

Is it wise to subsidize “biogenic” carbon? Can we afford to ignore its impacts?

Senate Bill 451 would give preferential treatment to “biogenic” carbon in order to subsidize burning trash:

The bill would give renewable energy credits to the state’s only trash incinerator — Covanta, the largest air polluter in Marion County. Some have proposed only providing this ratepayer subsidy to the “biogenic” fraction of the waste they burn.

What is biogenic carbon? Carbon dioxide which originated from burning plant matter (paper, wood, food scraps, yard waste, leather or other animal flesh...) as opposed to CO₂ that came from burning fossil fuels.

Does it heat up the atmosphere? Yes. In July 2013, the D.C. Court of Appeals ruled that “the atmosphere makes no distinction between carbon dioxide emitted by biogenic and fossil-fuel sources.”¹

Is trash incineration a climate solution? Not at all. Actual CO₂ emissions from trash incinerators like Covanta Marion are 2.5 times as much as burning coal.² The industry pretends to be a climate solution by ignoring the “biogenic” portion of their emissions, then subtracting emissions from energy and waste alternatives they claim to displace: fossil fuel power generation and landfills.³ In fact, incineration is worse for the climate than coal, *and* is worse than landfills.⁴ They choose not to compare to even better options that they displace. If given renewable energy credits, they’ll displace emission-free wind and solar power. They also choose not to compare themselves to a Zero Waste system where waste is largely reduced, reused, recycled and composted, with a small fraction going to landfills after it’s been biologically stabilized to avoid gas generation.

Trash incineration is the most expensive and polluting way to manage waste — or to make energy. Data from the U.S. EPA, the Energy Information Administration, and the waste industry affirms that trash incineration is the most expensive way to make energy, is more expensive than landfilling, and that it’s more polluting than coal power plants and landfills.⁵ In Oregon, Covanta Marion charges \$87.45/ton. The cost of landfilling in the area (including transfer and transportation charges) ranges from \$51-69/ton.

Ray of sunshine encounters a CO₂ molecule in the atmosphere...



Ray of sunshine: Did you come from a tree?

CO₂ molecule: Why yes, I did!

Ray of sunshine: Ok, I won't heat you up, then. Have a nice day!

(This is NOT how it works. There is no “magic tree carbon.”)

But trees regrow and suck up carbon, so isn’t it carbon neutral?

This belief has been scientifically debunked many times over in the past decade.⁶

- 1) It’s double-counting. Climate scientists already count growing trees and plants in their baseline assumptions in climate modeling. Using plant growth to subtract these emissions *again* serves to justify injecting more CO₂ into the air when burning “biomass,” but is not scientifically defensible.⁷
- 2) We don’t have time. It takes centuries for newly growing trees (if new ones are planted and left alone all that time) to absorb enough CO₂ to approach “carbon neutrality.” It takes about 45 years just to reduce carbon levels from burning “biomass” to the level of coal burning, since burning trees releases 50% more CO₂ than coal, to produce the same amount of energy. CO₂ isn’t instantly sucked back up by newly growing trees, and we don’t have decades or centuries to avoid global warming tipping points.⁸
- 3) The carbon neutrality myth pretends that any “terrestrial” (non-fossil fuel) carbon adds to climate change regardless of whether it’s in the air, or sequestered in plant matter or soils. Carbon in the air alters the climate. Carbon in a tree or a landfill does not. When burning trash or trees, all of that carbon is immediately injected into the air. When waste is placed in landfills, most of that carbon stays there and is effectively sequestered.

Authored by Mike Ewall, Esq., Executive Director, Energy Justice Network

Please contact Mr. Ewall at 215-436-9511 or mike@energyjustice.net with any questions or for further documentation.

How are incinerators worse for the climate than landfills?

Landfills *are* bad for global warming, as they emit large amounts of landfill gas as organics like food scraps and yard waste rapidly degrade. Landfill gas is about half carbon dioxide and half methane. Methane was long thought to be just about 20-some times as bad as CO₂ for the climate, but is now understood to be 34 times as bad over a 100-year time span, and a whopping 86 times as bad over a 20-year horizon, which is more relevant for avoiding global warming tipping points.⁹ Even using the latest science on methane and a 20-year time horizon, a 2017 life-cycle analysis found that trucking waste four times as far to a landfill is still not as bad for the climate as burning closer to home.¹⁰

According to EPA, about half (47.3%) of the carbon in municipal solid waste is from plastics and tires.¹¹ In a landfill, this carbon is sequestered, but when burned, it's immediately injected into the atmosphere. No carbon capture and sequestration is viable or used on trash incinerators. Carbon in more durable materials like wood, leather, and textiles in a landfill largely is sequestered as well, but would be emitted immediately as CO₂ if burned.¹² It's primarily the food scraps and yard waste that degrade rapidly in a landfill, forming landfill gas. Most of that gas is captured and reduced to CO₂ when burned. Some of the methane that leaks out, uncaptured, oxidizes to CO₂, anyway. All told, even with the high potency of methane, overall climate impacts from incineration are worse for the aforementioned reasons.

Choose your own subsidy?

Subsidizing the "biogenic" fraction of trash burning is letting Covanta choose the amount of ratepayer subsidy they'd get under SB 451, and the amount of obligation they'd have for the fossil fraction under HB 2020.

Covanta is in charge of assessing the biogenic fraction of their waste stream. In recent years, they have reported to the state that they have a biogenic portion 3-7% higher than they reported to two federal agencies in those years. On average, they're telling the Oregon DEQ that their biogenic fraction is 5% higher than they've been telling the U.S. EPA and the Energy Information Administration.¹³

There are technical reasons to question the methods they use to determine their biogenic fraction. Are they using proper assumptions in their radiocarbon testing? They burn a lot of medical waste. Are they including a representative sample of how much plastic they're burning when they run their biogenic fraction tests, or do they do these tests when the medical waste isn't part of the mix?

Keep in mind that this is a company that was once busted by the Connecticut Attorney General for tampering with their continuous emissions monitors to make it seem as if their emissions are lower than they are.¹⁴ They shouldn't be given even more incentives to lie.

Subsidizing trash incineration means also subsidizing their other pollutants, including the fossil carbon fraction.

Covanta Marion is the largest air polluter in Marion County, and among the top 10% in the entire state.¹⁵ They release enough mercury to keep over 5,400 small (20-acre) lakes so contaminated that the fish are not safe to consume.¹⁶ They release nitrogen oxides that trigger asthma attacks, dioxins and toxic metals that cause cancer and birth defects, sulfur dioxide and particulate matter that cause respiratory problems and strokes, and more. They also release CO₂ from burning fossil fuels (plastics). Subsidies help perpetuate this pollution.

Subsidizing trash incineration conflicts with Zero Waste

Zero waste means zero incineration and reducing waste at least 90% from landfills. A zero waste system is the best climate solution — far better than conventional landfills, or incineration. Incinerators, because they're so expensive and need to be fed a consistent amount of waste, require contracts that lock local governments into providing a certain amount of waste or paying a penalty if they do not. This flies in the face of zero waste efforts, and is a disincentive for waste reduction, reuse, recycling and composting.

Footnotes

- ¹ Center for Biological Diversity v. EPA, 722 F.3d 401, 406 (D.C. Cir. 2013). [www.cadc.uscourts.gov/internet/opinions.nsf/F523FF1F29C06ECA85257BA6005397B5/\\$file/11-1101-1446222.pdf](http://www.cadc.uscourts.gov/internet/opinions.nsf/F523FF1F29C06ECA85257BA6005397B5/$file/11-1101-1446222.pdf)
- ² U.S. Environmental Protection Agency eGRID data, analyzed by Energy Justice Network and documented at www.energyjustice.net/eGRID
- ³ "Trash Incineration and Climate Change: Debunking EPA Misinformation," Energy Justice Network. www.energyjustice.net/incineration/climate
- ⁴ "Landfills are bad, but incinerators (with ash dumped in landfills) are worse," Energy Justice Network. www.energyjustice.net/files/incineration/incineration_vs_landfills.pdf
- ⁵ Trash incineration, Energy Justice Network. www.energyjustice.net/incineration
- ⁶ "Biomass Incineration and Climate," Energy Justice Network. www.energyjustice.net/biomass/climate
- ⁷ Haberl, et. al., "Correcting a fundamental error in greenhouse gas accounting related to bioenergy," Energy Policy, 45 (2012) 18–23, pp.19-20. www.sciencedirect.com/science/article/pii/S0301421512001681
- ⁸ Thomas Walker, et. al., "Biomass Sustainability and Carbon Policy Study," Manomet Center for Conservation Sciences Report to the Commonwealth of Massachusetts Department of Energy Resources, June 2010 (Report NCI-2010-03). www.manomet.org/sites/default/files/publications_and_tools/Manomet_Biomass_Report_Full_June2010.pdf
- ⁹ International Panel on Climate Change Fifth Assessment Report, 2013, Chapter 8, page 714, Table 8.7. www.climatechange2013.org/images/report/WG1AR5_Chapter08_FINAL.pdf
- ¹⁰ Summary of life cycle analysis by Dr. Jeffrey Morris available in www.energyjustice.net/files/md/montgomery/incineration_vs_landfills.pdf See slides 26-59; study conclusions are on slides 38-48.
- ¹¹ U.S. EPA Emissions & Generation Resource Integrated Database (eGRID) 2012 Technical Support Document, Table 3-2.
- ¹² Morris, Jeffrey, "Recycle, Bury, or Burn Wood Waste Biomass?: LCA Answer Depends on Carbon Accounting, Emissions Controls, Displaced Fuels, and Impact Costs," Journal of Industrial Ecology, August 2016. www.doi.org/10.1111/jiec.12469
- ¹³ Comparison of U.S. EPA eGRID 2014 and 2016 data, Energy Information Administration Form 923 data for 2014 through 2017, and "Greenhouse Gas Emissions Reported to DEQ," Oregon DEQ. www.oregon.gov/deq/qa/programs/Pages/GHG-Emissions.aspx
- ¹⁴ Covanta compliance history through Sept. 2006. www.energyjustice.net/files/incineration/covanta/violations2006.pdf See 3rd violation on page 37.
- ¹⁵ U.S. Environmental Protection Agency 2014 National Emissions Inventory. www.epa.gov/air-emissions-inventories/2014-national-emissions-inventory-nei-data
- ¹⁶ "One Gram of Mercury Can Contaminate a Twenty Acre Lake: An Clarification of This Commonly Cited Statistic," Interstate Mercury Education and Reduction Clearinghouse. www.newmoa.org/prevention/mercury/mercurylake.pdf