principles rooted in the carbon cycle, they reach different results due to the policy preferences that inform the accounting methods. The commenter suggested, rather than assuming a lack of scientific consensus, EPA must carefully assess the policy preferences underlying the biomass debate and choose those preferences which reflect both sound science and the realities of the forestry industry, and are consistent with the government's renewable energy policy.

**Response:** EPA will consider these interconnected issues in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions, as well as in the subsequent rulemaking to establish the treatment of these emissions in the PSD and Title V programs.

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**Comment:** Commenter 0079.1 stated that accounting approaches for biogenic $CO_2$ emissions need to be clearly defined and implementable. The complexity of the PSD permitting program is primarily not in the permitting process, but in the determination of applicability, which includes detailed requirements for calculating baseline emissions, projecting future emissions, documenting such calculations, and tracking emissions after each change. The commenter recommended that any system that EPA adopts to account for biogenic $CO_2$ emissions should be as simple as possible and should establish categorical exclusions. EPA can justify such exclusions based on a general analysis, such that there is no reason for any particular facility to justify that its particular biogenic $CO_2$ emissions should be excluded. Contingent categorical exclusions are also problematic because they could create enforcement implications for past actions of sources if EPA trips the contingency.

**Response:** EPA understands the need to develop an accounting system that is transparent, as well as easy to understand and implement. We will consider this issue in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions, as well as in the subsequent rulemaking to establish the treatment of these emissions in the PSD and Title V programs.

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**Comment:** Commenter 0082.1 suggested that EPA's study scope recognizes a global concentration concern bounded by a national jurisdiction. The commenter cautioned EPA that, despite broad consensus with respect to the underlying scientific principles, policy preferences, EPA must be careful not to treat assumptions and policy arguments as scientific facts. Instead, it should focus on the clearly established science of the carbon cycle and then develop a policy that reflects the realities of U.S. forestry and the forest products sector and is consistent with the

Administration's policy on renewable energy. In addition, the commenter encouraged EPA to consider additional data and information that has been and will be submitted to the docket since the deadline for submissions to EPA's CFI has passed. The commenter also provided references of various studies that demonstrated land-use and land-cover change do not negatively impacted by biofuels and no impact on soil carbon with additional biomass harvesting. As revealed by Powers et al. (2004) on a Long Term Research Productivity study, the post-harvest carbon increased at all depths across all studies regardless of whether or not surface organic matter had been removed. The authors concluded that "soil inputs following disturbance depend less on decomposition of surface residues and more on the decay of fine roots that remained from the previously harvested stand." The commenter stated as EPA develops and implements its study framework and delivers the scope and charge to its assembled expert review panel, the EPA should focus on the actual concern and on the relevant scale. In addition, the commenter urged EPA to focus its analysis and decisions on the largest scale possible within its jurisdiction, which is the national scale inventory. The commenter believes that any attempt to configure an accounting system within the perceived constraints of the facility-scale PSD program on a case-by-case basis would result in absurd results.

**Response:** EPA will consider these interconnected issues in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions, as well as in the subsequent rulemaking to establish the treatment of these emissions in the PSD and Title V programs. EPA thanks the commenter for the reference to late comments to docket EPA-HQ-OAR-2011-0560 on the CFI and we will consider the additional information in our review.

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**Comment:** Commenter 0086.1 stated that determining applicability of the PSD program is already extraordinarily complex and it currently includes detailed requirements for calculating baseline emissions, projecting future emissions, documenting such calculations, and tracking emissions after a change. The commenter urged that if EPA determines that accounting for biogenic $CO_2$ emissions is necessary, any such accounting system should be as simple as possible and should establish categorical exclusions, which the EPA could justify based on a general analysis, such that there is no reason for any particular facility to justify that its particular biogenic $CO_2$ emissions should be excluded. The commenter further stated that EPA should only focus on the carbon cycle of the feedstock considered, and not on indirect impacts. Regarding the proposal's discussion of establishing an accounting system, the commenter stated that before EPA attempts to identify a method to calculate "the net atmospheric impact…, from a stationary source," EPA must consider whether the carbon neutrality presumption is valid to support a "permanent exemption … for at least some and perhaps all types of feedstocks" and urged EPA to focus on the carbon cycle of the particular feedstock being used and thought that EPA's reference to "leakage" as an inappropriate consideration. The commenter argued that considering the notion of a feedstock's direct carbon cycle does not give EPA license to consider indirect effects of biogenic $CO_2$ emissions, as those are not from the facility and are beyond the control of that facility. Indeed, EPA has not required, nor does it indicate it would require, other sources of energy to consider indirect impacts. Therefore, the commenter urged EPA to clarify that it is not considering indirect impacts associated with use of biomass or biofuel. The commenter reported that with respect to the ethanol industry, increased crop productivity has primarily provided the growth in production necessary to meet heightened demand for crop-based feed, food, and fuel, and moving forward, more pronounced gains in productivity promise to mitigate the need for large amounts of new agricultural lands. The commenter also

stated that the United States has experienced a net increase in forested area and also stated that it is only certain "existing agricultural land" that was cleared or cultivated prior to December 19, 2007 and non-forested from which planted crops used as feedstock for renewable fuel may be used. Therefore, the commenter believed that there are significant safeguards in the RFS2 that protect against land conversion to agriculture.

**Response:** EPA recognizes the importance of these issues and will consider them in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions.

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**Comment:** On the timeframe of analysis, commenter 0102.1 stated that the proper timeframe for analysis is best defined by the length of the integration period used to evaluate the normalized integrated 100-year effects of GHG. The commenter stated, given the emphasis placed in the Tailoring Rule on environmental endpoints (normalized integrated radiative forcing using the GWP construct), comparability of emissions impacts in relation to environmental endpoints, and, finally, their fungibility within the regulatory system, there is no basis for a separate distinct integration period for biomass combusted $CO_2$. On the spatial attributes, the commenter believed that the resolution of biomass re-growth characteristics at a regional level will be sufficient for purposes of PSD applicability. The commenter also cited that this is the level of resolution that is applied to the evaluation of forestry stocks in the EPA Greenhouse Gas Inventory 1990-2008.

**Response:** EPA recognizes the importance of these issues and will consider them in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions.

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**Comment:** Commenter 0104.1 stated that current PSD accounting regulations require that reductions in emissions are only considered in netting calculations with requested increases in emissions when those reductions occur at the same source during a "contemporaneous" period. The commenter stated that an accounting timeframe in the range of one to three years is appropriate and that waiting for emissions to be offset several decades in the future is unreasonable. The commenter argued that an annual timeframe is consistent with the statutory and historic regulatory approach, as well as it is consistent with the actual lifecycle neutrality of perennial crops. A period of three years for achieving carbon neutrality is the upper limit for a timeframe given the pressing need for greenhouse gas reductions in the near-term. Furthermore, similar to the annual timeframe, it also coincides with the lifecycle neutrality of certain biomass feedstocks. The commenter supports an argument by environmental scientists that forests are growing and sequestering carbon on the landscape as a whole, including land beyond the fuel shed used by a bio-power facility, and that this compensates for the carbon emitted by cutting and burning trees. The commenter thought the biogenic carbon accounting approach discussed by these scientists which makes the fundamental point that the baseline for unmanaged forests is one of continued growth and carbon sequestration, is true for individual stands and whole forests. The commenter stated that widening the scope of their accounting approach may make changes relatively smaller, but it does not make them absolutely smaller or change this baseline against which forest carbon accounting must be conducted. However, the commenter disagreed with NAFO's view on emissions from forest biomass and argued that nothing in NAFO's "eternal carbon cycle" argument acknowledges the considerable acceleration in carbon emissions that occurs when biomass is harvested and burned rather than allowing it to complete its lifecycle and

decay naturally (a process that takes years, if not decades, and also contributes to long-lasting soil carbon pools where carbon is locked up for decades to centuries).

**Response:** EPA recognizes the importance of these issues and will consider them in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions.

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**Comment:** Commenter 0126.1 stated that biomass carbon neutrality accounting is a function of the land under consideration. The commenter explained how a "single plot" analysis of biomass on a one year basis, is inappropriate and cited the similar conclusion from the National Council on Air and Stream Improvement (NCASI) study. The commenter recommended a broader based, national level analysis that includes a review of the amount of carbon stocks nationally, as indicated by long-accepted tools such as the U.S. Forest Service FIA Program. The commenter thought that while there is some risk for biomass power generation from a nationwide analysis, since forest stocks could be depleted as a result of unrelated factors such as land conversion, it is a more accurate and reasonable approach than an artificial single plot review. The commenter also stated that biomass carbon neutrality accounting is complicated by two very important factors:

i) Biomass for any specific facility is likely to come from a variety of sources, most or all of which will be outside the control of the facility, and those sources likely will change quite frequently, which raises the question of how a facility can be responsible for the, "outside the fence line" portion of any carbon neutrality accounting.

ii) It is not possible for the EPA or the facility operator to know what would have been done with the biomass materials absent their use for combustion, since typically the majority will release near-term emissions from combustion or decay, as trimmings and other biomass with little commercial value are often piled for burning or used as mulch.

The commenter stated, that complex carbon neutrality accounting would constitute land-use management which is beyond EPA's statutory authority, and the commenter urged EPA to steer clear of such assumptions and instead recognize the need for a broad-scale accounting given that the facility-by-facility or single plot approaches are unworkable.

**Response:** EPA will consider these issues in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions, as well as in the subsequent rulemaking to establish the treatment of these emissions in the PSD and Title V programs.

## 15.3 General Principles

**Comment:** Commenter 0082.1 stated that accounting systems for GHG emissions should be based on $CO_2e$ to properly reflect impacts.

**Response:** EPA disagrees with the commenters seeking expansion of the deferral to $CO_2e$. While non-$CO_2$ GHG are produced when biomass is combusted, the level of emissions and resulting impact on atmospheric concentrations of these gases are primarily related to the feedstock handling and combustion conditions at the specific plant rather than to the source of the feedstocks. We finalized this rule as proposed and included only biogenic $CO_2$ emissions for this reason, and we note that emissions of non-$CO_2$ GHG are typically a small proportion of the total GHG emissions from combustion of biologically based material. Since the non-$CO_2$ GHGs

are so small relative to $CO_2$, the deferral of biogenic $CO_2$ emissions will ensure that biomass combustion projects will likely not meet the applicability thresholds based on their $CH_4$ and $N_2O$ emissions alone.

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**Comment:** Commenter 0128.1 stated that EPA should examine assumptions about forest sustainability since they are integral to achieving net GHG reductions at "the stack" compliance level. The commenter asserted that the ability of biomass energy to achieve carbon neutrality will strongly rely on feedstock sources and how they respond to two widely held assumptions: 1) that new carbon sequestration from "replacement" forest growth will necessarily always occur and not be double counted against other emission sources, and, 2) that the avoidance of assumed emissions from wood residue decay is valid across different types of feedstocks. The commenter noted that EPA has acknowledged the importance of the first assumption in its interim guidance to states and that research indicates that substantial increases in biomass demand will lead to much higher intensity of harvests that will strain the sustainability of forest resources. The commenter also stated that the second assumption is misplaced because a significant percentage of "waste wood" or "wood residues" is absorbed as soil carbon.

**Response:** EPA will consider these issues in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions, as well as in the subsequent rulemaking to establish the treatment of these emissions in the PSD and Title V programs.

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**Comment:** Many commenters (0023C, 0023D, 0032, 0074.1, 0083.1, 0087.1, and 126.1) stated that approaches such as BAU are arbitrary and difficult to apply in practice, in part because it chooses a "beginning point" to a continuous cycle and because it requires unverifiable speculation of what would have otherwise been done with the biomass fuel stock. Commenter 0023C argued that current forest practices yield significant and valuable increases in overall forest carbon sequestration that private forest owners provide without any means of compensation. Furthermore, the commenter stated that a BAU baseline would arbitrarily take these benefits with no return to the forest owner and introduce additional costs to forest management, thereby discouraging additional forest sequestration by reducing the value of the forests and incenting forest owners to convert the land to more profitable uses. The commenter stated that encouraging stronger markets for forest products like renewable energy is a far more effective method to increase forest sequestration than a regulatory taking, and commenter 0074.1 stated that EPA should choose a baseline that addresses whether or not biomass is a carbon-neutral energy source. Commenter 0074.1 objected to the BAU concept because it would arbitrarily set a trajectory for future changes in forest carbon stocks, but in reality, forest growth (i.e., carbon cycles) are subject to natural events that may cause a temporary depletion from time to time. The commenter also noted that the need to assess all influencing factors under the BAU approach makes it needlessly complicated, because this approach assumes that current conditions are indicative of a natural level of sequestration, but in reality, humans have actively managed forests for centuries, and the current balance between sequestration and emissions is the product of a complex milieu of government regulations and market forces that make such a prospective policy tool unlikely to accurately predict effects of policy changes. Therefore, the BAU approach cannot disaggregate natural levels of forest sequestration from current anthropogenic levels. Commenter 0083.1 added that increased market demand for biomass as a fuel stock will provide stakeholders with incentives to increase biomass growth rates and volumes; the commenter

thought, this trend would further complicate any attempt by EPA to make an accurate projection of future BAU levels of sequestration. Commenter 0074.1 also stated that EPA must be careful not to set a baseline in a manner that punishes forest owners for past sequestration or mandates sequestration in the future. Commenter 0032 added that wood volumes in Southern forests are at an all-time high and will likely decrease in the short-term because of forest age class distributions.

**Response:** EPA will consider the issue in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions, as well as in the subsequent rulemaking to establish the treatment of these emissions in the PSD and Title V programs.

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**Comment:** Another commenter (0052.1) stated that the concept of BAU, as described by EPA in its proposed deferral, simply cannot be used to impose land-based sequestration principles in the context of stationary source permitting. Commenters (0052.1 and 0087.1) thought, in practice, a BAU approach would function as a cap on utilization of forests so that energy users and fiber producers would be required to pay higher prices. The commenters also stated that as a trade-exposed sector the forest products industry is less able to pass costs through to customers, while the utility sector is able to increase electricity rates to pass through costs to its ratepayers, creating an uneven playing field in the fiber markets and putting the forest products industry at a distinct disadvantage with potential displacement. Therefore, the commenters urged EPA to abandon any attempt to utilize BAU principles.

**Response:** EPA will consider the issue in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions, as well as in the subsequent rulemaking to establish the treatment of these emissions in the PSD and Title V programs.

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**Comment:** Commenter 0087.1 did not support the BAU construct, but stated that if EPA were to adopt such a construct, that forests harvested for products, their associated carbon stocks, and any residuals and byproducts that are combusted, clearly must be included in BAU baselines. The commenter stated that it is unclear from the preamble language whether some level of current and projected stand alone biomass based energy (and the forests planted to meet that demand) would be incorporated into BAU baseline projections. The commenter expressed concern that the preamble language is unclear on how the suggested constraint of biomass use to BAU levels reconciles with broader national energy policy to increase renewable energy.

**Response:** EPA will consider the issue in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions, as well as in the subsequent rulemaking to establish the treatment of these emissions in the PSD and Title V programs.

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**Comment:** Commenter 0065.1 stated that because BAU predictions are uncertain, and modeling for each individual situation is impractical, EPA should consider allowing regulated facilities to apply a standardized "carbon intensity factor" that adjusts direct combustion emissions to reflect net biogenic $CO_2$ emissions to the atmosphere. EPA should distinguish five categories of woody biomass feedstocks that differ in their biogenic $CO_2$ impacts: wood waste (including mill, clean construction, and post-consumer waste and urban tree trimmings); logging residues from commercial timber operations; fuel reduction thinnings from restoration treatments designed to

reduce the frequency or intensity of fire; annual and short-rotation biomass crops; and whole tree chips from expanded harvest operations.

We suggest that EPA develop a carbon intensity factor for each of the above five fuel types for regions of the country with relatively uniform forest types, product mixes and silvicultural practices. The carbon intensity factor would be a value between zero (biogenic emissions cause no net increase in atmospheric GHG) and one (all biogenic emissions represent a net increase in GHG). Multiplying the carbon intensity factor by the total biogenic emissions from that fuel type would yield net biogenic emissions from that source subject to regulatory limits.

A basis for calculating these factors for each of the five fuel types should include:

(1) materials diverted from the waste stream - possible carbon intensity factors near zero – emissions are the same as or less than the emissions that would have occurred in the landfill or decomposition site, given differences in methane emitted;
(2) logging residues from existing commercial operations - carbon intensity factors may be low – operations should protect future forest productivity, residual stand and/or advanced regeneration, habitat, and water quality);
(3) materials from thinning treatments designed to protect future carbon stocks - these materials may be assigned low carbon intensities to the extent that short-term carbon losses associated with treatment prevent future carbon losses that otherwise would have occurred due to major disturbances such as wildfire;
(4) short-rotation biomass crops harvested on a continuing basis where previous land uses maintained similar or lower mean levels of carbon stocks (e.g. cropland), and where carbon stocks recover rapidly (less than ten year rotation) - carbon intensities may be near zero; however, for biomass crops grown on land converted from higher-carbon uses (e.g. mature forest) the intensity factor would be higher; and
(5) materials from dedicated harvesting of live vegetation - rarely if ever “carbon neutral”, since the “without-biomass” baseline would store more carbon in forest pools, re-growth on the harvested land takes time, and some source lands may experience land use conversion that prevents any recovery of carbon; however in most cases intensity factors would be less than one.

Because tracking the source of each batch of wood fuel would be burdensome for biomass facilities, and batches may have mixed sources, EPA should consider assigning a default factor to each facility at the highest carbon intensity associated with feedstock sources in that region. Operators could petition for permission to use lower carbon intensity factors based on actual documentation. In response, EPA could apply its standard regional factor appropriate to the documented source, or use a case-by-case approach.

The commenter notes other similar approaches, such as carbon footprints and carbon neutrality factors that can be used to appropriately account for net carbon emissions.

After presenting numerous problems with implementing the BAU construct (summarized in previous comments), commenter 0087.1 also suggested that using a feedstock approach as a surrogate for the BAU baseline concept approach could help simplify implementation difficulties as noted above, but thought it will, by definition, err on the side of excluding “types” or “categories” of biomass that could be sustainably used for bio-energy.

**Response:** EPA will consider this issue, and the suggested approaches, in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions, as well as in the subsequent rulemaking to establish the treatment of these emissions in the PSD and Title V programs.

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**Comment:** Commenter 0102.1 agreed with the general principal of excluding BAU emissions from PSD applicability determinations, but did not agree with the proposition to include emissions increases attributable to changes in market demand following a project. Commenter stated that "downstream market effects are notoriously uncertain and difficult to estimate" and have never been included in PSD applicability determinations; unless EPA is proposing that every fuel be subject to a downstream market demand test, the application of such a test solely to biogenic fuels would be unfair and arbitrary.

**Response:** EPA will consider this issue in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions, as well as in the subsequent rulemaking to establish the treatment of these emissions in the PSD and Title V programs.

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**Comment:** Commenter 0102.1 believes that the discussion of general principles could be broadened to include a wider array of principles. Isolated to the evaluative framework, the commenter believes that the evaluative framework should be physically-based and physically realistic; address the relevant environmental endpoint; narrowly relate emission to the relevant environmental endpoint and allow the narrow formulation of policy to achieve desired goals; be consistent with, and defined in relation to, the underlying biogeochemical processes in play in the global carbon cycle; treat biogenic $CO_2$ in a manner that is consistent with the treatment of other GHG and GHG emissions sources so as to promote overall efficiency of GHG regulatory programs; remove 'anyway' emissions from facility totals; allow for offsets where policies lead to net carbon storage over the relevant integration period; account for the possibility that, through unknowable future land management practices, land-use changes or climate change impacts, storage might not be permanent over the relevant integration period.

**Response:** EPA thanks the commenter for these suggestions about how to evaluate the accounting methodology for biogenic $CO_2$ emissions, and will consider them in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions.

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**Comment:** Commenter 0102.1 re-iterated comments previously submitted in response to the CFI in September, 2010. This commenter recommends an accounting system that does not exclude biogenic emissions but requires PSD applicability calculations that are based on the GWP construct. The construct deploys four terms:

i) instantaneous radiative forcing per unit mass of emission (in watts per square meter)

ii) integrated 100-year atmospheric retention per unit mass of emission (in ton-years)

iii) integrated 100-year radiative forcing per unit mass of emitted $CO_2$ (in watts per square meter-years)

iv) a discount factor to account for the possibility that not all sequestered $CO_2$ will remain in storage over the time period used for calculation.

Under the proposed approach, the second term would be adjusted to reflect the benefits of biogenic $CO_2$ so that biogenic $CO_2$ would be weighted differently than fossil $CO_2$. The commenter stated that this approach provides a realistic measure of 100 year radiative forcing.

**Response:** EPA thanks the commenter for these suggestions, and will consider them in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions.

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**Comment:** Commenter 0065.1 stated that BACT should require distinguishing between facilities that make a national problem worse and those that make it better, because there are a large number of studies which conclude that using wood for energy can result in an initial "carbon debt" since wood fuels release more $CO_2$ unit of energy than fossil fuels, but the carbon debt can be "paid back" if sources use waste wood, woody crops, or thinnings under some conditions, or over time through accelerated forest growth, but this widely varies from feedstock to feedstock. The commenter is concerned that if EPA adopts the simple premise that use of biogenic fuels equals BACT for biogenic $CO_2$, higher ambient concentrations of $CO_2$ (than would occur with use of conventional fossil fuels) will result for up to 100 years when the carbon debt is paid off. The commenter believes that to determine that some types of biomass have *de minimis* impacts, the EPA must accurately estimate and consider GHG impacts associated with each type of biomass.

**Response:** EPA thanks the commenter for these suggestions, and will consider them in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions.

## 15.4 Case-by-Case Analysis

**Comment:** Commenters 0074.1, 0078.1, 0082.1, 0086.1, 0146, 0096.1, and 0125.1 opposed a case-by-case approach. Commenters 0074.1 and 0086.1 argued that any attempt to measure the net atmospheric impact of the combustion of biomass fuels would necessarily include a difficult and complex assessment of sequestration at the harvest site because individual facilities obtain biomass from a host of sources. Additionally, Commenter 0086.1 argued that there is no scientific model for this approach and supply chain accounting is impractical and unfeasible for fungible bioenergy feedstocks. Commenters 0074.1 and 0086.1 also stated that given the sheer number of sources involved, a case-by-case analysis would simply be too costly to implement in terms of time and resources, adding to the complex and burdensome reporting already required of facilities. Furthermore, commenter 0074.1 stated that a case-by-case analysis is unnecessary because there is no basis for distinguishing among different types or sources of biomass. In lieu of a case-by-case analysis, commenter 0074.1 suggested a monitoring and reporting program for all forest owners, regardless of their size, whereas commenter 0086.1 suggested that EPA utilize general emission factors and large-scale models to produce comprehensive national-level emissions estimates, such as those reported in the U.S. GHG Inventory report. Commenter 0078.1 stated that case-by-case accounting to satisfy a PSD analysis framework is untenable in practice and unnecessary given the global nature of GHG concentrations. Commenter 0082.1 opposed a "case-by-case" approach to PSD applicability for biogenic projects at the local scale, because this approach would create unfair economic disparities and potentially conflict with existing renewable fuel policies. Commenters 0146, 0096.1, and 0125.1 agreed that case-by-case analyses of $CO_2$ emissions would be prohibitively time-consuming and expensive. Commenter

0146 stated that it would not give facilities and businesses, and by extension, forest landowners, the long-term stability and predictability needed to plan for facilities and sustainable harvests.

**Response:** EPA will consider this issue in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions, as well as in the subsequent rulemaking to establish the treatment of these emissions in the PSD and Title V programs.

## 15.5 Categorical Exclusion

**Comment:** Commenter 0052.1 supported the categorical exclusion, because counting $CO_2$ emissions at the point of combustion is double-counting since land use changes inherently include changes in carbon stocks. Additionally, the commenter argues that the recycling principle applies to all types of biomass combustion as long as growth exceeds drain. The commenter stated that the rationale for the exclusion should be based on accounting at the national scale for the growth/drain ratio of biomass at the optimal spatial and temporal scales. The commenter suggested that the four geographic regions used by the U.S. Forest Service in its FIA National Program might serve as an appropriate alternative to a nation-wide approach. The commenter stated, both of these approaches will improve the statistical precision of the growth/drain ratios and more accurately account for the fact that mills and utilities obtain fiber from fiber basins that cover multiple states.

Commenters 0032 and 0082.1 stated that a categorical exclusion for all biogenic sources is the most appropriate method given the LULUCF inventory. Commenter 0032 stated that current efforts to monitor LULUCF carbon flux is the best of the four alternatives provided in the preamble text. Commenter 0082.1 believes that the national LULUCF GHG inventory clearly shows that there is no evidence on a national scale that $CO_2$ emissions from biomass use will exceed the carbon stored in the LULUCF sector. The commenter argued that EPA's incorporation of GHG emissions into the PSD program via the definition of "regulated NSR pollutant" does not apply to $CO_2$ emissions from biogenic combustion, as illustrated by the LULUCF inventory. The commenter further argued that treating combustion of biomass as carbon neutral is scientifically sound since carbon emissions are not increasing in the atmosphere and United States carbon stocks are stable or increasing. The commenter stated that since the deferral decision is causing uncertainty and delaying biomass energy projects, EPA should quickly reverse the inclusion of biogenic $CO_2$ emissions under the permitting programs, and the commenter suggested EPA proceed immediately with the study and supplemental rulemaking discussed in the proposal.

**Response:** EPA agrees that at the national scale, to include $CO_2$ emissions from bioenergy combustion in the Energy sector of the Inventory would be double-counting since the LULUCF sector already accounts for those emissions. EPA will consider this issue in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions, as well as in the subsequent rulemaking to establish the treatment of these emissions in the PSD and Title V programs.

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**Comment:** Commenter 0074.1 stated that a categorical exclusion is consistent with policy goals since it utilizes a nationwide spatial scale and recognizes that biomass energy is carbon neutral because emissions from biomass combustion are balanced by sequestration during forest

regeneration. Furthermore, a straightforward categorical exclusion avoids unnecessary administrative and compliance costs, and EPA already has experience with this accounting method, because it is employed in the annual GHG Inventory program. The commenter further stated that such exclusion merely recognizes that biomass carbon is not appropriately regulated at the stationary source scale. The commenter added that since forests are already subject to numerous state and federal regulatory initiatives, forestry agencies have particular expertise in assessing net fluxes, and many of these initiatives promote sequestration.

**Response:** EPA will consider these issues in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions, as well as in the subsequent rulemaking to establish the treatment of these emissions in the PSD and Title V programs.

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**Comment:** Commenter 0086.1 supports the categorical exclusion based on the premise of carbon neutrality. The commenter stated that changes in carbon stocks due to land use change does not in any way obfuscate or change the carbon neutrality of the actual biomass itself. The commenter also believes that EPA has ample authority to provide for a categorical exemption for all biogenic $CO_2$ emissions.

**Response:** EPA will consider this issue in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions, as well as in the subsequent rulemaking to establish the treatment of these emissions in the PSD and Title V programs.

## 15.6 Contingent Exclusion

**Comment:** Commenters 0032, 0052.1, 0074.1, and 0086.1 did not support the contingent exclusion approach. Commenter 0032 stated that the example given for an "added contingency" is not a sufficient metric to determine the impacts of bioenergy and biogenic sources because forest land may change from a carbon sink to a carbon source over the next several decades for a variety of reasons that have no relationship to bioenergy (e.g. drought and other climate factors, pests, disease, wildfire, changes in age class/structure). The commenter further stated that while they agree that new monitoring techniques need to be implemented across a diversity of potential feedstocks, the commenter cannot support this accounting approach without a detailed explanation of the contingency. Commenter 0052.1 did not support a contingency based approach at the state level due to: (a) the diminished statistical precision, (b) the failure to capture interstate supply within fiber basins, and (c) the complexity that such an accounting approach would pose for companies that operate in multiple states. Commenter 0074.1 commented that a contingent exclusion would not be sound science or policy because carbon fluxes to the atmosphere take place without industrial biomass combustion, such as fluxes associated with land use, fires, disease infestations, and powerful storms. The commenter argued that this approach will create uncertainty regarding the long term applicability of the exclusion and reduce investment in biomass energy, and the commenter provided some examples of why a contingent exclusion would be hard to develop and difficult to implement. Commenter 0086.1 commented that the contingent exclusion approach is inappropriate and unworkable, because it would be impossible for EPA to determine whether a particular project changed the carbon flux and whether calculated changes will affect climate change. This commenter argued that, while agricultural lands have been on the decline in the United States for decades, EPA cannot attribute national changes to agricultural lands to the bioenergy or biofuel industry. Commenter 0.0086.1

mentioned that the contingent categorical exclusion is also problematic because it could create enforcement implications for past actions.

**Response:** EPA will consider these issues in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions.

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**Comment:** Commenter 0082.1 suggested the U.S. Forest Service (USFS) and EPA jointly issue the national forest inventory on a five year basis to determine whether the forest carbon inventory at a national level was stable, increasing, or declining and base a regulatory response on that finding. The commenter stated that this alternative approach aligns with the "contingent exclusion" approach, would provide a collective incentive for forest managers to ensure that forest carbon stocks remain neutral or positive, and it would encourage CAA permittees to become partners with forest growers. Additionally, the five-year look-back period is consistent with Title V operating permit cycles and with FIA data collection cycles. The commenter also believed that this approach would provide some assurance of predictability to permit holders and alleviate mill owners from being put in the impossible position of complying with and enforcing land use regulations.

**Response:** EPA thanks the commenter for these suggestions, and will consider them in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions, as well as in the subsequent rulemaking to establish the treatment of these emissions in the PSD and Title V programs.

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**Comment:** Commenter 0087.1 supported a contingent exclusion based on the national inventory because $CO_2$ emissions do not result in local impacts and stated that the national scale provides business certainty and a level regulatory playing field for interstate commerce. However, the commenter argued forest values (e.g., water quality and habitat) are typically assessed and managed at the state, regional and landscape levels as appropriate but that the forest carbon cycle (and procurement of biomass fiber) does not fit into state-level geographic boundaries. The commenter maintained that policymakers must assess whether the national carbon cycle is in balance, rather than inappropriately assessing individual sources and sinks or timeframes. The commenter argued that, given the evidence that forest carbon stocks in the U.S. are stable or increasing, there is every reason to conclude that the forest carbon cycle in the U.S. is achieving net removals of $CO_2$ from the atmosphere. Consequently, biogenic $CO_2$ from biomass combustion should be counted as zero.

**Response:** EPA will consider these issues in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions, as well as in the subsequent rulemaking to establish the treatment of these emissions in the PSD and Title V programs.

## 15.7 Feedstock-based Approach

**Comment:** Commenter 0087.1 urged EPA to affirm the findings that some feedstocks have a "negligible impact on the net carbon cycle" when utilized to produce energy and that some "would clearly reduce net atmospheric $CO_2$ levels". Commenters 0087.1 and 0052.1 asked EPA to expand the list of negligible impact feedstocks to include forest residues and spent pulping liquor. Commenter 0087.1 provided key points of several research studies as well as a life cycle

analyses to support this conclusion. The commenter stated that the life cycle analyses clearly show irrefutable GHG and renewable energy benefits of combusting spent pulping liquors for energy. Commenter 0052.1 also urged EPA to consider forest-product residuals and sawdust from milling operations as carbon neutral feedstocks.

**Response:** EPA will consider this issue in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions, as well as in the subsequent rulemaking to establish the treatment of these emissions in the PSD and Title V programs.

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**Comment:** Commenter 0032 stated that at this early stage of development of the bioenergy industry, it would be unwise for the EPA to differentiate types of wood-based feedstocks and potentially limit their use. The commenter thought that feedstock-based exclusions will require additional costs and are likely to produce unintended consequences by favoring some biomass sources while limiting the use of others, to the detriment of the entire industry. The commenter gave an example that the opportunity to convert pulp mills to bio-refineries would be blocked by a restriction on whole tree feedstocks, even though this practice holds high promise because of existing biomass supplies, existing equipment, ease of modifying existing conversion methods, and the decline in paper markets.

**Response:** EPA will consider this issue in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions, as well as in the subsequent rulemaking to establish the treatment of these emissions in the PSD and Title V programs.

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**Comment:** Commenter 0052.1 stated that $CO_2$ emissions from all types of biomass are the result of: (i) the photosynthetic sequestration of atmospheric $CO_2$; (ii) its transformation into organic carbon pools composing the forest sink; (iii) withdrawals from these pools, either by harvesting or natural causes; and (iv) the release of $CO_2$ to the atmosphere upon combustion.

**Response:** EPA thanks the commenter for this comment.

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**Comment:** Commenters 0074.1, 0023C, and 0052.1 articulated that a feedstock-based approach is inappropriate since general principles in accounting and science state that all feedstocks are part of the same carbon cycle and therefore, all biomass combustion types and situations should be treated equally. Commenters 0074.1 and 0023C commented that given the lack of consensus among commenters on feedstock issues, EPA should not apply a feedstock-based approach, and any attempt to differentiate feedstocks must be based on policy preferences rather than underlying scientific properties. Commenter 0074.1 cautioned that to differentiate the carbon attributes of different species of trees, parts of trees, or specific forests will produce arbitrary results that confuse rather than clarify the nature of the carbon cycle as well as the carbon impact of biomass combustion and the forestry industry as a whole. Furthermore, the commenter indicated that rather than using a feedstock-based approach that dictates to forest owners the permissible uses of their products, EPA should treat all biomass equally and allow markets to distribute it in an efficient manner. Commenter 0074.1 explained that the interest in a feedstock-based approach appears rooted in the irrational fear that "whole trees" will be used for energy production. Forest products are allocated by market forces and energy feedstocks are among the lowest-value products. The commenter cites that the average price per green ton of biomass is significantly less that the price of pulpwood or the price of saw timber and states that without a

significant dislocation within the forest products market, it is simply not economical to use whole trees for bioenergy.

Similarly, commenter 0111.1 stated that differentiating between biomass feedstocks for BACT permitting could require the EPA to begin regulating feedstock sourcing, land use, and determining sustainable sourcing requirements. This would potentially open the door to federal greenhouse gas regulation of lands, which is a controversial issue, and one that has been traditionally relegated to the states. Additionally, asserting differences in biomass feedstocks, even in "broad categories" as outlined in the BACT document, would pick certain biomass feedstocks as more desirable than others. Biomass feedstock utilization is a decision best left to land owners, market forces, and local jurisdictions; selecting certain feedstocks risks distorting bioenergy and related forest product markets.

**Response:** EPA will consider this issue in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions, as well as in the subsequent rulemaking to establish the treatment of these emissions in the PSD and Title V programs.

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**Comment:** Commenter 0079.1 stated that in this proposal the deferral will apply to biogenic $CO_2$ emissions from biogenic feedstocks and is not limited to specific types of facilities. The commenter agrees that EPA should not limit the deferral based on the type of facility but rather should look at feedstocks.

**Response:** EPA will consider this issue in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions, as well as in the subsequent rulemaking to establish the treatment of these emissions in the PSD and Title V programs.

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**Comment:** Commenter 0082.1 stated that requiring feedstock separation and sourcing proof is not practical for a permit holder because highly complex supply systems with feedstocks coming from many sources and undergoing intermediate processing cannot be cost-effectively tracked to original sources with the rigor needed to make a defensible compliance certification as required under Title V.

**Response:** EPA will consider this issue carefully in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions, as well as in the subsequent rulemaking to establish the treatment of these emissions in the PSD and Title V programs.

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**Comment:** Commenter 0086.1 supported the feedstock-based approach but only if EPA does not provide a categorical exemption. The commenter indicated that the carbon cycle for annually planted crops is rapid and does not raise the concerns identified by opponent's biogenic fuels.

**Response:** EPA will consider this issue in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions, as well as in the subsequent rulemaking to establish the treatment of these emissions in the PSD and Title V programs.

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**Comment:** Commenter 0101.1 noted that there is a potential for the biomass power projects to achieve even lower net emissions if the PSD program were to require consideration of the use of

fuels that decay quickly if not combusted, such as forest residue or waste. The commenter also mentioned that it is necessary to analyze the specific impacts associated with particular fuels along with the direct emissions to determine the net effect of a project on achieving near-term climate goals since the use of particular biomass fuels can partially offset those emissions.

**Response:** EPA will consider this issue in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions, as well as in the subsequent rulemaking to establish the treatment of these emissions in the PSD and Title V programs.

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**Comment:** Commenter 0023E articulated that a rational lawful alternative to a complete exemption could be to include a BACT guidance document laying out credible scientifically sound accounting methodologies that take into account the carbon debt associated with burning biomass for energy. The commenter also stated that, accurate carbon accounting will show which biomass fuels are simply not acceptable as carbon neutral or carbon mitigating fuel alternatives in terms of greenhouse gas reductions. However, the commenter indicated that EPA's scientific study can inform this guidance but is not needed in order to put it forward.

**Response:** EPA thanks the commenter for this comment.

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**Comment:** Commenter 0144.1 stated that they utilize biomass waste made available from the activities of the wood products industry and other waste biomass such as chipped railroad ties. In Minnesota, it has been demonstrated that forest utilization for wood product harvest is outpaced by forest re-growth supported by good forestry practices. Biomass such as waste railroad ties would undergo decomposition to $CO_2$ and methane if placed in landfills so use for energy applications delivers an environmentally preferred outcome. Consequently, the commenter encourages EPA to include waste products like railroad ties, biomass derived from forests and agricultural derived biomass in an immediate, blanket exclusion. The commenter also noted that while railroad ties can be transported a long distance before they get chipped for energy production and wood waste transportation can involve greenhouse gas emissions, the same holds true for transport of other energy sources like coal, oil and natural gas delivered to Minnesota, which has limited in-state energy resources.

**Response:** EPA will consider these issues in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions, as well as in the subsequent rulemaking to establish the treatment of these emissions in the PSD and Title V programs.

## 15.8 Whole Trees

**Comment:** Commenter 0104.1 stated that burning whole trees for power has been shown to lead to long-term increases in greenhouse gas emissions when compared to coal. The commenter cited several references to support concerns that biomass carbon neutrality is not justified when trees are harvested and combusted as fuel. The commenter also provided references which state that using standing trees for fuel creates a "carbon debt" of $CO_2$ emissions because wood fuels release more $CO_2$ per unit of useful energy than coal. The commenter also stated that accounting for use of whole trees requires consideration of the long-term carbon debt from the lost sequestration of harvested mature trees, the added emissions from using biomass fuels with inferior heating values compared to fossil fuels, and the years before the harvested tree is replaced by a mature tree. The commenter concluded that such a feedstock does not approach

carbon neutrality within 50 years and is worse than coal within the first one to three years. Commenter 0104.1 reported that trends in the bio-power industry are towards rapid growth and increased reliance on feedstocks that are clearly high carbon emitters. The commenter presented examples of whole-tree carbon accounting. The commenter indicated that different forests across the U.S. will have different growth rates when left unmanaged and different responses to being selectively cut.

**Response:** EPA will consider these issues in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions, as well as in the subsequent rulemaking to establish the treatment of these emissions in the PSD and Title V programs.

## 15.9 Wood Residues

**Comment:** Commenter 0104.1 stated that even if bio-power facilities were limited to using forest residues as fuel, the carbon balance is not clearly carbon neutral or beneficial over a short-term period. The commenter cited a study of the use of forestry residues that concluded it takes 30 years for net emissions from a utility-scale biomass facility to achieve parity with net emissions from electricity generation using natural gas. The commenter also cited a Finnish study which reported that harvesting residues for fuel has consequences for the overall forest carbon balance, and the commenter stated that these resources require further study. Commenter 0104.1 also stated that EPA's assertion that burning "dead trees" killed by mountain pine beetles would "clearly reduce $CO_2$ emissions," is unsupported since dead trees take far longer to decompose than logging residues.

**Response:** The commenter raises issues related to the temporal scale of decay versus combustion, as well as forest regrowth following harvest. EPA will consider these issues in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions, as well as in the subsequent rulemaking to establish the treatment of these emissions in the PSD and Title V programs.

## 15.10 Future Market Demand for Other Biomass Crops

**Comment:** Commenter 0086.1 stated that since there is no empirical evidence that ethanol expansion has caused conversion of forest to agriculture in the U.S. or abroad, future market demand should not be considered in EPA's analysis.

**Response:** EPA will consider this issue in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions.

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**Comment:** Commenter 0104.1 stated that there are examples of biomass fuels that would be clearly carbon beneficial, such as perennial grasses, but these feedstocks are not the direction industry is headed.

**Response:** EPA will consider this issue in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions, as well as in the subsequent rulemaking to establish the treatment of these emissions in the PSD and Title V programs.

## 15.11 Biological Decomposition

**Comment:** Commenter 0091.1 stated that biogenic $CO_2$ generated through waste decomposition is "not anthropogenic" and consistent with established GHG accounting practices they should not be counted as contributing global warming because these emissions represent $CO_2$ that was removed from the atmosphere to make the biomass that is decomposed in the landfill. The commenter also stated that any increase of biogenic $CO_2$ emissions from a landfill are simultaneously reducing $CH_4$ emissions from the landfill.

**Response:** EPA will consider this issue in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions, as well as in the subsequent rulemaking to establish the treatment of these emissions in the PSD and Title V programs.

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**Comment:** Commenter 0091.1 stated that the difficulty in landfill gas (LFG) accounting arises from the fugitive portion of LFG. Quantifying fugitive emissions requires modeling LFG generation and estimation of the quantity of methane oxidation in landfill cover materials. The inaccuracy of current LFG models has been well documented as ranging from 30 to 400%. The commenter is concerned that this level of error is unacceptable in permitting exercises even though fugitive emissions would not trigger PSD, but the commenter is concerned they would be included in accounting once PSD was triggered for another reason.

**Response:** Quantification of fugitive emissions from landfills for permitting is outside the scope of this rulemaking. This rulemaking defers the application of the PSD and Title V programs to biogenic $CO_2$ emissions for a period of three years. This deferral is intended to be a temporary measure to allow the Agency time to complete its work and determine what, if any, the treatment of biogenic $CO_2$ emissions should be in the PSD and Title V programs.

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**Comment:** Commenter 0117.1 believes that the calculations used in EPA's recent biogenic emissions estimation methods report for landfills, ethanol production, and wastewater treatment plants could over-estimate POTW emissions. The commenter expressed concern about the impact of overestimation while EPA considers the deferral of biogenic $CO_2$ emissions. Although this report is one of several methodologies yielding widely different emissions estimates for POTWs, the commenter is concerned that it is the only EPA-sanctioned guidance on the topic, and many regulatory authorities may defer to this document in lieu of other sources of information.

**Response:** EPA notes that this rule does not make or infer any policy determination on the part of EPA as to whether, or what part of, emissions from any sources may be determined "fugitive" emissions for the purposes of accounting and applicability under air permitting requirements. Such determinations are not within the scope of this rule and are part of the case-by-case application and review process established under the regulations covering these permitting requirements. The draft methodology report the commenter cites is outside the scope of this rulemaking. EPA does note this report is out for review now EPA looks forward to receiving feedback from stakeholders, especially with specific data to support or refute the accounting methodology under consideration.

## 15.12 Biogas Combustion

**Comment:** Commenter 0059.1 stated that landfill gas recovery and utilization provide valuable opportunities for GHG reductions. Landfill gas methane can be collected in high efficiency gas collection systems, and then either destroyed by combusting the collected gas in flares, or used as fuel in engines or furnaces. Currently, there are 518 operational landfill gas to energy projects in the U.S., which create 1,615 megawatts (MW) of electricity and 285 million metric standard cubic feet per day (MMSCFD) of renewable fuel as reported by EPA's LMOP. However, there are many more landfills in the U.S. that have the potential to capture and utilize landfill gas. EPA identifies 520 candidate landfills that have the potential for landfill gas to energy projects. The commenter is concerned that regulating the biogenic emissions from landfills has the potential to derail the excellent work done by EPA's LMOP program, by increasing the cost of compliance for what is a renewable energy.

Commenter 0059.1 stated further that while EPA is examining BACT for different sources, they should consider the total net emissions of these sources on a lifecycle basis. LFG recovery projects reduce GHG emissions, and this should be a factor when determining not only threshold eligibility, but presumptive BACT. This valuable source of energy has helped states and communities meet their GHG reduction goals and would be put at a significant disadvantage were EPA to regulate biogenic emissions.

**Response:** EPA will consider these issues in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions, as well as in the subsequent rulemaking to establish the treatment of these emissions in the PSD and Title V programs.

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**Comment:** Commenter 0023K suggested that EPA recognize that biogenic emissions from waste water treatment utilities result from a different process than emissions from harvested biomass and some other biological sources. The commenter explained that wastewater utilities treat waste to protect the environment and public health and are required to meet the standards of the Clean Water Act. Human waste is produced every day and produces greenhouse gases as it breaks down whether or not it is treated by utilities. The biogas produced from the treatment process consists mostly of methane which is converted to $CO_2$ when combusted. Using biogas to generate and recover heat and to generate electricity reduces and sometimes even eliminates the treatment process's reliance on fossil fuels while lowering GHG emitted from treating waste through the use of biogas. The commenter mentioned that some utilities are using energy recovery methods for bio-solids as well as taking advantage of the fact that bio-solids contain 10 times the energy needed to treat them. The commenter recommends that wastewater utilities should be encouraged to implement and further develop their heat and energy recovery program using biogas and biosolids, and emissions from these activities should not be counted in permitting applicability determinations under the Act.

**Response:** EPA will consider these issues in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions, as well as in the subsequent rulemaking to establish the treatment of these emissions in the PSD and Title V programs.

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**Comment:** Commenter 0099.1 stated that biogas is a green renewable energy resource that should continue to be promoted as an environmentally-friendly alternative to fossil fuel; digester

and landfill gas are renewable fuels that are continuously available; regulation of biogenic emissions from combustion of biogas only serves as a disincentive to renewable energy production and use.

**Response:** EPA will consider these issues in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions, as well as in the subsequent rulemaking to establish the treatment of these emissions in the PSD and Title V programs.

## 15.13 Biogenic Fraction of MSW

**Comment:** Commenter 0091.1 stated that since land filling is a significant sink of carbon, the quantity of carbon sequestered should be considered a credit under GHG regulations to be consistent with previous statements by EPA on this subject and consistent with other U.S. and international GHG accounting conventions. The commenter argued that at a minimum, sequestration of other biogenic carbon should be allowed as part of the net calculations that landfills use to determine their contribution of GHG to the environment.

**Response:** EPA will consider this issue in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions.

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**Comment:** Commenter 0082.1 stated that EPA's Mandatory GHG reporting rule's methodology to calculate $CH_4$ emissions from landfills can grossly overestimate these emissions, and the commenter made the following suggestions:

1. Allow landfills that have gas collection systems to calculate the $CH_4$ emissions by using the collected gas information. This approach would provide the total landfill gas collected, the percent $CH_4$ contained in the collected gas, and the portion of the gas treated. Using this information, the amount of $CH_4$ and $CO_2$ emitted to the atmosphere can be easily calculated.
2. Allow the use of both the default DOC factor and tested DOC values for the same year.
3. The definition of inert material §98.460 (c)(2)(i) "Coal combustion residue (e.g. fly ash)", should be expanded to include other boiler ashes, e.g. from wood fired boilers when using equations HH-1 or TT-1.
4. The definition of inert material in §98.460 (c)(2)(xii) "Other waste that has a volatile solids concentration of 0.5 weight percent (on a dry basis) or less", should be modified to show a threshold of 10% instead of 0.5%.

**Response:** EPA thanks the commenter for the suggestions and notes the methodologies for EPA's GHG Reporting Program are outside the scope of this rulemaking.

---

**Comment:** Commenter 0059.1 stated that WTE facilities provide an essential service to the local governments that rely on them to manage their solid waste. There are 87 WTE plants operating in 25 states managing about 7 percent of America's solid waste, or about 90,000 tons each day. The nation's WTE plants have a base load electric generation capacity of approximately 2,700 megawatts to meet the power needs of more than two million homes while serving the waste disposal needs of more than 36 million people. A majority of the nation's WTE facilities are owned by local governments that have invested in this critical municipal infrastructure to achieve long-term solid waste management solutions. EPA has requested

comments on the comparison between biomass sources and fossil fuels. A study conducted in 2005 by the commenter's Applied Research Foundation compared the air emissions of WTE to those of coal, oil and natural gas showing that on the whole, WTE significantly reduces pollutant emissions (these emissions estimates are based upon national averages – specific regions of the country may differ). In addition to this study, in 2003 EPA referred to WTE as "a clean reliable, renewable source of energy that produce(s) 2800 megawatts of electricity with less environmental impact than almost any other source of energy."

**Response:** EPA thanks the commenter for the information.

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**Comment:** Commenter 0059.1 stated that EPA must consider lifecycle analyses when developing BACT for sources with significant biogenic emissions. The commenter suggested that while EPA is examining BACT for different sources, they consider the total net emissions of these sources on a lifecycle basis. WTE recovery projects reduce GHG emissions and this should be a factor when determining not only threshold eligibility, but presumptive BACT. The direct emissions from WTE facilities are more than offset by the overall GHG reductions that WTE provides.

**Response:** EPA will consider this issue in our review of the scientific and technical issues related to accounting for biogenic $CO_2$ emissions, as well as in the subsequent rulemaking to establish the treatment of these emissions in the PSD and Title V programs.

## 15.14 Open-loop Biomass

**Comment:** Commenter 0023F stated that the carbon benefits of open-loop biomass enjoy widespread support even from those who claim an error in GHG accounting principles. The commenter cited several studies supporting the use of sustainably harvested wood and forest residues as well as organically based municipal and industrial wastes as fuels when compared to fossil fuels. The science behind the use of open-loop biomass is compelling and beyond dispute.

**Response:** EPA thanks the commenter for the comment.

# 16.0 Forest Economics and Sustainability

EPA appreciates the comments received on this topic. Many of the issues raised in these comments are beyond the scope of this action and will be considered in EPA's subsequent work on biogenic $CO_2$ emissions from stationary sources, including the Agency's detailed examination of the science and technical issue and any subsequent rulemakings.

## 16.1 Forest Biomass Use is Sustainable

**Comment:** Commenter 0032 stated that forest biomass is the most promising energy feedstock in Georgia due to abundant forestland and strong markets. Commenter 0032 recounted a brief history of southern forests reflecting that rising demand for forest biomass was sustainable and provided data showing growth in supply (i.e., inventory of forests) outpaced demand (timber utilization) during a recent 54 year period of rapid market expansion.

**Response:** EPA thanks the commenter for the comment and considers the commenter's views about biomass supply and demand beyond the scope of this action.

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**Comment:** Commenter 0111.1 stated that over the past century, forest stock has increased by nearly 50%, a growth running parallel to national economic expansion and greater resource use. Forest management decisions on growth and harvest are often projected decades in advance of potential uses, thereby sequestering future carbon emissions in the process. Forest tracts must be given the flexibility to practice sustainable forestry as deemed appropriate by their jurisdiction.

**Response:** EPA thanks the commenter for the comment and considers the commenter's views about forest stocks beyond the scope of this action.

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**Comment:** Commenter 0046 stated that using the commenter's logging slash for energy will mean that they will not need to burn slash piles, and will reduce wildfire risk. Using the logging slash for energy will provide renewable energy, more rural jobs and healthier, less fire-prone forests.

**Response:** EPA thanks the commenter for the comment and considers the commenter's views about biomass feedstocks and renewable energy policy beyond the scope of this action.

---

**Comment:** Commenter 0049.1 stated increasing harvests has two primary effects on habitat and biodiversity. The commenter explained that removing wood results in a more open residual stand, new species will inhabit the stands and other species will be eliminated, important dead wood will be eliminated, which results in lack of habitat and species, and has negative impacts on long-term soil productivity.

**Response:** EPA thanks the commenter for the comment and considers the commenter's views about impacts on biodiversity beyond the scope of this action.

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**Comment:** Commenters 0146 and 0013.1stated that use of forest biomass as a biogenic fuel stock is sustainable and cited historical data to show that as the demand for forest products increased, the volume of trees also grew at both the national and regional scale. The commenter

quotes from a study showing U.S. forest acreage has remained stable over the past 100 years, and forest owners have consistently planted more than they harvested since the 1940s during a period of unprecedented demand for forest products. However, the commenter also quoted a study from the University of Georgia and North Carolina State University showing that private U.S forests are not as productive as they could be due to depressed market prices and reduced manufacturing capacity. This study also demonstrated that increased markets for biomass energy can lead to increased sustainable yields from private forestlands and stimulate production increases ranging from 75% to 150% over the next 25 years.

**Response:** EPA thanks the commenter for the comment and considers the commenter's views about biomass supply and demand and economic incentives beyond the scope of this action.

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**Comment:** Commenter 0146 further suggested that the demand for biomass energy should be projected realistically, because every announced project will not be constructed and cited a market-research service's methodology for assessing viability of proposed projects. For example, the service found 446 wood-consuming projects in development, with potential for additional wood use of 123.7 million tons/year by 2021, but estimated that only 68.5 million tons/year are likely to be online by 2021.

**Response:** EPA thanks the commenter for the comment and considers the commenter's views about biomass supply and demand beyond the scope of this action.

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**Comment:** Commenter 0075.1 supported deferral and stated that emerging bioenergy markets could benefit wildlife habitat in general, by providing income to private landowners, which encourages them to keep their lands forested or in other permanent vegetative cover rather than to convert them to other uses such as tillage agriculture or residential developments.

**Response:** EPA thanks the commenter for the comment and considers the commenter's views about biomass supply and demand and economic incentives beyond the scope of this action.

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**Comment:** One commenter 0023B suggested EPA develop sustainability criteria for eligible biomass types and thus allow those biomass sources determined to be sustainable to be exempted from the Tailoring Rule.

**Response:** EPA thanks the commenter for the comment and considers the commenter's views about biomass sustainability beyond the scope of this action.

## 16.2 Forest Economics and Markets

**Comment:** Commenters 0032 and 0074.1 stated that the market forces of supply and demand will lead to increased forest stocks if the value of forests increase, because economic returns on wood production provide important incentives for private forest stewardship, and without these incentives, many working forests would be converted to more profitable non-forest uses. Commenter 0074.1 believes that new markets for biogenic fuels can enhance the economic sustainability of working forests and contribute to maintaining or increasing the extent of forests on private lands, but Commenter 0074.1 disagreed with the "notion" that restrictions on using forests as a biogenic fuel source could help preserve forests, because if the government restricts

the use of a renewable resource, stocks of that resource will naturally fall; this commenter provides a link to a supporting economic study.

**Response:** EPA thanks the commenter for the comment and considers the commenter's views about biomass supply and demand and markets beyond the scope of this action.

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**Comment:** Commenter 0072.1 stated that biomass currently provides over 50 percent of America's renewable energy according to the EIA, and noted that biomass from sustainably managed forests offers a green alternative to fossil fuel combustion. The commenter indicated that forest products manufacturers are leaders in the practice of sustainable forest management. The commenter stated that biogenic combustion promotes forest growth and management by encouraging land owners to maintain their forests rather than using land in ways without carbon storing benefits, and regulating biomass would deter land owners from maintaining forests.

**Response:** EPA thanks the commenter for the comment and considers the commenter's views about biomass sustainability beyond the scope of this action.

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**Comment:** Commenter 0146 emphasized the role of emerging bioenergy markets in sustaining forest conservation and suggested that the biomass fuel markets could potentially replace other declining markets and add economic value to private forest ownership. The commenter also thought that the greatest threat to deforestation is the conversion of private forests (57% of all U.S. forests) to more profitable, non-forest uses. The commenter stated that the markets for forest products, tax liability and the cost of regulation are key considerations when forest owners evaluate alternative uses for their forest land.

**Response:** EPA thanks the commenter for the comment and considers the commenter's views about biomass supply and demand and markets beyond the scope of this action.

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**Comment:** One commenter (0060) stated that without a deferral, the rule would add yet another burden for companies that are trying to become independent from the need of foreign oils. Instead of taking some of the air permitting off this project, the rule would require another expensive analysis to be conducted.

**Response:** EPA thanks the commenter for the comment and considers the commenter's views about fuel diversity beyond the scope of this action.

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**Comment:** Commenter 0023C linked historic trends of increasing demand for forest products with trends of stable or increasing forest acreage at the national scale, and the commenter cited data for a period of high demand for forest products that saw a seven fold increase in U.S. housing starts and a 25 fold increase in pulpwood consumption while total U.S. forest acreage remained constant. The commenter stated that during the second half of the 20th century the total growing stocks increased by 50%. Given that forests sequester an estimated 800 million tons of carbon annually and more than 80% of the carbon sequestered by all land uses, the commenter argues that new markets do not reduce the forests, but rather increase forest stocks. The commenter stated that private forests and markets need each other to survive, but that market losses put economic pressure on private forests to convert to more profitable uses with lower

sequestration capacities. The commenter stated that EPA policy must reflect market forces in order to fully realize the sequestration capacity of private forests.

**Response:** EPA thanks the commenter for the comment and considers the commenter's views about biomass supply and demand and forest stocks beyond the scope of this action.

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**Comment:** Commenter 0137.1 stated that there is high degree of probability that emerging markets for wood pellets will demand large tracts of standing trees be used as a primary feedstock in the Southeast region. The commenter reported a case of increasing demand for wood pellets in the Southeast, which has exhausted the supply of residual wood. The commenter also cited a study and provided two figures indicating that the wood pellet industry is growing, mainly from the exports to other regions and countries. The commenter argued that since the EU strives to meet its renewable targets by 2020, wood pellets will be a key to achieving these targets, especially in the heating sector. The commenter provided a figure, showing the significant role the American South currently plays in wood pellet production and is projected to play in the near future. Several examples of plans for increased wood pellet production are also given.

**Response:** EPA thanks the commenter for the comment and considers the commenter's views about biomass supply and demand and renewable energy beyond the scope of this action.

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**Comment:** Commenter 0057.1 stated that policies that encourage the use of forest biomass create positive economic and climate benefits. By not regulating biomass emissions in the same way as fossil fuel emissions, EPA creates additional markets for biomass that is currently under-utilized. The economic benefits from this are obvious; supporting and creating new jobs in rural communities throughout the United States. By supporting and creating additional value, biomass markets will add to the value of forestland in the United States. This creates an incentive for investment in forestland to grow, harvest, and replant trees as opposed to investment in other land uses that do not provide the benefits of carbon storage that come from sustainably managed forests. Additionally, increased use of biomass energy in all of its forms can be utilized in lieu of fossil fuels. This substitution effect can contribute to significant atmospheric $CO_2$ reductions when compared to fossil fuels.

**Response:** EPA thanks the commenter for the comment and considers the commenter's views about biomass supply and demand and economic incentives beyond the scope of this action.

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**Comment:** Commenter 0065.1 stated that by excluding $CO_2$ emissions from biomass combustion from the PSD and Title V applicability requirements, the EPA may incentivize increased logging of whole trees and conversion from natural forests into plantations or cultivated systems which could have serious effects on the net atmospheric $CO_2$ levels. Natural forests play a significant role in mitigating already rising levels of atmospheric $CO_2$. Our forests must be protected from anthropogenic activities that would reduce carbon stocks of our forested lands.

**Response:** EPA thanks the commenter for the comment and considers the commenter's views about biomass economic incentives and impacts beyond the scope of this action.

# 17.0 Environmental Justice

**Comment:** Multiple commenters (0015.1, 0030, 0110, 0143.1, 0119.1, 0132.1, 0166 0182, and 0351) cited concerns regarding environmental justice issues related to communities surrounding biomass facilities. Commenters 0015.1, 0030, 0143.1 stated that an additional concern is the trend to construct large biomass plants in low income communities of color, where they contribute further to the health burden already suffered as a result of disproportionate exposure to toxins. Similarly, commenter 0166 states that biofuel production is especially impacting disenfranchised communities because the facilities receive federal stimulus dollars to develop projects in disenfranchised communities.

Commenter 0110 stated that biomass-to-energy proposals are already creating de facto sacrifice zones. The commenter stated that in North Carolina, poor communities of color are being targeted by biomass burning facilities and provided two examples supporting this statement.

Multiple commenters **(**0119.1, 0132.1, and 0182) noted that Southern rural and minority communities have suffered from and are particularly threatened by the impact of the extractive timber industry both in terms of quality of life and economics. Commenter 0119.1 contended that assisting in the creation of another extractive forest use would not improve the economic situation of Southern communities.

Commenter 0119.1 also stated that encouraging development of bioenergy facilities could increase emission of most air pollutants and that the negative environmental justice implications of granting special treatment of biomass should be considered. Commenters 0119.1 and 0132.1 stated that while the government struggles to make healthcare more available to everyone, it is exacerbating the causes of disease among those most likely to lack access to adequate healthcare.

Commenters 0132.1 and 0351 noted that rural and minority communities are particularly threatened by the negative environmental effects of biomass and waste combustion. Commenter 0351 is especially concerned about the climate change effects and environmental justice concerns of a particular municipal waste combustion facility in Hartford, CT.

**Response:** This rule is deferring the application of the PSD and Title V programs to biogenic $CO_2$ emissions for a period of three years. During this time EPA will conduct a detailed examination of the science and technical issues associated with biogenic $CO_2$ and based on that undertake a subsequent rulemaking determining how these emissions should be treated in those programs. Specific projects combusting biomass are beyond on the scope of this rulemaking and will be dealt with on a case by case basis as they are developed as well as through other applicable requirements, including any related to environmental justice.

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**Comment:** Commenters 0048.1 and 0166 stated that because federal dollars are being used, EPA should require an Environmental Impact Statement (EIS) for each facility, that takes into consideration the potential environmental justice impacts and public health impacts (sensitive communities such as the elderly, poor, children, immune-compromised) as well as truly renewable and sustainable alternatives.

**Response:** This rule is deferring the application of the PSD and Title V programs to biogenic $CO_2$ emissions. During this time EPA will conduct a detailed examination of the science and

technical issues associated with biogenic $CO_2$ and based on that undertake a subsequent rulemaking how these emissions should be treated in those programs. EPA thanks the commenter for the comment and considers the commenter's views about EIS or other programs that may provide incentives for use of renewable energy sources beyond the scope of this rulemaking.

# 18.0 Miscellaneous

## 18.1 Commenters Referencing Other Commenters

**Comment:** Multiple commenters supported or endorsed comments from other comments, as follows:

Commenter 0081 supported the comments made by commenters 0071 and 0074.1. Commenter 0120.1 endorsed comments from 0074.1.

Commenters 0083.1 and 0123.1 endorsed the positions taken by commenter 0095.1.

Commenter 0136.1 supported and incorporated by reference the comments submitted by commenter 0140.1.

Commenter 0137.1 concurred with commenter 0350.1.

Commenters 0052.1, 0082.1, 0085 supported and incorporated (0052.1) comments submitted by commenter 0087.1. Commenter 0082.1 reiterated comments from 0087.1 that the clear science and near-universal public policy supporting the carbon neutrality of biomass, the argument that EPA has clear legal authority to distinguish biogenic $CO_2$ emissions from other sources, the carbon cycle should be measured on a national scale, and the most appropriate treatment of biomass emissions is a categorical exclusion.

Commenter 0082.1 also supported arguments submitted by commenter 0078 that that the deferral should not expire before the final biomass rulemaking is complete, that national biogenic emissions are a net sink and therefore even better than *de minimis* and not a contributor to global atmospheric carbon, that the deferral should apply beyond PSD and Title V, and that decisions approved during the deferral period should be honored after the deferral period ends.

**Response:** We acknowledge these commenters collective support of other commenters. The comments reiterated by commenter 0082.1 are addressed elsewhere in this document along with the referenced comments (0087.1 and 0078).

## 18.2 Commenters Incorporating Prior Comments on Other Actions

**Comment:** Commenters 0023F, 0052.1, and 0142.1 incorporated their previous comments in response to EPA's CFI. Commenter 0142.1 included a list of scientific studies (See EPA-HQ-OAR-2011-0142.1).

Commenter 0023C noted that they have provided extensive comments, outlining legal and policy reasons for recognizing forest as a carbon beneficial source of energy, which is all part of the public record.

Commenter 0115.1 cited Docket Number EPA-HQ-OAR-2010-0560 as evidence that combustion of feedstocks has already been proven to not be carbon neutral and instead, biomass fuels have adverse effects when combusted for energy production, particularly in the near term timeframe.

**Response:** We acknowledge these commenters reiterating their previous comments.

## 18.3 Administrative Requirements

**Comment:** Commenter 0087.1 agreed that the proposal does not relate to health standards and does not trigger Executive Order 13045. Similarly, the commenter agreed the rulemaking does not implicate Executive Order 12898 (concerning environmental justice), and stated that the proposal is consistent with Executive Order 13563, which directs agencies to use the least-burdensome tools to achieve regulatory ends and to review existing rules to determine whether they are excessively burdensome and to revise them where appropriate.

**Response:** We acknowledge support of our determinations regarding various Executive Orders.

## 18.4 Other

**Comment:** Commenter 0082.1 suggested that EPA consider expanding the scope of the deferral and longer-term rulemaking plans to cover other GHG regulations the Agency may undertake, such as under the NSPS for the utility and refinery sectors.

**Response:** EPA appreciates the views of the commenter but notes that regulation of $CO_2$, including from biogenic sources, under the CAA Section 111 NSPS program is beyond the scope of this action.

As additional information becomes available to the Agency on the impacts of biogenic $CO_2$, we will consider the implications of biogenic $CO_2$ in the context of other CAA programs as appropriate.

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**Comment:** Commenter 0049.1 supported EPA's authority to enforce CAA standards to reduce carbon pollution that harms humans and the environment. Commenter 0023E believed EPA has clear authority under the CAA to regulate and reduce greenhouse gas emissions from stationary sources, including the many billions of tons of $CO_2$ that are produced each year by the energy sector. Commenter 0023E stated EPA must use that authority now to start effectively reducing total $CO_2$ emitted because a portion of every ton of $CO_2$ emitted today persists in the atmosphere for 100 years.

Commenter 0350.1 strongly supported EPA in its lawful exercise of its clear authority under the CAA to regulate stationary sources of GHG emissions, including $CO_2$. The commenter noted that actions to reduce overall $CO_2$ emissions over the near term (measured in years rather than decades) are essential to avoid climate change damage. Given the evidence of climate change (2010 was identified as one of warmest years on record, summer sea ice is at a low, ice sheet runoff is in excess of estimates, and extreme weather events), and the failure of comprehensive climate legislation in Congress, EPA's CAA authority remains our first and best line of defense against these changes.

**Response:** We agree with the commenter that EPA has clear authority to regulate stationary sources of GHG emission under the CAA and note that this issue has been addressed in previous GHG rulemakings. *See*, e.g., Final Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the CAA, 74 FR 66496, 66500

(Dec. 15, 2009)

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**Comment:** Commenter 0077.1 recognized that the biological systems involved and the carbon lifecycle accounting is scientifically and technically complicated. The commenter stated that it is imperative to understand the science so that EPA can develop a predictable and science-based regulatory structure under which the regulated community can pursue investments in environmental improvements in their facilities.

**Response:** EPA thanks the commenter for their comment. During the three year deferral period EPA is conducting a detailed examination of the science and technical issues associated with accounting for biogenic $CO_2$ from stationary sources.

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**Comment:** One commenter (0112) expressed concerns over the proposed wood burning power plant, located in Russell Massachusetts by Biomass LLC. The commenter is concerned about the negative impacts to the Westfield River in Westfield, Massachusetts, and its surrounding environment. The commenter brought up the negative environmental effects of the plant including water flow. Also, the commenter noted no reference could be found in the Russell Biomass engineering study on the Hubbard Brook Ecosystem Study concerning the watershed effects from clear cutting and removing timber in a watershed. Lastly, no reference from the USGS Study of the Rivers Aquifer Information was included in the Russell Biomass engineering study either.

**Response:** We acknowledge this comment, but note that comments pertaining to specific facilities are outside the scope of this rulemaking.

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**Comment:** Commenter 0130.1 provided an anecdote that highlighted their concern over the development of biomass facilities by organizations with no prior experience in assessing the impacts of a biomass incinerator venture, i.e., only 1 of 22 companies involved in the venture have any waste management experience, and cited a report by a Charlotte, North Carolina area Waste Management Advisory Board (see EPA-HQ-OAR-2011-0083-0130.1).

**Response:** We acknowledge this comment, but note that it is outside the scope of this rulemaking.

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**Comment:** Commenter 0132.1 stated that not only does the federal stimulus program put our communities at risk, it may create a loophole in the National Environmental Policy Act, because the US Treasury Department maintains that, "A Section 1603 payment with respect to specified energy property does not make the property subject to the requirements of NEPA and similar laws[,]" and the commenter insists the public needs the EIS process as a counterbalance to the rush to approve and permit increases in pollution from biomass projects.

**Response:** We acknowledge this comment, but note that it is outside the scope of this rulemaking.

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**Comment:** Commenter 0092 submitted several electronic mail letters, figures, and journal articles regarding alternative methods of carbon sequestration (see EPA-HQ-OAR-2011-0083-0092.pdf; EPA-HQ-OAR-2011-0083-0092.1.pdf; EPA-HQ-OAR-2011-0083-0092.2.pdf; EPA-

HQ-OAR-2011-0083-0092.3.pdf; EPA-HQ-OAR-2011-0083-0092.4.pdf; EPA-HQ-OAR-2011-0083-0092.5.pdf).

**Response:** We thank the commenter for submitting additional information regarding alternative methods of carbon sequestration. We will review these during the three-year detailed examination of the science and technical issues associated with accounting for biogenic $CO_2$ emissions from stationary sources.

# Appendix A
# General Public Submissions

This appendix presents a list of public submissions, or "comments," received by the Air Docket on the proposed Deferral Rule. The first column identifies each comment by its unique Document ID number in the docket.

In the second column, we have classified the comments by "letter type" to reflect certain recurring characteristics. The letter type for each submission includes the following classifications:

- General Support – comments expressing general support for the Deferral Rule
- General Opposition – comments expressing general opposition to the Deferral Rule
- Form Letter # – comments submitted by more than one Individual or organization including mass comment campaigns; each such form letter is assigned a number
- Other Comment – contains other comments not included in the "General Support," "General Opposition," or "Form Letter #" comments

This classification system was used to identify substantially-similar comments and themes, although many Individual comments could have been assigned more than one of the "letter type" classifications.

The third column presents the organization that submitted each comment. In instances where an Individual has signed his or her name to a comment letter but no organization is indicated, the "organization" is listed as "Individual." Examples of some of the Form Letters received and listed in Appendix A are included in Appendix B.

**Appendix A. List of General Public Submissions on the Proposed Deferral Rule[3]**

| Docket No. EPA-HQ-OAR-2011-0083 | Letter Type | Organization |
|---|---|---|
| 0012 | Other comment | Individual |
| 0013.1 | Form letter #0146 | The Miller De Wulf Corporation |
| 0016 | General opposition | Individual |
| 0017 | General opposition | Individual |
| 0018 | General opposition | Individual |
| 0019 | General opposition | Individual |
| 0020 | General opposition | Individual |
| 0021 | General opposition | Individual |

[3] This list reflects submissions that were not excerpted in the main body of this document because they fit within the context of other significant comments.

| **Docket No. EPA-HQ-OAR-2011-0083** | **Letter Type** | **Organization** |
|---|---|---|
| 0024.1 | Form letter #0146 | Thermal Energy Development Partnership, LP |
| 0025 | General opposition | Individual |
| 0026 | General opposition | PT AirWatchers |
| 0027 | General opposition | WACE |
| 0028 | General opposition | Individual |
| 0031 | General opposition | Wiregrass Activists for Clean Energy |
| 0034 | General opposition | Neighborhood Environment Watch |
| 0035 | General opposition | Individual |
| 0036 | General opposition | PT AirWatchers |
| 0040 | General opposition | Individual |
| 0041 | General opposition | Arise for Social Justice |
| 0061 | General opposition | Individual |
| 0068 | General opposition | Individual |
| 0098 | Form letter - Moratorium | Individual |
| 0113 | Other | Individual |
| 0146 | Form letter #0146 | Resource Management Service, LLC<br>Mass comment campaign (32) |
| 0147 | Form letter #0147 | Mass comment campaign: organization unknown (129) |
| 0148 | Form letter #0148 | Mass comment campaign: organization unknown (33) |
| 0149 | Form letter #0149 | Mass comment campaign: NRDC<br>(10,262) |
| 0151 | Form letter #0149 | Individual |
| 0152 | General opposition | Individual |
| 0153 | General opposition | Individual |
| 0154 | Form letter - Moratorium | Individual |
| 0155 | Form letter #0149 | Individual |
| 0156 | General opposition | Individual |
| 0157 | Form letter #0146 | Individual |
| 0158 | Form letter #0149 | Individual |
| 0159 | Form letter #0149 | Individual |
| 0160 | Form letter #0149 | Individual |

| Docket No. EPA-HQ-OAR-2011-0083 | Letter Type | Organization |
|---|---|---|
| 0161 | Form letter #0149 | Individual |
| 0162 | Form letter #0149 | Individual |
| 0163 | Form letter #0149 | Individual |
| 0164 | Form letter #0149 | Individual |
| 0165 | Form letter #0149 | Individual |
| 0166 | Form letter - Moratorium | Individual |
| 0167 | General opposition | Individual |
| 0168 | Form letter #0149 | Individual |
| 0169 | Form letter #0149 | Individual |
| 0170 | Form letter #0147 | Individual |
| 0171 | General opposition | Individual |
| 0172 | General opposition | Individual |
| 0173 | Form letter #0147 | Individual |
| 0174 | Form letter #0147 | Individual |
| 0175 | General opposition | Individual |
| 0176 | General opposition | Individual |
| 0177 | General opposition | Protect Our Woods |
| 0178 | General opposition | Individual |
| 0179 | Form letter #0147 | Individual |
| 0180 | Form letter #0147 | Individual |
| 0181 | General opposition | Individual |
| 0183 | Form letter - Moratorium | Individual |
| 0184 | Form letter #0147 | Individual |
| 0185 | General opposition | Individual |
| 0186 | Form letter - Moratorium | Individual |
| 0187 | General opposition | Individual |
| 0188 | General opposition | Individual |
| 0189 | Form letter #0147 | Individual |
| 0190 | General opposition | Individual |
| 0191 | Form letter #0149 | Individual |

| Docket No. EPA-HQ-OAR-2011-0083 | Letter Type | Organization |
|---|---|---|
| 0192 | Form letter - Biofuelwatch | Individual |
| 0193 | Form letter #0147 | Concerned Citizens of Perryville |
| 0194 | Form letter - Moratorium | Individual |
| 0195 | Form letter - Moratorium | Individual |
| 0196 | Form letter #0147 | Individual |
| 0197 | Form letter #0147 | Individual |
| 0198 | General opposition | Individual |
| 0199 | Form letter #0149 | Individual |
| 0200 | Form letter #0147 | Individual |
| 0201 | Form letter - Biofuelwatch | Individual |
| 0202 | Form letter #0149 | Individual |
| 0203 | Form letter #0149 | Individual |
| 0204 | Form letter #0149 | Individual |
| 0205 | Form letter #0148 | Individual |
| 0206 | General opposition | Individual |
| 0207 | Form letter #0149 | Individual |
| 0208 | Form letter #0149 | Individual |
| 0209 | Form letter - Moratorium | Individual |
| 0210 | Form letter #0149 | Individual |
| 0211 | Form letter #0149 | Individual |
| 0212 | General opposition | Individual |
| 0213 | Form letter #0149 | Individual |
| 0214 | Form letter #0149 | Individual |
| 0215 | Form letter #0149 | Individual |
| 0217 | Form letter #0149 | Individual |
| 0218 | Form letter #0149 | Individual |
| 0219 | Form letter #0149 | Individual |
| 0220 | Form letter #0149 | Individual |
| 0221 | Form letter #0149 | Individual |

| Docket No. EPA-HQ-OAR-2011-0083 | Letter Type | Organization |
|---|---|---|
| 0222 | Form letter #0149 | Individual |
| 0223 | Form letter #0149 | Individual |
| 0224 | Form letter #0149 | Individual |
| 0225 | Form letter #0149 | Individual |
| 0226 | Form letter #0149 | Individual |
| 0227 | Form letter #0149 | Individual |
| 0228 | Form letter #0149 | Individual |
| 0229 | Form letter #0149 | Individual |
| 0230 | General opposition | Individual |
| 0231 | Form letter #0149 | Individual |
| 0232 | Form letter #0149 | Individual |
| 0233 | Form letter #0149 | Individual |
| 0234 | Form letter #0149 | Individual |
| 0235 | General opposition | Individual |
| 0236 | Form letter #0149 | Individual |
| 0237 | Form letter #0149 | Individual |
| 0238 | Form letter #0149 | Individual |
| 0239 | Form letter #0149 | Individual |
| 0240 | General opposition | Individual |
| 0241 | Form letter #0149 | Individual |
| 0242 | Form letter #0149 | Individual |
| 0243 | Form letter #0149 | Individual |
| 0244 | Form letter #0149 | Individual |
| 0245 | Form letter #0149 | Individual |
| 0246 | Form letter #0149 | Individual |
| 0247 | Other comment | Individual |
| 0248 | Form letter #0149 | Individual |
| 0249 | Form letter #0149 | Individual |
| 0250 | General opposition | Individual |
| 0251 | Form letter #0149 | Individual |
| 0252 | Form letter #0149 | Individual |
| 0253 | General opposition | Individual |

| Docket No. EPA-HQ-OAR-2011-0083 | Letter Type | Organization |
|---|---|---|
| 0254 | Form letter - Biofuelwatch | Individual |
| 0255 | Form letter #0147 | Individual |
| 0256 | Form letter #0147 | Individual |
| 0257 | Form letter - Biofuelwatch | Individual |
| 0258 | General opposition | Individual |
| 0259 | General opposition | Individual |
| 0260 | Form letter - Biofuelwatch | Individual |
| 0261 | General opposition | Individual |
| 0262 | Form letter #0147 | Individual |
| 0263 | General opposition | Individual |
| 0264 | General opposition | Individual |
| 0265 | General opposition | Olympic Forest Coalition |
| 0266 | General opposition | Individual |
| 0267 | Form letter #0147 | Individual |
| 0268 | General opposition | Individual |
| 0270 | Form letter - Biofuelwatch | Individual |
| 0271 | General opposition | Biomass Accountability Project |
| 0272 | General opposition | Individual |
| 0273 | Form letter - Moratorium | Individual |
| 0274 | General oppostion | Individual |
| 0276 | General opposition | Individual |
| 0277 | Form letter - Moratorium | Individual |
| 0278 | Form letter #0147 | Individual |
| 0279 | General opposition | Individual |
| 0280 | Form letter #0147 | Individual |
| 0281 | Form letter #0149 | Individual |
| 0282 | General opposition | Individual |
| 0283 | Form letter #0147 | Individual |

| Docket No. EPA-HQ-OAR-2011-0083 | Letter Type | Organization |
|---|---|---|
| 0284 | Form letter #0147 | Individual |
| 0285 | Form letter #0149 | Individual |
| 0286 | Form letter #0149 | Individual |
| 0287 | Form letter #0149 | Individual |
| 0288 | Form letter #0149 | Individual |
| 0289 | Form letter #0149 | Individual |
| 0290 | General opposition | Individual |
| 0291 | General opposition | Individual |
| 0292 | Form letter #0149 | Individual |
| 0293 | Form letter #0149 | Individual |
| 0294 | Form letter #0149 | Individual |
| 0295 | Form letter #0149 | Individual |
| 0296 | Form letter #0149 | Individual |
| 0297 | Form letter #0149 | Individual |
| 0298 | Form letter #0149 | Individual |
| 0299 | Form letter #0149 | Individual |
| 0300 | Form letter #0149 | Individual |
| 0301 | Form letter #0149 | Individual |
| 0302 | Form letter #0149 | Individual |
| 0303 | Other comment | Individual |
| 0304 | Form letter #0149 | Individual |
| 0305 | General opposition | Individual |
| 0306 | Form letter #0149 | Individual |
| 0307 | Form letter #0149 | Individual |
| 0308 | Form letter #0147 | Individual |
| 0309 | General opposition | Individual |
| 0310 | Form letter #0147 | Individual |
| 0311 | General opposition | Individual |
| 0312 | Form letter #0149 | Individual |
| 0313 | General opposition | Individual |
| 0314 | General opposition | Individual |
| 0315 | Form letter #0149 | Individual |

| Docket No. EPA-HQ-OAR-2011-0083 | Letter Type | Organization |
|---|---|---|
| 0316 | General opposition | Individual |
| 0317 | Form letter #0149 | VFR/The Enviro Show |
| 0318 | Form letter #0147 | Individual |
| 0320 | Form letter #0149 | Individual |
| 0321 | General opposition | Individual |
| 0322 | General opposition | Individual |
| 0323 | Form letter - Moratorium | Individual |
| 0324 | Other comment | Individual |
| 0325 | Form letter #0149 | Individual |
| 0326 | Form letter - Moratorium | Individual |
| 0327 | Form letter #0147 | Individual |
| 0328 | Form letter #0149 | Individual |
| 0329 | Form letter #0149 | Individual |
| 0330 | Form letter #0147 | Individual |
| 0331 | Other comment | Individual |
| 0333 | Form letter - Moratorium | Horry Environmental Action Team (HEAT) |
| 0334 | Form letter #0149 | Individual |
| 0335 | Other comment | Individual |
| 0336 | Form letter #0149 | Individual |
| 0337 | Form letter #0149 | Individual |
| 0338 | Form letter - Moratorium | Individual |
| 0339 | Form letter #0149 | Individual |
| 0340 | Form letter - Moratorium | World Temperate Rainforest Network |
| 0341 | Form letter - Moratorium | Protect All Children’s Environment |
| 0342 | Form letter #0149 | Individual |
| 0343 | Form letter #0149 | Individual |
| 0344 | Form letter #0147 | Individual |
| 0345 | General opposition | Individual |

| **Docket No. EPA-HQ-OAR-2011-0083** | **Letter Type** | **Organization** |
|---|---|---|
| 0346 | Form letter - Biofuelwatch | Individual |
| 0347 | Form letter - Moratorium | Individual |
| 0348 | General opposition | Individual |
| 0349 | General opposition | Individual |
| 0352 | General opposition | American Academy of Family Practice |
| 0353 | Other | NC Health of the Public Council |
| 0356 | Form letter - Moratorium | Individual |

# Appendix B

# Examples of Form Letters

**Fwd: [pt-nobiomass] FW: docket ID No. EPA-HQ-OAR-2011- 0083-Do NOT defer biomass rulings fo 3 years!**

chris marrs to: GHGBiogenic 05/03/2011 09:35 AM

---------- Forwarded message ----------
From: **Duff Badgley** <duff@nobiomassburn.org>
Date: Sun, May 1, 2011 at 11:39 AM
Subject: [pt-nobiomass] FW: docket ID No. EPA-HQ-OAR-2011- 0083-Do NOT defer biomass rulings fo 3 years!
To: Forests listserve-newest <forests-biomass@googlegroups.com>, PT listserve <pt-nobiomass@lists.riseup.net>, Simpson listserve <c4hf@yahoogroups.com>, NO ADAGE Yahoo Group <noadage@yahoogroups.com>

--"Woody biomass energy" discussion and action list. Take action!--
Special announcement: PLEASE DONATE! We need to raise $15,000 for current legal bills! Every bit helps tremendously!
---

Please forward this email, or another of your own, back to ghgbiogenic@epa.gov referencing **docket ID No. EPA-HQ-OAR-2011- 0083** in subject line. We have only until **May 5, 2011** to submit comments. This information assembled by Blue Ridge Environmental Defense League and forwarded by Bill Blackley, MD of North Carolina. Thanks!--Duff

---

From: duff@nobiomassburn.org
To: ghgbiogenic@epa.gov
Subject: docket ID No. EPA-HQ-OAR-2011- 0083
Date: Sun, 1 May 2011 11:31:40 -0700

The **EPA must not defer biomass rulings for three years** re docket ID No. EPA-HQ-OAR-2011- 0083.

**What is essential right now:**

- **No permitting of any new biomass facility while EPA is developing regulations. (Moratorium);**
- **No expansion of any existing facility during this time;**
- **No grandfathering of any existing facility under less stringent rules;**

**Why:**

- Biomass burning is dirtier than coal combustion;
- Biomass incineration is not carbon neutral;

· Biofuel production for incineration is contributing to higher food costs impacting all, but especially impacting disenfranchised communities;
· Biomass incinerators are getting federal stimulus dollars to site in disenfranchised communities;
· Because of the delay, there will be a rush to permit during the deferment. This will make developing and promulgating regulations which are protective of public health and the environment virtually impossible;
· Already permitted facilities are likely to be grandfathered in and not subject to more stringent rules, creating de facto sacrifice zones in rural, working class, and minority communities.
· Due to slash-and-burn budget proposals targeting health- based regulations means that many states will be unable to properly protect public health and the environment.

**Additionally:**

Because federal dollars are being used, Environmental Impact Studies should be required for each facility. The EIS's must take into consideration potential environmental justice impacts, and public health impacts (sensitive communities: elderly, poor, children, immune compromised).

Thank you.

Duff Badgley
No Biomass Burn
Seattle, WA
206-283-0621
duff@nobiomassburn.org
www.nobiomassburn.org

========== ptairwatchers.org ==========
Breathe Clean! Breathe Healthy!

pt-nobiomass@lists.riseup.net - Discuss! Please keep it on-topic
ptairwatchers@mailhaven.com - List manager
pt-nobiomass-unsubscribe@lists.riseup.net - to UNsubscribe

Support our work with your tax-deductible donation. Send checks to:
PT AirWatchers, PO Box 1653, Port Townsend WA 98368
==========

- message-footer.txt

MessageID: <B82A145D29E04C6AB103D7D479629248@micropact.com>
From: <jferguson@resourcemgt.com>
Sent: 04/06/2011 12:32:14 PM
Subject: Docket ID No. EPA-HQ-OAR-2011-0083

Body: I am writing in support of your proposed rule to defer the regulation of carbon dioxide emissions from biogenic sources under the PSD and Title V programs. It is sound public policy to step back and evaluate the science and public policy reasons to support renewable biomass energy and not regulate it in the same manner as fossil fuels. What the science will show is that not only is biomass energy sustainable, carbon beneficial, domestic, and renewable, but that there are significant unintended consequences of regulating biomass energy the same as fossil fuels. The science and public policy reasons are best outlined in a letter 113 scientists wrote to Congress in July 2010 (www.nafoalliance.org/scientists).

Here are some key points with supporting references:

Wood biomass energy is sustainable. History demonstrates that as demand for forest products increases so does the volume of trees growing. Between 1953-2006, the volume of trees per acre nationwide grew 49% and increased in all regions. In addition, forest acreage in the U.S. has remained relatively stable over the past 100 years, and forest owners have consistently planted more than they harvested since the 1940s. (State of America`s Forests. Society of American Foresters. 2007.) This has occurred during a period of unprecedented increase in demand for wood forest products to meet housing and consumer needs.

Markets for forest products conserve forests for the long term. The greatest threat to deforestation is the conversion of private forests to more economically competitive, non-forest uses. 57% of U.S. forests are privately owned, and forest land must maintain its economic value to remain as forests for the long term. Markets for forest products, tax liability and the cost of regulation are key considerations when forest owners determine the economic viability of forest land ownership. Biomass energy can be an important new market to replace other declining markets and add economic value to private forest ownership. (American Forests: A History of Resiliency and Recovery. Douglas MacCleery. 1996.)

Demand for biomass energy must be projected realistically. The bottom line is that not every announced bioenergy facility will become operational. Forisk Consulting, a market-research firm serving the forest products industry, developed a basic screening methodology to help determine which announced facilities are likely to be operational by 2021. The results are updated each month. As of January 30, 2011, Forisk tracked 446 wood-consuming, announced projects in the continental U.S. These projects represent the potential for an additional 123.7 million tons/year of wood use by 2021. However, applying Forisk`s viability screen, projects representing only 68.5 million tons/year are likely to be online by 2021. (see http://www.forisk.com/Forisk-Bioenergy-Research-v-42.html)

Supply of biomass for energy can be increased sustainably. A 2010 study from the University of Georgia and North Carolina State University documents that private U.S forests are not as productive as they can be because of depressed market prices and reduced manufacturing capacity. The authors demonstrate that increased markets for biomass energy can lead to increased, sustainable yields from private forestlands. Within 25 years, growth and production could increase 150% on intensively managed lands and 75% on less intensively managed lands. (A Developing Bioenergy Market and Its Implications on Forests and Forest Products Markets in the United States. Dr. Mike Clutter et. al. 2010.

http://nafoalliance.org/wp-content/uploads/NAFO-Executive-Summary-Clutter-Et-Al-Final.pdf).

Regulating biogenic carbon the same as fossil fuels has several unintended consequences, including encouraging fossil fuel, increased greenhouse gas emissions from National Forests, and lost U.S. manufacturing jobs. (The Unintended Consequences of the EPA Tailoring Rule. Bruce Lippke and Dr. Elaine Oneil. 2010. http://www.corrim.org/pubs/reports/2010/biomass_vs_fossil/BiomassVSFossilEmissionsNov2010.pdf )

Regulating biogenic carbon threatens U.S. jobs and renewable energy goals. According to a 2010 study, this would conservatively cost between 12,000-28,000 renewable energy jobs, $18 billion fewer dollars of capital investment in renewable energy, and over 5,384 fewer megawatts of renewable electricity generation. It would also jeopardize renewable energy goals in up to 30 states. (Economic and Regional Impact Analysis of the Treatment of Biomass Energy Under the EPA Greenhouse Gas Tailoring Rule. Dr. Brooks Mendell and Amanda Hamsley Lang. 2011. http://nafoalliance.org/wp-content/uploads/tailoring-rule-economic-impact-study.pdf).

The carbon cycle is continuous over time and carbon accounting should reflect this. The carbon debt-dividend accounting method proposed by some is flawed, because it establishes an arbitrary starting point for the ongoing natural carbon cycle. This cycle encompasses all recurring plant growth, is constantly in flux and cannot be arbitrarily constrained by time and space. (Accounting for Greenhouse Gas Emissions from Wood Bioenergy. Dr. Jay O`Laughlin. 2010.)

Carbon accounting should take a national, rather than a stand or plot level, approach. Forests are managed across the landscape, not on individual plots, so carbon stock changes need to emulate the way forests are managed. The U.S. has a well-established system to track changes in national forest carbon stocks through the Forest Inventory and Analysis program at the U.S. Forest Service. This is the data the EPA relies on for its annual inventory of U.S. greenhouse gas emissions and sinks. (Biomass Carbon Neutrality. Reid Miner. 2010. http://nafoalliance.org/wp-content/uploads/NCASI-Biomass-carbon-neutrality.pdf)

Thank you for the opportunity to comment.

Sincerely,

Mr. Joey Ferguson
Regional Manager
Resource Mgmt Service, LLC
67 Greenbriar Ave
Pawleys Island SC 29585
Email: jferguson@resourcemgt.com

0083 5.9.11 10677_009937.TXT
MessageID: <IP-0AC2AF90bcd43f950e0847e7a32b74918d32cadf@ip-0AC2AF90>
From: "Ilene Stahl" <greenfieldbiomass@klezperanto.com>
Sent: 05/04/2011 12:13:01 PM
Subject: Biomass Power is Not Carbon Neutral

Body: "Biogenic" CO2 Emissions,

The latest science (quoted below) clearly demonstrates that burning forests for electricity is not only NOT "carbon neutral," but actually increases the concentration of carbon dioxide in the atmosphere. It is past time that the EPA account for the CO2 smokestack emissions associated with biomass power.

While the EPA studies this issue, it is important that a moratorium be declared on permitting construction of new biomass power incinerators.

"Forest biomass generally emits more greenhouse gases than fossil fuels per unit of energy produced."
-Biomass Sustainability and Carbon Policy Study, Manomet Center for Conservation Sciences, June 2010:

"Exempting emissions from bio-energy use is improper for greenhouse gas regulations...Harvesting existing forests for electricity adds net carbon to the air."
-Fixing a critical climate accounting error, Searchinger et. al., Science, 325:529, October 23, 2009.

"The claim that biomass power is 'carbon neutral' because the new trees use the same carbon dioxide to grow that they released when burned is false as has been recognized by both US scientists and the Intergovernmental Panel on Climate Change on which I serve."
-William Moomaw, Professor of International Environmental Policy and Director of the Center for International Environment and Resource Policy at Tufts University:

"Carbon dioxide emissions from biomass per unit of energy generated are about 1.5 times higher than from coal and 3 to 4 times greater than from natural gas."
-Clearcut Disaster: carbon loophole threatens U.S. forests," Environmental Working Group, June 2010:

Sincerely,

Ilene Stahl
284 Chapman St
Greenfield, MA 01301

0083 5.9.11 10677_000030.TXT

MessageID: <24370065.1304345824580.JavaMail.tomcat@web4.salsalabs.net>
From: Janine Christo <blackbird-1997@hotmail.com>
Sent: 05/02/2011 10:17:04 AM
Subject: EPA-HQ-OAR-2011-0083-0001 – No Moratorium on Biomass Regulations

Body: Dear Administrator Jackson,

I am writing in response to EPA's solicitation for comments to Docket ID No. EPA-HQ-OAR-2011-0083-000. I request that EPA not exempt biogenic CO2 emissions from burning biomass and other bioenergy sources from regulation during a three year long study.

A number of scientific studies have established that – per unit of electricity generated – biomass combustion can produce just as much, if not more, CO2 emissions as coal combustion. Rather than giving biomass a free-pass for three years, EPA should err on the side of caution and regulate the CO2 emissions from biomass based on what pollution comes out of the smokestack.

I specifically request that while the three year study is underway, EPA should not provide permits to new facilities that use biomass in order to produce electricity, unless in their decision-making they account for all smokestack emissions.

Janine Christo
P.O. box 442
North Kingsville, OH 44068

0083 5.9.11 10677_000042.TXT
MessageID: <9615531.1304351668939.JavaMail.www@app339>
From: NRDC<nrdcinfo@nrdconline.org>
Sent: 05/02/2011 11:54:28 AM
Subject: Docket #EPA-HQ-OAR-2011-0083 - Don't defer biomass pollution standards

Body: May 2, 2011

Administrator Jackson and EPA Staff

Dear EPA Staff,

I support the Environmental Protection Agency's authority to enforce Clean Air Act standards to reduce global warming pollution that harms human health and the environment. The pollution from biomass energy sources should be no exception, and I am concerned about the proposal to defer safeguards for these emissions for the next three years.

A three-year deferral on biomass pollution safeguards would create a perverse incentive for new and expanded power plants to burn biomass instead of other fuels. Because the supply of truly sustainable, low-carbon forestry wastes is extremely limited, expanding biomass power means burning whole trees. The EPA should not be creating perverse incentives for burning biomass without safeguards for our forests.

It would take many decades to recapture the carbon released from cutting and burning a natural forest for energy. And unlike coal, living and growing trees continue to absorb carbon from the atmosphere if left alone, so cutting down and burning trees for energy means losing this critical environmental service. Burning whole trees in today's power plants would therefore result in even more global warming pollution than burning coal or other fossil fuels. And we would lose forests that provide valuable wildlife habitat, fresh air, clean water and places to hike and camp.

Only biomass that is carefully chosen, grown responsibly and efficiently converted into energy can reduce carbon and other pollution compared to fossil fuels. Instead of giving large power plants a free pass to indiscriminately burn even the most unsustainable forms of biomass, the EPA should require big new or expanded power plants to continue to count all of their carbon emissions, no matter what the fuel.

Sincerely,

Mr. Bruno Zacke
Richard-Sorge-Strasse 25
Berlin, None 10249

MessageID: <456158.86685.qm@web110502.mail.gq1.yahoo.com>
From: Dinda Evans <dindamcp4@yahoo.com>
Sent: 05/05/2011 05:55:22 PM
Subject: docket ID No. EPA-HQ-OAR-

Body: The EPA is taking public comments on proposed draft regulations for greenhouse gas emissions, known as the “Tailoring Rule.” But under pressure from the biomass industry, EPA is offering biomass incinerators a free ride – no permits necessary – for three more years while they study the issue...even though CO2 smokestack emissions from burning biomass are even worse than coal!

The U.S. Supreme Court has ordered EPA to regulate greenhouse gases, but the biomass, waste and timber industries have spent millions getting EPA to offer them this three year exemption. Please contact the EPA and demand they do proper accounting for biomass incineration!