



EPA Docket Center, EPA West
Attn. Docket ID No. EPA-HQ-OAR-2010-0560
Environmental Protection Agency
Mailcode: 2822T
1200 Pennsylvania Avenue, NW
Washington, DC 20460

RE: Docket ID No. EPA-HQ-OAR-2010-0560 [75 FR 41173-77]

Ladies and Gentlemen:

The Southern California Alliance of POTWs (SCAP) appreciates the opportunity to respond to EPA's Call for Information: Information on Greenhouse Gas Emissions Associated with Bioenergy and Other Biogenic Sources.

The SCAP Alliance of 90 public agencies provide both water and wastewater treatment to 18 million people in parts of Los Angeles, Orange, San Diego, Santa Barbara, Riverside, San Bernardino and Ventura counties. We treat and safely reuse or discharge of over 1 billion gallons of wastewater every day, and deliver over 1.7 billion gallons of drinking water per day. Our member agencies generate over 70% of the biosolids produced annually within California, and are leaders in developing renewable energy from wastewater and biosolids. Our experience in California's burgeoning arena of greenhouse gas regulations amidst the most stringent state and local regulatory environments in the country give us a unique perspective on how our operations may be affected by any inclusion of our biogenic emissions in PSD and Title V.

SCAP concurs with the letter submitted by the CWCCG on 9/8/2010 (attached) and would like to include our own comment specific to our membership.

Regulation of our biogenic emissions under PSD/Title V would require a new project BACT analysis for greenhouse gases. Our experience has been that regulations to achieve health-based criteria ambient levels can conflict with GHG reduction goals. For example, the South Coast Air Quality Management District acknowledged that its tightened NOx standards for boilers may result in increased greenhouse gas emissions (tighter NOx levels will make the boilers more inefficient). The BACTs to address both GHG and criteria pollutant reductions may not be independently implementable

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SOUTHERN CALIFORNIA ALLIANCE OF POTWS

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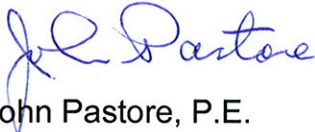
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requiring that some type of optimization will have to be undertaken to achieve the best of both worlds. Many SCAP agencies are in air districts that implement the most stringent rules for criteria pollutants and air toxics. Taken collectively, we are fearful that the regulatory atmosphere may cause many agencies to abandon productive use of renewable biogas to more hassle-free but wasteful flaring.

Please contact me if you have any questions at (760) 479-4121 or at jpastore@scap1.org.

Sincerely,



John Pastore, P.E.

Executive Director

Southern California Alliance of POTWs

cc: Enrique Zaldivar, SCAP President

CALIFORNIA WASTEWATER CLIMATE CHANGE GROUP

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RE: Docket ID No. EPA-HQ-OAR-2010-0560

Ladies and Gentlemen:

The mission of the California Wastewater Climate Change Group (CWCCG) is to address climate change policies, initiatives, and challenges through a unified voice advocating for California wastewater community perspectives. Collectively, CWCCG members treat over 90% of the municipal wastewater in California, including beneficial use of products such as biosolids and biogas. As we commented in response to EPA's Draft Tailoring Rule, we believe strongly that biogenic emissions should be dealt with separately from anthropogenic emissions. We appreciate this opportunity to respond to EPA's Call for Information[75 FR 41173-77]: Information on Greenhouse Gas Emissions Associated with Bioenergy and Other Biogenic Sources.

CWCCG would like to make the following points in response to EPA's request:

- Wastewater agencies manage waste for the benefit of people and the environment, not for profit, and would be significantly and unproductively impacted by the Tailoring Rule were biogenic emissions to be regulated.
- Biogenic emissions are part of the natural carbon cycle, do not contribute to climate change, and therefore should not be counted toward Title V or PSD thresholds.
- Biogas is a green renewable energy resource that should continue to be promoted as an environmentally-friendly alternative to fossil fuel; regulation of biogenic emissions from combustion of biogas only serves as a disincentive to renewable energy production and use.

These points are further developed in the following sections.

Wastewater agencies manage waste for the benefit of people and the environment and would be significantly and unproductively impacted by the Tailoring Rule were biogenic emissions to be regulated.

It is important to distinguish the biogenic sources that are the subject of this correspondence. We represent the wastewater community whose primary responsibility is to manage society's wastewater in an environmentally sound manner. Regulation of biogenic CO₂, as suggested by EPA, is in our view

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unprecedented, not supported by science or any existing policies worldwide, and will have a significant impact on the wastewater industry.

Carbon dioxide from the decomposition of human waste would be emitted into the atmosphere as part of the natural carbon cycle whether or not a wastewater treatment plant were there to treat the waste^{1,2,3}. In our society, wastewater treatment plants exist to intercept and treat this waste to protect the environment and public health. We manage and control the decomposition of waste and efficiently capture the resulting gas so that it can be used beneficially for power generation.

Waste-derived biofuels exhibit the following characteristics that warrant their consideration separate from other biofuel sources:

- Since they are largely generated locally, there is a very small transportation greenhouse gas component to get the fuel to market (unlike Brazilian sugarcane, for example, coming up into the American ethanol market).
- There is no competing land use impact (good cropland is not being taken out of service and fuel crops are not being substituted for food crops, for example). Because of the extensive siting infrastructure needed and costs involved, WWTPs are here to stay.
- There is no possibility of reversal as with other sources of biomass.
- Sewage is a “must manage” waste. Discretion lies only in *how* it is managed, not *if* it is managed, unlike other forms of biomass. Generally, our member agencies choose to process organic material in the most environmentally beneficial and cost-effective ways possible, creating a useful end product from what would otherwise be considered a waste. If this decomposition of organic material happens in nature, then no energy benefit is realized, but by managing and accelerating decomposition in a controlled environment like a landfill or wastewater treatment plant, potential is created for renewable energy.

The primary product of concern here is biogas, which contains approximately 40% CO₂ and 60% methane. In addition, some POTWs combust biosolids (a biomass) to beneficially use this resource 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. In fact, the California Air Resources Board (CARB), under AB32, has adopted a low carbon fuel standard (LCFS) that treats compressed/liquefied natural gas (C/LNG) produced from biogas as having the *lowest* carbon intensity of all transportation fuels that were evaluated.⁴ In the LCFS, individual lifecycle GHG analyses were conducted for individual fuels on a “well” to “tank” basis, and although CARB has conducted this pathway analysis only for landfill gas so far, a study of digester gas, which has similar properties, would yield the same conclusions.⁵

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Biogenic emissions are part of the natural carbon cycle, do not contribute to climate change, and therefore should not be counted toward Title V or PSD thresholds.

As biogas is combusted, methane is converted to CO₂ that is considered biogenic and “carbon neutral”^{6,7,8}. Carbon neutrality in this case implies that the carbon from the biodegradable organic material was absorbed from the atmosphere relatively recently through the process of photosynthesis, and when the carbon is released as CO₂ during the combustion process, the carbon re-enters the natural carbon cycle. In this “short-term” carbon cycle, the resulting CO₂ emissions from biogas combustion are offset by the uptake of an equivalent amount of CO₂, through natural pathways, resulting in no net greenhouse gas emissions or global warming impact⁹⁻¹¹. This is different than fossil-derived CO₂, where the carbon is released from carbon-containing fuels that were in long-term geological storage^{12,13}. These latter emissions represent a manmade, artificial increase of carbon to the atmosphere, upsetting the natural carbon cycle.

History in Support of Our Position

Although the carbon cycle can be much more complicated than portrayed here, the concept of biogenic CO₂ as carbon neutral has been accepted world-wide¹⁴⁻²¹. Some may argue that combustion of biogenic material creates a sudden release of large amounts of CO₂ that should not be considered as part of the natural carbon cycle. In reality, the natural carbon cycle involves the release and absorption of gigatons of CO₂ every year, so the relatively small amount of CO₂ generated from biogas management can readily re-enter the natural carbon cycle and not represent a net emission increase.

EPA’s own website (<http://www.epa.gov/greenpower/gpmarket/>) states

“Biogenic emissions, in contrast [to anthropogenic emissions], result from natural biological processes, such as the decomposition or combustion of vegetative matter. Biogenic emissions are part of a closed carbon loop. Biogenic CO₂ emissions are balanced by the natural uptake of CO₂ by growing vegetation, resulting in a net zero contribution of CO₂ emissions to the atmosphere. Examples of biogenic emission sources include burning vegetation (biomass) to produce electricity or using plant-based biofuels for transport.”

EPA made the distinction that it is anthropogenic greenhouse gas emissions that are contributing to climate change in its Endangerment Finding, where it specifies that *anthropogenic* emissions are leading to climate forcing²²⁻²⁷.

Existing greenhouse gas tracking or trading systems world-wide recognize that biogenic CO₂ should not to be included, but if it is reported, it should be limited to informational purposes only. The attached Appendix includes extensive citations demonstrating this distinction. Examples include:

- EPA’s AP-42 and National Greenhouse Gas Inventory excludes wastewater treatment biogenic emissions^{28,29};

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- EPA's GHG Mandatory Reporting Rule segregates biogenic and anthropogenic emissions in its report formats^{30,31};
- California's AB32 greenhouse gas regulation
 - Does not require biogenic CO₂ emissions to count towards the threshold to determine what industries are part of the cap-and-trade carbon market^{32,33}
 - Segregates biogenic and anthropogenic emissions in its Mandatory Reporting Program³⁴;
- The U.S. Department of Energy's greenhouse gas accounting protocols exclude biogenic emissions;
- The Bay Area Air Quality Management District's greenhouse gas fee regulation and CEQA Guidelines excludes biogenic CO₂ because "these are a result of materials in the biological/physical carbon cycle, rather than the geological carbon cycle"^{35,36};
- The Regional Greenhouse Gas Initiative (RGGI) and the European Union both consider biomass energy to be a zero-greenhouse-gas-emitting technology;
- The 2006 (and earlier versions) of the United Nations Intergovernmental Panel on Climate Change (IPCC) Guidelines for national greenhouse gas inventories, excludes biogenic emissions from greenhouse gas inventory accounting.¹⁷⁻²⁰

We encourage EPA to distinguish biogenic from anthropogenic emissions under the Title V and PSD programs, just as it has for Federal mandatory reporting. Because biogenic CO₂ does not contribute to climate change, it should not count toward regulatory thresholds.

Biogas is a green renewable energy resource that should continue to be promoted as an environmentally-friendly alternative to fossil fuel; regulation of biogenic emissions from combustion of biogas only serves as a disincentive to renewable energy production and use.

With the recognition of biogenic CO₂ as being carbon neutral, our focus has been on biogas and biomass-derived fuels as valuable renewable energy sources with low carbon-emitting potential. The benefits of bioenergy are two-fold: conversion of greenhouse gas emissions to a form that is carbon neutral and avoidance of the production of an equivalent amount of energy from fossil fuels.

According to its website, "EPA defines green power as electricity produced from solar, wind, geothermal, biogas, biomass, and low-impact small hydroelectric sources." Further, EPA states "Green power generates less pollution than conventional power and produces no net increase in greenhouse gas emissions, helping protect human health and the environment"

(http://www.epa.gov/greenpower/documents/purchasing_guide_for_web.pdf).

The role of bioenergy in boosting green power and reducing greenhouse gases been recognized world-wide^{37,38,39}. Biogas is a renewable fuel that can be used for heating or electrical production, and if treated and compressed, a transportation fuel. Regulations to reduce greenhouse gases that have been enacted or are in development across the U.S. prescribe increasing the percentage of energy produced by America's utilities that is renewable through Renewable Portfolio Standards (RPS)^{40,41}. Therefore,

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bioenergy is a critical renewable energy source to meet RPS programs. We note that three of our member agencies, Los Angeles County Sanitation Districts, San Jose/Santa Clara Water Pollution Control Plant, and the City of San Diego, are listed in EPA's top 20 Local Government entities in the "Green Power Partnership" (<http://www.epa.gov/greenpower/toplists/top20localgov.htm>).

Most state RPS standards recognize that other forms of renewable power such as wind and solar do not produce electrical energy when the wind doesn't blow and the sun doesn't shine. In California at least, renewable electricity must be "shaped and firmed" i.e., backed up by conventional power generation (usually) to supply power during those windless and sunless times. Digester and landfill gas are renewable fuels that are available for use 24/7 to help shape and firm other sources of intermittent renewable power.

In addition, as described previously, CARB's low carbon fuel standard treats compressed/liquefied natural gas (C/LNG) produced from biogas as having the lowest carbon intensity of all transportation fuels⁵. In recognizing the potential of these biogases as a transportation fuel, CARB approximates that the vehicle fuel potential in landfill gas as equivalent to between 300 and 400 million gallons of gasoline⁴².

As with the RPS concept, the U.S. Congress has also considered the development of a nation-wide LCFS. EPA has recognized the importance of biogas in its recent Renewable Fuel Standard (RFS2) stating, "...Current literature suggests approximately 24 billion ethanol-equivalent gallons of biogas could potentially be produced in the long term, with about two thirds coming from biomass gasification and about one third coming from waste streams such as landfills and human and animal sewage digestion^{43,44}."

In Europe, biogas has become recognized as an important alternative energy source. In 2006, the European Commission developed a European Union Strategy for biofuels. In 2009, the European Union adopted a Renewables Directive which put into law the requirement for 20% of its energy from renewable sources by 2020, with a 10% target for renewable energy in transport. In addition, other countries including Germany, Sweden, Canada, India, and New Zealand, are in the process of developing policies and/or subsidies for the use of bioenergy.

EPA has indicated that sewage sludge contains potentially 10 times the energy needed to treat it, and that it is technically feasible to recover energy from sludge⁴⁵. As wastewater agencies continue to push the envelope in terms of recovering more energy from biosolids and biogas, they should be encouraged to do so to boost the U.S.'s green energy production. Regulating biogenic CO₂ emissions under Title V and PSD would significantly disincentivize this green energy and green fuel development and would in fact stop some projects that otherwise would have productively contributed to reducing greenhouse gas emissions by offsetting fossil fuel use and converting methane to biogenic CO₂.

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Conclusion

We believe that EPA should conclude that biogenic CO₂ emissions should not be regulated under the Clean Air Act PSD and Title V programs. If these emissions are not excluded, the wastewater community will be disproportionately impacted compared to all other industries. Wastewater agencies do the public a service by managing waste and resulting biosolids and biogas in an environmentally beneficial way. The documentation we have referenced in this letter, including EPA citations, point to biogenic CO₂ being carbon neutral. In fact, most policy discussions have moved past this point and concentrate on bioenergy as an important renewable energy source, and an important component in the strategy to reduce greenhouse gas emissions. We strongly request that EPA amend the Tailoring Rule to exclude biogenic CO₂ from any consideration under the Title V or PSD programs.

Thank you again for the opportunity to provide written comments on this proposed regulation. Please contact me if you have any questions at (510) 206-3820 or jkepke@ch2m.com.

Sincerely,



Jacqueline Kepke, P.E.

Program Manager

California Wastewater Climate Change Group

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1. United Nations Environment Programme, International Source Book On Environmentally Sound Technologies for Wastewater and Stormwater Management, Section 2.2, Natural Purification Processes: "Leaf litter, animal wastes and dead organic matter are decomposed by bacteria and other decomposers releasing the carbon as carbon dioxide thus completing the carbon cycle."
http://www.unep.or.jp/ietc/publications/techpublications/techpub-15/2-2/2-2_1.asp
2. United Nations Environment Programme, International Source Book On Environmentally Sound Technologies for Wastewater and Stormwater Management, Section 2.4, Figure 2.9: Sustainable wastewater management practice by closing the local biogeochemical cycles (Lange, J and Otterpohl, R (1997) Oekologie Aktuell ABWASSER Handbuch zu einer zukunftsfaehigen Wasserwirtschaft. MALLBETON GmbH, Donaueschingen-Pföhren.). <http://www.unep.or.jp/ietc/publications/techpublications/techpub-15/2-2/2-4.asp>
3. UNFCCC, Consultative Group of Experts Handbook on Waste Sector: "Plants withdraw CO₂ from the atmosphere through the process of photosynthesis. Carbon dioxide is returned to the atmosphere by the respiration of living creatures and the decay or incineration of organic matter."
4. CARB, Low Carbon Fuel Standard, Table 7. Carbon Intensity Lookup Table for Diesel and Fuels that Substitute for Diesel.
http://www.arb.ca.gov/fuels/lcfs/121409lcfs_lutables.pdf
5. CARB, Final Regulation Order, Low Carbon Fuel Standard, Section 95481 (a)(5). Definitions and Acronyms: "Biogas (also called biomethane) means natural gas that meets the requirements of 13 CCR §2292.5 and is produced from the breakdown of organic material in the absence of oxygen. Biogas is produced in processes including, but not limited to, anaerobic digestion, anaerobic decomposition, and thermo-chemical decomposition. These processes are applied to biodegradable biomass materials, such as manure, sewage, municipal solid waste, green waste, and waste from

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- energy crops, to produce landfill gas, digester gas, and other forms of biogas.”
6. U.S. Climate Change Science Program First State of the Carbon Cycle Report, Page 86: “Carbon dioxide, generated from aerobic metabolism in waste removal and storage processes, arises from biological material and is considered GHG neutral.”
 7. U.S. Climate Change Science Program First State of the Carbon Cycle Report, Page 91: “Anaerobic digestion generates CH₄ gases that can be captured and used in cogenerators...the resultant CO₂ released from such combustion is considered biological in origin.”
 8. Draft Federal Greenhouse Gas Accounting and Reporting Guidelines from the White House Council on Environmental Quality, 2010, Page 34: “Biogenic emissions: CO₂ emissions as a result of natural biological processes, such as the decomposition or combustion of vegetative matter. They are part of a closed carbon loop. Biogenic emissions are balanced by the natural uptake of CO₂ by growing vegetation, resulting in a net zero contribution of CO₂ emissions to the atmosphere.”
 9. United Kingdom Water Industry Research, Carbon Accounting Methodology in collaboration with Water UK and Carbon Trust, Section 4.5, Changes from the Previous UKWIR Tool, footnote 4: “Short cycle carbon is that derived from recent biological activity (e.g. vegetation, food, faecal matter) and is carbon neutral in terms of global warming. In reality some of the biodegradable carbon in sewage will be of long-cycle anthropogenic origin (e.g. detergents), but this will be a small percentage and all sewage/sludge is considered short-cycle for this project.”
 10. United Kingdom Water Industry Research, Carbon Accounting Methodology in collaboration with Water UK and Carbon Trust, Section 6.3.3, Sewage Sludge Biogas: “Under the Defra Guidelines, water industry process emissions of CO₂ are excluded because they are short cycle.”
 11. United Kingdom Water Industry Research, Carbon Accounting Methodology in collaboration with Water UK and Carbon Trust, Section 7, Review of Process Emissions Factors,: “The original tool also considered emissions of carbon dioxide from processes, but these were all categorized as short cycle emissions and therefore fall outside the scope of the new tool.”

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12. UK Renewable Fuels Agency,
<http://www.renewablefuelsagency.gov.uk/aboutbiofuels/howbiofuelscanreducegreenhousegasemissions>, "Biofuels can offer the potential to reduce greenhouse gas emissions because the carbon in the plant matter from which biofuels are produced comes from the carbon dioxide absorbed by the plants from the atmosphere during their lifetime. This is in contrast to the carbon in fossil fuels which has been locked up under the ground for millions of years, and which is released into the atmosphere as carbon dioxide when the fuels are burnt."
13. EPA, Endangerment Finding, 2009, Technical Support Document, Section 2, Page 16: "...carbon in CO₂ cycles between different reservoirs in the atmosphere, ocean, land vegetation, soils, and sediments. There are large exchanges between these reservoirs, which are approximately balanced such that the net source or sink is near zero. Anthropogenic CO₂ emissions released through the use of fossil fuel combustion and cement production from geologically stored carbon (e.g., coal, oil, and natural gas) that is hundreds of millions of years old, as well as anthropogenic CO₂ emissions from land-use changes such as deforestation, perturb the atmospheric concentration of CO₂ and the distribution of carbon within different reservoirs readjusts."
14. Australia's National Greenhouse and Energy Reporting (Measurement) Determination 2008, excludes process CO₂ from domestic wastewater treatment. See Division 5.3.1 through 5.3.8.
15. United Kingdom Water Industry Research, Carbon Accounting Methodology in collaboration with Water UK and Carbon Trust, Section 6.4.2 CHP Using Biogas: "Renewable biomass sources, e.g. biogas, are considered zero rated for emissions...", also, "...the emissions are zero-rated and minor gas emissions, CH₄ and N₂O, remain accounted."
16. European Parliament and the Council of the European Union, "On the Promotion of the Use of Energy from Renewable Sources", April 23, 2009, Article 2 (a): "energy from renewable sources' means energy from renewable non-fossil sources, namely wind, solar, aerothermal, geothermal, hydrothermal and ocean energy, hydropower, biomass, landfill gas, sewage treatment plant gas and biogases;"

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17. IPCC, Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories, Page 5.28: "In sewage sludge the fossil carbon usually can be neglected."
18. IPCC, Frequently Asked Questions – Questions about the Waste Sector, Page 15, Q53: "CO₂ emissions from wastewater treatment are not included in the national total in the IPCC Guidelines since these are assumed to be of biogenic origin."
19. IPCC Guidelines for National Greenhouse Gas Inventories, 2006, Chapter 6, Page 6.6: "Carbon dioxide (CO₂) emissions from wastewater are not considered in the IPCC Guidelines because these are of biogenic origin and should not be included in national total emissions."
20. IPCC Guidelines for National Greenhouse Gas Inventories, 2006, Chapter 6, Page 6.9: "Emissions from flaring are not significant, as the CO₂ emissions are of biogenic origin."
21. UNFCCC, Clean Development Mechanism, Methodology AM0080, Mitigation of Greenhouse Gases Emissions with Treatment of Wastewater in Aerobic Wastewater Treatment Plants, Table 1, pages 3 and 4: "CO₂ emissions from the decomposition of organic waste are not accounted for."
22. EPA, Endangerment Finding, 2009, Page ES-1: "The global atmospheric CO₂ concentration has increased about 38% from pre-industrial levels to 2009, and almost all of the increase is due to anthropogenic emissions."
23. EPA, Endangerment Finding, 2009, Page ES-2: "Atmospheric GHG concentrations have been increasing because anthropogenic emissions have been outpacing the rate at which GHGs are removed from the atmosphere by natural processes over timescales of decades to centuries."
24. EPA, Endangerment Finding, 2009, Page ES-2: "Most of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic GHG concentrations."
25. EPA, Endangerment Finding, 2009, Section 2, Page 17: "Almost all of the increase in the CO₂ concentration during the Industrial Era is due to anthropogenic emissions (Forster et al., 2007)."

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26. EPA, Endangerment Finding, Responses to Public Comments, Volume 10: The Cause or Contribute Finding, Response (10-11): "...what constitutes the natural greenhouse effect is not at stake here; rather, it is the *change* or intensification of the natural greenhouse effect, and thus heating effect, due to changes in GHGs that causes endangerment. Anthropogenic changes in GHG concentrations contribute the vast majority of positive radiative forcing in the recent past and in the projected future scenarios."
27. EPA, Endangerment Finding, Responses to Public Comments, Volume 3: Attribution of Observed Climate Change, Response (3-21): "The key mechanisms that drive the carbon cycle are well established in numerous scientific textbooks and reports (see, for example, CCSP, 2007), as are the mechanisms by which anthropogenic carbon emissions cause the amount of carbon contained in the atmosphere and ocean reservoirs to increase."
28. EPA AP-42, Fifth Edition, Page 4.3-41: "Emissions of CO₂ from this source as well as other biogenic sources are part of the carbon cycle, and as such are typically not included in greenhouse gas emission inventories."
29. EPA Inventory Of U.S. Greenhouse Gas Emissions And Sinks: 1990-2008, (April 2010), Page 8-5, Box 8-1: "CO₂ emissions from the combustion or decomposition of biogenic materials (e.g., paper, wood products, and yard trimmings) grown on a sustainable basis are considered to mimic the closed loop of the natural carbon cycle—that is, they return to the atmosphere CO₂ that was originally removed by photosynthesis." Thus Section 8.2 on Wastewater Treatment ignores combustion and process CO₂ emissions.
30. EPA Mandatory Reporting Rule, Preamble, Federal Register / Vol. 74, No. 209 / Friday, October 30, 2009 / Rules and Regulations, Page 56337, II Wastewater Treatment: "...as originally proposed for this rule, centralized domestic wastewater treatment plants continue to be excluded."
31. EPA Mandatory Reporting Rule, Section 98.33 (c), "Carbon dioxide emissions from the combustion of biogenic fuels shall be excluded from the calculations."
32. CARB, Preliminary Draft Regulation For A California Cap-And-Trade Program, November, 24, 2009, page 8, "Most biomass fuel combustion emissions from stationary sources would not create an obligation to surrender allowances. Therefore, for combustion emissions of stationary

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- sources, only fossil fuel combustion emissions are counted toward the 25,000 metric tons CO₂e/year threshold.”
33. CARB, Preliminary Draft Regulation For A California Cap-And-Trade Program, November, 24, 2009, Section 95950, “Most fugitive emissions and biomass fuel combustion emissions from stationary sources would not create a surrender obligation.”
 34. CARB, Frequently Asked Questions Regarding the GHG Mandatory Reporting Program, Question 20, “...pass-through CO₂ associated with combusting biogas is not included when determining whether facilities meet reporting thresholds.” Also, “...Both emissions from combusting biogas as well as the pass-through CO₂ are reported as biomass derived CO₂ in order to distinguish these emissions from those associated with fossil fuels.”
 35. Bay Area AQMD, Staff Report, Proposed Amendments to BAAQMD Regulation 3: Fees, May 12, 2008, Page 14: “Biogenic CO₂ emissions are being excluded from fees because these emissions are the result of materials in the biological/physical carbon cycle, rather than the geological carbon cycle. It is the use of materials in the geological carbon cycle, such as fossil fuels, that is believed to be the primary cause of climate change.”
 36. Bay Area AQMD, CEQA Guidelines Update, Minor Revisions to final CEQA Air Quality Guidelines and Thresholds of Significance Report, June 2010, “Clarify that CO₂ biogenic emissions should not be quantified as part of projects.”
 37. European Commission, “Energy For The Future: Renewable Sources Of Energy, White Paper for a Community Strategy and Action Plan, COM(97)599 final (26/11/1997),” Page 37: “Biomass is a widespread resource as it includes...the organic fraction of municipal solid waste or source, separated household waste and sewage sludge.”
 38. International Energy Agency, Biogas Production and Utilization, <http://www.iea-biogas.net/Dokumente/Brochure%20final.pdf>
 39. Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, Germany, General Information – Biomass, “In addition to the biomass provided through forestry and agriculture, residual substances and wastes of biogenic origin are available for energy recovery. This includes in

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particular ... sewage sludge/sewage gas/landfill gas, ... Together with less significant residual substances and wastes this adds up to an energy potential of around 550 peta joule...Energy recovery from biogenic residues and waste helps to solve or mitigate the problem of the conflicting uses of biomass as energy source or material.”

40. North Carolina State University, Database of State Incentives for Renewables and Efficiency, 29 states have enacted mandatory renewable portfolio standards as of September, 2010,
<http://www.dsireusa.org/summarymaps/index.cfm?ee=1&RE=1>
41. EPA, Opportunities for and Benefits of Combined Heat and Power at Wastewater Treatment Facilities, Section 6.0, Wastewater Treatment Biogas as Renewable Energy, “The use of biogas from anaerobic digestion at WWTFs is often eligible for renewable fuel credits and clean energy funding. For example, biogas-fueled electricity generation qualifies as a renewable energy source in each state with a renewable portfolio standard (i.e., 22 states and the District of Columbia as of October 2006). National voluntary renewable energy credit (REC) programs also consider new electricity generation fueled by biogas from WWTFs as eligible sources for RECs.”
42. U.C. Davis, Biofuels from Municipal Wastes- Background Discussion Paper, 28 March 2007. Table 3, page 4.
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43. EPA, Renewable Fuel Standard Program (RFS2) Regulatory Impact Analysis, February 2010, Page 76.
44. EPA, Renewable Fuel Standard Program (RFS2) Summary and Analysis of Comments, February, 2010, Page 7-444: “As part of the final rulemaking EPA has included a pathway for biogas from landfills, sewage and waste treatment plants, and manure digesters to qualify as an advanced biofuel.”
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