Jennifer Jenkins
Climate Change Division
Office of Atmospheric Programs (MC–6207J)
Environmental Protection Agency
1200 Pennsylvania Avenue, NW,
Washington, DC 20460

gaia
Global Alliance for Incinerator Alternatives
Global Anti-Incinerator Alliance

September 13, 2010

Re: EPA–HQ–OAR–2010–0560 - Call for Information on Greenhouse Gas Emissions Associated With Bioenergy and Other Biogenic Sources

Dear Ms. Jenkins,

We thank you for this opportunity to provide information and comments on assessing and regulating greenhouse gas emissions from bioenergy and other biogenic carbon sources. We believe that the EPA needs to create robust and scientifically credible practices for accounting and regulating anthropogenic greenhouse gas emissions from all industrial sources, including biogenic sources. This will greatly assist communities, state and federal decision-makers in developing emissions reductions strategies for the full spectrum of industrial activities that are currently placing people and planet in peril.

The Global Alliance for Incinerator Alternatives (GAIA) is an alliance of more than 660 community groups and non-governmental organizations in over 82 countries whose ultimate vision is a just, toxic-free world without incineration. We actively oppose incinerators, landfills, and other end-of-pipe interventions, in favor of clean production and the creation of energy and materials-efficient economies where all products are reused, remanufactured, repaired or recycled. As such, GAIA spends a considerable amount of time helping local, state and federal governments and agencies, and other stakeholders understand the dynamics between waste, climate emissions and strategies that serve to reduce both.

We believe that the pathways of Zero Waste and low carbon economies are mutually inclusive, and that this is key to understanding broader systems approaches in materials use that delineate renewable energy and energy conservation solutions from industry "magic silver bullet" remedies such as biomass energy. In our submission we will focus our comments on the biogenic carbon emissions from incinerators and landfill gas to energy projects. To begin we would like to provide some context regarding the political nature of the public debate over biogenic carbon use for energy production.

GAIA U.S. Office
1958 University Ave.
Berkeley, CA 94704
Phone: +1-510-883-9490
Fax: +1-510-883-9493
www.no-burn.org

The Carbon Neutral Myth

The EPA has made a prudent choice in not taking action to exclude CO_2 emissions from biogenic fuels. In this regards, it is important to note that the "neutrality" of biogenic carbon emissions is an unfounded "myth" that has been perpetuated by the Waste to Energy (WTE) and Biomass industries in order to leverage renewable energy incentives within emerging climate and energy policies – both in the U.S. and elsewhere. With complete disregard of scientific evidence[1] that has served to debunk this myth, industry spin doctors continue to mislead the public about the facts, and as the old saying goes: "when you say something long enough, and often enough, people start believing it!"

In fact the IPCC Guidelines specifically advise: "Biomass burning for energy can not be automatically considered carbon neutral even if the biomass is harvested sustainably, there still may be significant emissions from processing and transportation etc. of the biomass"[2].

Current science reveals the rapidly diminishing capacity of existing biomass resources, from forests to agricultural lands and soils, to sequester and store carbon.[3] Global forest and soil systems are being rapidly degraded causing a huge net transfer of carbon from the earth to the atmosphere—accounting for as much as 30% of global greenhouse gas emissions. Even healthy forest and soil ecosystems can take decades to reabsorb CO_2 released into the atmosphere when biomass is extracted for energy purposes. Building the capacity of forests, ecosystems, and soils to store biotic carbon—rather than further degrading these resources—is critical for addressing climate change globally.

As stated in a recent letter to Congress by 90 eminent scientists: "Replacement of fossil fuels with bioenergy does not directly stop carbon dioxide emissions from tailpipes or smokestacks."[4] ***In light of this reality, we believe it is paramount that any EPA decisions stay consistent with current science and impervious to efforts by various industry sectors seeking exemptions from necessary efforts to regulate and reduce their emissions.***

Counting and Restricting Incinerator Emissions

GAIA supports the development of consistent accounting protocol for determining sectoral emissions in accordance with IPCC guidance. In doing so, it should be noted that when comparing power sources, the IPCC explicitly states that biogenic emissions from incinerators must be counted: " the CO_2 emissions form combustion of biomass materials (e.g., paper, food, and wood waste) contained in the waste are biogenic emissions and should not be included in national total emission estimates. However, if incineration of waste is used for energy purposes, both fossil and biogenic CO2 emissions should be estimated… Moreover, if combustion, or any other factor is causing long term decline in the total carbon embodied in living biomass (e.g., forests), this net increase should be evident in the calculation of CO_2

---

[1] T.D. Searchinger, S.P. Hamburg, J.Melillo, W. Chameides, P.Havlik, D.M. Kammen, G.E. Likens, R. N. Lubowski, M. Obersteiner, M. Oppenheimer, G. P. Robertson, W.H. Schlesinger, G.D. Tilman (2009)**,** Fixing a Critical Climate Accounting Error, *Science* 326:527-528

[2] http://www.ipcc-nggip.iges.or.jp/faq/faq.html

[3] http://www.sciencedaily.com/releases/2009/03/090317094729.htm

[4] http://216.250.243.12/90scientistsletter.pdf.

emissions described in the Agriculture, Forestry and Other Land Use (AFOLU) Volume of the 2006 guidelines".[5]

Due to the low calorific value of biogenic carbon resources, the burning of these resources to produce generate electricity is highly inefficient, producing significantly (> 40-50%) more CO_2 than the burning of coal. When incineration involves mixed sources of biogenic carbon and fossil carbon, as in the case of most municipal solid waste, the emissions are lowered to being 25% more CO_2 than that of coal power.[6] In addition to climate and community-destructive CO_2 emissions, waste incinerators produce a host of toxic co-pollutants that endanger public health[7] and the environment. Similarly, burning biomass contributes to significant public health hazard. Biomass incineration produces toxic emissions that affect air and water quality, and ultimately human health. Much of what is called biomass—treated wood, construction and demolition debris, pesticide-contaminated crop residue—is dangerous to burn because it contains chemicals such as lead, arsenic, and pentachlorophenols that are not only toxic themselves but are also precursors to the formation of more toxics when burned. Even clean biomass generates significant particulate matter that places human health at risk.

Hence, we recommend that the EPA, in accordance with the Agency's recent "Endangerment Ruling", strive to measure, account for and equally restrict all smokestack emissions of CO_2, regardless of source. The double counting of emissions can be avoided by making adjustments in the Land-use, Land-use Change & Forestry (LULUCF) registers. This will avoid creating perverse incentives to burn biomass, and will open the door to incentives for accumulating biological carbon.

Additionally, the life-cycle emissions of various biogenic feed stocks need to be rigorously accounted for, to determine the cradle-to-grave emissions associated with the processing, transportation and infrastructure development involved in the use of these feed stocks. Significant work has been done in the development of Life-cycle analysis in the U.S. - for assessing emissions associated with waste, resource management and energy, which can be utilized in such accounting.[8]

Counting and Restricting Landfill Gas Emissions

In the case of municipal solid waste (MSW), both incineration and landfills destroy valuable biomass resources that can be readily composted. Up to 50% of municipal solid waste can be made up of such biogenic carbon material, from food waste to construction and demolition debris. We know we save 4-5 times the energy by recycling and composting vs. the amount of

---

[5] Sabin Guedenhou., et al., "2006 IPCC Guidelines for National Greenhouse Gas Inventories; Chapter 5: Incineration and Open Burning of Waste," IPCC National Greenhouse Gas Inventories Programme, p.5.5, 2006. Available at www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/5_Volume5/V5_5_Ch5_IOB.pdf

[6] http://www.epa.gov/cleanenergy/energy-and-you/affect/air-emissions.html#footnotes

[7] www.no-burn.org/.../Incinerators%20Trash%20Community%20Health.pdf

[8] Morris, J., 2010. Bury or burn North American MSW? LCAs provide answers for climate impacts & carbon neutral power potential, Environmental Science & Technology, forthcoming 2010.
Morris, J.; Bagby, J., 2008. Measuring environmental value for natural lawn and garden care practices, International Journal of Life Cycle Assessment, Vol. 13, No. 3, pp. 226-234.
Morris, J., 2005. Comparative LCAs for curbside recycling versus either landfilling or incineration with energy recovery, International Journal of Life Cycle Assessment, Vol. 10, No. 4, pp. 273-284.

energy an incinerator could recover. So when we incinerate there is a substantial opportunity cost, because we eliminated the opportunity to recycle and to save energy and reduce GHG emissions. The majority of greenhouse gas emissions associated with biogenic waste materials are from landfills.

Landfills are the second-largest man-made source of methane in the U.S. Methane is a greenhouse gas 72 times more potent than CO_2 over a 20-year period. It is created in landfills when organic discards (food scraps, paper and wood products, yard waste, sewage sludge) decompose in the oxygen-starved landfill environment. Landfill gas is about half methane and half CO_2, laced with hundreds of toxic contaminants, including methyl mercury and many chlorinated chemicals that can form dioxins when burned.

Larger landfills are required to capture landfill gas. However, only 20% of all landfill gas is ever captured. Most cannot be captured effectively and escapes as fugitive emissions, causing cancers and other health problems in neighboring communities. When burned for electricity, Landfill Gas to Energy (LFGTE) facilities release 25 times more methane than a coal plant and up to 50% more CO_2. This doesn't include the gas that is never captured. When landfills burn their gas to produce energy, they are managed in ways that increase methane concentrations, but allow more gas to escape. This causes LFGTE to release 20-40% more greenhouse gas pollution than if the gas is just burned off (flared) without using it for energy[9].

Composting organic wastes (especially food waste) is a much more effective way to eliminate methane from landfills. EPA figures indicate that diverting one metric ton of organic materials from landfills would avoid 400% as much greenhouse gas emission as landfill gas-to-energy production does.

LFGTE projects receive many state and federal subsidies. Climate and energy policies are currently being lobbied by the waste industry to subsidize landfills and incinerators instead of supporting composting and recycling. As a result - some communities even cancel composting programs to dump more organics in landfills to maximize LFGTE opportunities. Diverting organics for composting is a much more effective way to prevent methane from landfills – and avoids five times as much greenhouse gas emissions as LFGTE production does. Existing incentives and subsidies for LFGTE practices should be discontinued to enable a systemic shift towards industry best practices in resource recovery and organics use.

Hence, we recommend that the EPA account for and regulate landfill methane emissions, with an eye towards reducing these emissions over time.

Pathways towards Green Jobs and Climate-Friendly Solutions

In contrast to the significant climate risk embodied in municipal solid waste (MSW) incineration, biomass incineration, and landfill gas to energy facilities, the U.S. has the option to invest in and establish incentives for wind, solar, ocean, and micro-hydro power, and to continue to support energy conservation and energy efficiency, as well as Zero Waste

---

[9] *The Danger of Corporate Landfill-Gas-to-Energy Schemes and How to Fix It, Report by Recycling Works, The Sierra Club and the International Brotherhood of Teamsters, 2010. Available at http://www.teamster.org/content/solid-waste*

practices such as recycling, re-use and composting that ultimately save both resources and energy.

Zero waste strategies, which include recycling, re-use, and composting, along with efforts to reduce waste at the source, intersect in critical ways with energy policy. For example, in the U.S. alone, recycling conserves the equivalent of approximately 11.9 billion gallons of gasoline every year and the energy savings potential of what we are currently not recycling is much larger. Implementing a comprehensive national waste reduction, reuse, recycling, and composting program would also cut greenhouse gas emissions by the equivalent of taking half the nation's cars off the road, or shutting down one-fifth of the nation's coal-fired power plants.[10] Recycling is, in fact, one of the most cost-effective strategies that can be pursued to combat climate change: avoiding one ton of CO_2 emissions through recycling costs 30% less than doing so through energy efficiency, and 90% less than through wind power.

In terms of the biogenic content of waste, composting serves to not only reduce greenhouse gas emissions from landfills and incinerators, this practice also plays a critical function in restoring soil fertility and agricultural biomass capacity. In addition to building agricultural biomass, composting obviates the need for the use of significant amounts of synthetic fertilizer – a major industrial source of greenhouse gas emissions. Synthetic fertilizers are produced with fossil fuels, applying them requires further use of fossil fuels, and their applications result in significant Nitrous Oxide (N_20) emissions. N_2O is a greenhouse gas with a global warming potential that is nearly 290 times that of CO_2, and chemical-dependent industrial agricultural practices are responsible for nearly 20% of global N_2O emissions.[11]

In addition to their positive energy and environmental impact, recycling and composting related industries (including curbside collection of materials, deconstruction of buildings and products, processing of recycled materials, repair and reuse businesses, and manufacturing of new products using recycled content) also offer tremendous opportunities for job creation.

These industries already generate an annual payroll of nearly $37 billion according to the National Recycling Coalition's U.S. Recycling Information Study. Where over 90% of municipal waste, including construction and demolition debris, is readily recyclable or compostable, doubling current national recycling rates could serve to create hundreds of thousands of new jobs across the country.

From a climate perspective, a Zero Waste approach is one of the fastest, cheapest and most effective strategies we can use to protect the climate and the environment.

In order for Zero Waste strategies to be deployed to their full potential across the U.S. all local, state and federal government agencies need to harmonize their efforts to eliminate incentives and current allowances for destructive waste and climate practices such as incineration and landfills. ***This includes a critical function and responsibility of the EPA to ensure that the harmful greenhouse gas emissions resulting from such practices are not***

[10] ILSR, Stop Trashing the Climate, 2008, p. 7. www.stoptrashingtheclimate.org

[11] Assessing and Mitigating N2O Emissions from Agricultural Soils , A.R. Mosier, J.M. Duxbury, J.R. Freney, O. Heinemeyer and K. Minami, 1998. Available for download at: http://www.springerlink.com/content/?Author=A.R.+Mosier

only taken into account, but are meaningfully regulated - so that a timeline for their elimination is in place for a climate-friendly, clean energy economy.

We look forward to having the U.S. EPA step up to this challenging and important task, and we would like to offer any additional assistance you may require from us in this endeavor.

Please contact me if you have any questions regarding this submission, or would like any additional information in regards to the elimination of waste-related biogenic carbon emissions.

Sincerely,

Ananda Lee Tan

Ananda Lee Tan
North American Program Coordinator
Global Alliance for Incinerator Alternatives
1958 University Avenue, Berkeley, Ca 94703
Phone: +1 510 883 9490 Ext 102
Email: ananda@no-burn.org
Website: www.no-burn.org