

02. Waste Incineration: Deeply Harmful and Outdated

- 1 What is waste incineration and why is it harmful?
- 2 How does waste incineration perpetuate environmental inequities?
- 3 What are some examples in the United States?
- 4 What are the clean energy and policy solutions to address waste incineration?
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When plastic falls into a campfire or is accidentally put in the microwave, we know to step away because the chemical fumes from burning plastic are harmful. Yet, these fumes are exactly the type of pollutant that communities living around trash incinerators breathe every day. Despite these very real harms, more than 20 states allow energy generated from burning municipal solid waste to be classified as “renewable” in statewide renewable portfolio standards (RPS) or goals. This brief explains why burning trash should not be part of a clean and renewable energy future.

Key Facts

- **Harmful and Not Renewable:** Waste incineration releases harmful pollution that affects local air, water, land, and human health. Burning trash to produce energy creates pollution from toxic ash residue and from heavy-duty trucks transporting waste. Furthermore, incineration is not a “renewable energy solution” because it relies on the continued production of trash.
- **A Legacy of Environmental Racism:** Communities that are historically Black, Latinx, and low income bear the largest health impacts of toxic pollutants, odors, and truck traffic associated with the facilities.¹ A 2019 study shows that 1.6 million Americans, most of them people of color and low income, live near the 12 most polluting incinerators in the country. Communities near waste incinerators experience higher rates of cancer and reproductive complications and disruptive odor and noise impacts that adversely affect their quality of life.²
- **Emits More GHGs Than Fossil Fuels:** Proponents say waste incineration facilities are a better alternative to landfills because diverting waste from landfills avoids greenhouse gas (GHG) emissions. However, incinerators emit more carbon than coal to produce the same amount of energy, and on average, they emit slightly higher amounts of GHGs than fossil gas.³
- **Costs More Than Other Types of Energy Production or Waste Management:** Waste incinerators are among the most expensive options for producing electricity.⁴ When compared to truly renewable energy options (e.g., solar, wind), waste incineration is always more expensive. The same is true for waste management options, such as recycling and composting.⁵
- **Incinerators Have Historically Violated Permits:** Even though pollution-control requirements apply to their operations, waste incinerators around the country have violated air permit limits.⁶ And even with the best air pollution controls, waste incinerators will still release harmful pollution.
- **A Shift to Safer and More Cost-Effective Policies:** To discontinue waste incineration, governments must remove incineration from the classification of renewable energy sources and from acceptable recycling methods for waste diversion. They must also promote zero-waste measures — such as composting, recycling, and reuse — to encourage the closure of incinerators. Lastly, decision-makers should tap into renewable energy alternatives to replace the small amount of energy provided by incinerators.

1 <https://ilsr.org/wp-content/uploads/2018/12/ILSRIncinerationFinalDraft-6.pdf>

2 For examples of studies demonstrating links between incinerators and cancer and reproductive complications, see Peter W. Tait et al., (2019, Sept. 18), The health impacts of waste incineration: A systematic review. *Australian and New Zealand Journal of Public Health* 44, 1, pp. 40-48.

3 <https://archive.epa.gov/epawaste/nonhaz/municipal/web/html/airem.html#7>; <http://www.energyjustice.net/incineration/climate>

4 <https://www.energy.gov/sites/prod/files/2019/08/f66/BETO--Waste-to-Energy-Report-August--2019.pdf>

5 <http://www.energyjustice.net/incineration/closures.pdf>

6 <https://earthjustice.org/features/incinerators-trash-energy-zero-waste-new-jersey>

1 What is waste incineration and why is it harmful?

Waste incineration is a process in which trash is burned to generate energy. Generally, the waste is burned at extremely high temperatures, leaving nothing but gases and ash. The heat released from this combustion process generates steam, which is used to power electrical generators. The process also releases toxic gases. After they are cooled, these toxic gases must be treated to remove pollutants. The process varies by facility, and unhealthy byproducts are still released. The ash and other solid residuals, which are highly toxic, are disposed of in a landfill.

As of 2021, 75 incinerators are operating in 25 states across the United States.⁷ In 2017, these facilities processed 94,243 tons of waste per day and generated 13 million MWh of electricity.⁸ Waste incinerators gained popularity during the energy crisis of the 1970s because of a perceived shortage of landfills and because waste management alternatives were not readily available.⁹ Few plants have been built since the 1980s, and many incinerators have either closed or are setting up to close soon. Today, with safe waste management options that are more economical (like recycling and composting) and renewable energy sources, the case for waste incineration is obsolete.

Three sources of pollution are associated with waste incineration; they affect local air, water, land, and human health:

1. Pollution from the incineration of trash to produce energy: Burning trash releases harmful and toxic pollutants into the atmosphere that are associated with negative impacts to respiratory, cardiovascular, immune, reproductive, and nervous systems. Waste incineration causes increased symptoms of asthma, respiratory tract irritation, risk of cancer, and respiratory mortality.¹⁰

Although the type of pollutant varies based on what is in the incinerated trash, the facilities are major producers of carbon dioxide and particulate matter less than 2.5 micrometers in diameter (PM2.5). These tiny, toxic, inhalable particles come from various chemical sources and are often produced by burning. Incinerators are also known to produce high levels of nitrogen oxides and sulfur dioxides, which are harmful to human respiratory systems, plant life, and air visibility.

- 2. Pollution from toxic ash residue:** Toxic ash produced by waste incineration contains heavy metals that are harmful to human health. These fine particles can easily contaminate food and water sources.¹¹ The ash residue is so toxic that some landfills will not even accept it.¹² At one facility in California, this residue spread to nearby roadways, endangering the local community.¹³
- 3. Pollution from trucks transporting waste:** Large trucks transporting waste use diesel fuel, which emits harmful particulate matter pollution. Large truck routes often pass through or near communities that are mostly people of color. Diverting waste to incinerators also increases the total number of truck trips for that waste.

Health Impacts Associated With Toxic Pollutants From Waste Incineration

Carcinogens: Several pollutants released from incinerators (including dioxin, benzene, and cadmium) have been associated with higher incidences of cancer.

Brain Damage: Several pollutants released from incinerators, including mercury and lead, have been associated with brain damage and may lead to developmental problems and learning differences.

Respiratory Impacts, Including Asthma: Pollutants released from waste incinerators (including arsenic, chromium, sulfur dioxide, nitrogen oxides, and particulate matter) have been associated with lung damage, asthma attacks, and other respiratory issues.

Cardiovascular Impacts: Pollutants released from waste incinerators, including particulate matter, have been associated with increased risk of heart attack and heart disease.

No Safe Threshold: There is no known safe dose for many pollutants released from waste incinerators, including dioxins, benzene, cadmium, and particulate matter.

⁷ <https://www.epa.gov/smm/energy-recovery-combustion-municipal-solid-waste-msw>

⁸ <http://energyrecoverycouncil.org/wp-content/uploads/2019/10/ERC-2018-directory.pdf>

⁹ <https://ilsr.org/wp-content/uploads/2018/12/ILSRIncinerationFinalDraft-6.pdf>

¹⁰ https://earthjustice.org/sites/default/files/files/2021-12-21_petition_for_writ_of_mandamus.pdf

¹¹ Earthjustice, Vestiges of Environmental Racism: Closing California's Last Two Municipal Waste Incinerators, https://earthjustice.org/sites/default/files/files/earthjustice_ca-incinerator-report_20211108.pdf (hereafter, California Incinerator Report)

¹² California Incinerator Report, p. 7

¹³ California Incinerator Report, p. 9

Some proponents argue that despite these sources of pollution, waste incineration has more pros than cons, enough to have a role in the energy transition away from fossil fuels. Industry advocates — and sometimes traditional environmentalists¹⁴ — justify burning trash because it diverts waste from landfills, which are a major source of methane, an extra-potent GHG.

There are several reasons why this approach is problematic and why classifying waste incineration as “renewable” is misleading:

- **Trash is not a renewable resource:** Despite claims of being renewable and clean, waste incineration is harmful to humans and to the environment. Advocates who describe the process as “clean” only refer to the lack of GHG emissions and overlook the emission of health-damaging pollution. Furthermore, incineration is not renewable because it relies on the continued production of trash, which is not a renewable resource. In fact, many argue that relying on a steady stream of trash is ultimately misaligned with sustainability goals.¹⁵
 - **Incinerators emit more GHGs than fossil fuel plants:** Proponents say that waste incineration facilities are a better alternative to landfills because diverting waste avoids GHG emissions. Landfills are a major source of methane, a potent greenhouse gas. However, incinerators emit more carbon than coal to produce the same amount of energy, and on average, they emit slightly higher amounts of GHGs than fossil gas.¹⁶ A recent study shows that incinerators emit more GHG emissions per unit of electricity than any other power source.¹⁷ In other words, framing waste incineration as an “alternative” to landfills simply replaces one dirty method with another and locks it in for the next few decades. Much cleaner and cost-effective alternatives exist, such as composting or recycling. These options are associated with even fewer emissions than incineration.
 - **Permit limits do not protect communities:** Even when waste incinerators comply with pollution-control policies, impacts will still likely be felt in surrounding communities. Incinerators release harmful pollution
 - **Incinerators have historically violated permit limits:** Pollution-control requirements apply to waste incinerators, but they frequently fail to comply. Waste incinerators around the country have violated air permit limits. For example, the Covanta facilities in Connecticut violated dioxin limits so severely the facility had to close.²⁰ An analysis of New Jersey incinerators found that they violated their air permits more than 1,700 times since 2004.²¹
 - **Odor and noise impacts:** People living near incinerators have complained about odors and noise impacts adversely affecting their communities.²² In Detroit, residents have said the smell can get so bad, they minimize the amount of time they are outside. In the summertime especially, it will smell like “fish, feces, and urine.”²³
 - **Higher cost compared to other types of energy production:** Not only do waste incinerators pollute the air, land, and water of surrounding communities, they also cost more to build and operate than other types of energy facilities. According to the U.S. Department of Energy, incinerators “can be among the most expensive options for producing electricity.”²⁴ **Figure 1** includes information from the Department of Energy showing that building an incinerator is more expensive than other types of energy facilities, even nuclear power plants.
- Many trash incinerators have shut down in recent years due to economic reasons ranging from high operational costs to greater availability of cost-effective recycling efforts that reduce the need for such facilities.²⁵

14 The county department head of environment and energy in Minnesota supports a waste incineration plant over traditional landfilling: <https://sahanjournal.com/climate/herc-garbage-burner-minneapolis-climate-action-plan/>

15 <https://www.cleanwateraction.org/2021/02/04/support-hb0332-burning-trash-not-clean-energy>; <https://grist.org/article/renewable-energy-portfolio-standards-maryland-garbage-incineration/>

16 <https://archive.epa.gov/epawaste/nonhaz/municipal/web/html/airem.html#7>; <http://www.energyjustice.net/incineration/climate>

17 <https://eartharxiv.org/repository/view/2050/>

18 [California Incinerator Report](#).

19 <https://waterfrontonline.files.wordpress.com/2017/12/deccommentsoncovantaugust2011.pdf>

20 https://portal.ct.gov/-/media/AG/Press_Releases/2011/071511covanta.pdf

21 <https://earthjustice.org/features/incinerators-trash-energy-zero-waste-new-jersey>

22 <https://grist.org/article/renewable-energy-portfolio-standards-maryland-garbage-incineration/>

23 <https://www.freep.com/story/news/local/michigan/detroit/2018/05/21/detroit-renewable-power-incinerator-pollution-deq/623615002/>

24 <https://www.energy.gov/sites/prod/files/2019/08/f66/BETO--Waste-to-Energy-Report-August--2019.pdf>

25 <http://www.energyjustice.net/incineration/closures.pdf>

Figure 1. Capital Costs for Typical Power-Generation Facilities

	Palm Beach Waste Incineration Plant	Advanced Nuclear	Onshore Wind	Photovoltaic (Fixed)
Capital Cost (\$/kW)	\$6,720	\$5,945	\$1,877	\$2,671

Note: All figures in 2018 dollars. Source: Department of Energy, <https://www.energy.gov/sites/prod/files/2019/08/f66/BETO--Waste-to-Energy-Report-August--2019.pdf>

2 How does waste incineration perpetuate environmental inequities?

First, the folks who live nearest to waste incineration facilities tend to have low incomes and/or be Black, Indigenous, People of Color (BIPOC). Of the 75 incinerators throughout the United States, 79 percent are located within three miles of low-income and BIPOC neighborhoods.²⁶ A 2019 study shows that 1.6 million Americans, mostly people of color and low income, live near the 12 most polluting incinerators in the country. Studies have shown that communities near waste incinerators experience higher rates of cancer and reproductive complications.²⁷

The environmental racism of waste incineration is clear: communities that are historically Black, Latinx, and low income endure the largest health impacts of toxic pollutants, odors, and truck traffic associated with the facilities.²⁸ Indeed, in the United States, race is the greatest indicator of whether someone is likely to live near toxic waste.²⁹ Like other polluting facilities, waste incinerators also lower housing values and make surrounding areas environmental sacrifice zones for decades. Many of these communities already face a disproportionate burden from other sources of pollution, lack of access to essential services, and systemic oppression from classism and racism. The cumulative impact is massively inequitable.

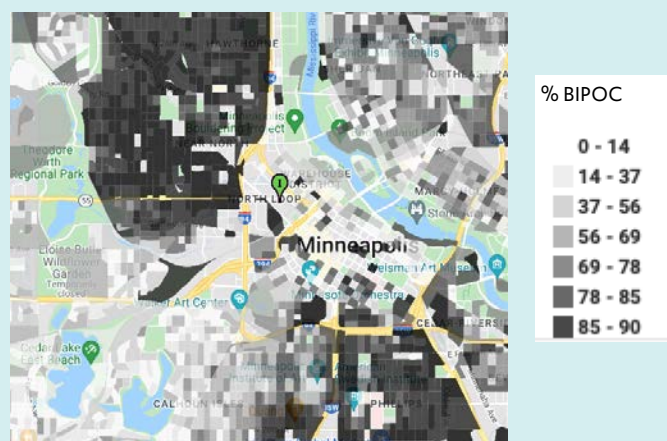
Lastly, the impacts of waste incineration on local water bodies and land are concerning. Mercury and dioxin produced by incinerators can accumulate in fish and other aquatic species, contaminating local and traditional food sources that Indigenous peoples, other communities of color, and low-income communities more often rely on for subsistence than wealthier, whiter populations.³⁰

Resource Highlight: Energy Justice Community Map

For an interactive map on waste incineration facilities and demographics data, check out [Energy Justice Network's Communities Map](#).

For example, **Map A** shows the communities around Minneapolis's major waste incinerator, the Hennepin Energy Recovery Center (the green bubble I). As this map illustrates, most of the neighborhoods near the facility are 78% or more households of color.

Map A. BIPOC Demographics Data Around the Hennepin Energy Recovery Center in Minneapolis



To see this and other maps with more indicators (such as specific races, income levels), click [here](#).

26 <https://www.theguardian.com/environment/2019/may/21/us-pollution-incinerators-waste-burning-plants-report>; <https://ww2.newschool.edu/pressroom/pressreleases/2020/TishmanCenterWasteIncinerators.htm>

27 Peter W. Tait et al., (2019, Sept. 18), The health impacts of waste incineration: A systematic review. *Australian and New Zealand Journal of Public Health* 44, 1, pp. 40-48

28 <https://ilsr.org/wp-content/uploads/2018/12/ILSRIncinerationFinalDraft-6.pdf>

29 <https://qz.com/939612/race-is-the-biggest-indicator-in-the-us-of-whether-you-live-near-toxic-waste/>

30 https://www.epa.gov/sites/default/files/2015-02/documents/fish-consump-report_1102.pdf

3 What are some examples in the United States?

DETROIT: Shut Down After Years of Community Activism

The Detroit Renewable Power (DRP) incinerator was built in 1989, even after heavy opposition from community groups.³¹ At its peak, the facility burned an annual 850,000 tons of waste from communities throughout the region. Over the course of its operations, DRP violated air pollution limits numerous times. Between 2015 and 2016 alone, the facility garnered more than 400 air pollution violations,³² spewing health-damaging air pollutants that directly affected the nearby BIPOC communities. Residents living within one mile of the DRP incinerator were 87-percent people of color, and 60 percent of residents within one mile lived below the federal poverty line.³³

In 2017, the Ecology Center and the East Michigan Environmental Action Council added waste incineration to the [Breathe Free Detroit](#) campaign. Over the next two years, the campaign held various educational events on the DRP incinerator and how to engage community members in public processes. They encouraged residents to file complaints with the state's environmental agency and held public demonstrations. In 2018, the campaign commissioned the Great Lakes Environmental Law Center to write a [report](#) on the incinerator's operations.³⁴ The report was delivered to the mayor of Detroit along with a petition with more than 15,000 signatures demanding the closure of the facility. This report and an associated press release caught the attention of local and national media.³⁵

Later that year, Breathe Free Detroit filed a notice of intent to sue Detroit Renewable Power, the owner of the DRP incinerator. Anticipating a loss and high compliance costs for the facility, Detroit Renewable Power decided to shut down the plant, citing financial and community concerns.³⁶ While 150 workers lost their jobs with the closure of the incinerator, these workers are being connected to energy sector jobs through job fairs.³⁷

MINNEAPOLIS: A Mitigated Win Against Expansion

Communities in Minneapolis have opposed the Hennepin Energy Recovery Center (HERC) since its construction in 1989. The HERC is located in northern Minneapolis, near neighborhoods that are 48-percent BIPOC.³⁸ Many groups have been organizing against the HERC for years, including Communities Organizing Latinx Power and Action (COPAL), the Sierra Club, and the Minnesota Environmental Justice Table.

In 2014, the efforts of these activists successfully stopped the county from increasing the amount of waste processed at the facility.³⁹ However, organizers have expressed concern that Hennepin County's 2021 climate action plan has no path forward for closing the incinerator. County officials say that the incinerator is a low-emissions alternative to landfilling that also provides energy for a nearby arena and 25,000 homes.⁴⁰ As of 2021, COPAL is working to pass an amendment that removes the HERC from being classified as renewable energy.⁴¹ Other groups, such as the Minnesota Environmental Justice Table, are working to develop a zero-waste plan that includes shutting down the incinerator.⁴²

The environmental racism of waste incineration is clear. Communities that are historically Black, Latinx, and low income endure the largest health impacts of toxic pollutants, odors, and truck traffic associated with the facilities. In the United States, race is the greatest indicator of whether someone is likely to live near toxic waste.

31 <https://www.wastetodaymagazine.com/article/detroit-renewable-power-waste-to-energy-plant-shut-down/>

32 <https://www.ecocenter.org/breathe-free-detroit>

33 <https://www.ecocenter.org/breathe-free-detroit>

34 <https://drive.google.com/file/d/1f3pDzw-ow-pt2BUPmtGKnInuabQPL61S/view>

35 <https://www.freep.com/story/news/local/michigan/detroit/2018/05/18/detroit-incinerator-duggan-petition/623203002/>; <https://www.freep.com/story/news/local/michigan/detroit/2018/05/21/detroit-renewable-power-incinerator-pollution-deq/623615002/>

36 <https://www.michiganradio.org/environment-science/2019-03-28/detroit-incinerator-announces-it-will-permanently-shut-down>

37 <https://energynews.us/2019/07/09/we-won-environmental-activists-claim-victory-after-detroit-incinerator-closes/>

38 <https://sierranorthstar.wordpress.com/2014/02/11/community-power-and-no-herc-expansion/>

39 <https://sierranorthstar.wordpress.com/2014/02/11/community-power-and-no-herc-expansion/>

40 <https://sahanjournal.com/climate/herc-garbage-burner-minneapolis-climate-action-plan/>

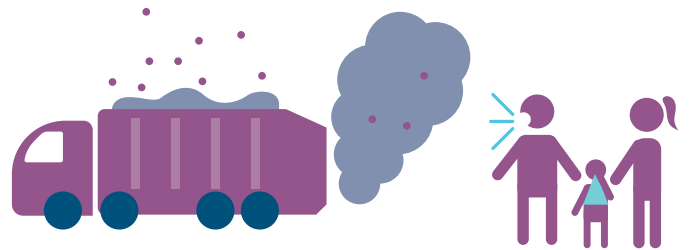
41 <https://sahanjournal.com/climate/herc-garbage-burner-minneapolis-climate-action-plan/>

42 <https://sahanjournal.com/climate/herc-garbage-burner-minneapolis-climate-action-plan/>; <https://sahanjournal.com/climate/zero-waste-plan-hennepin-county-herc-garbage-incinerator/>

BALTIMORE: Pollution-Control Measures Improve, But the Fight Continues

In Baltimore, Maryland, a highly impacted environmental justice community breathes a toxic and harmful pollution mix from a trash incinerator that the state classifies as renewable.⁴³ The community has opposed the incinerator — the city's largest source of air pollution — for decades due to its toxic pollution.⁴⁴ A 2017 study found that an estimated \$55 million is spent annually to treat the adverse health effects caused by the facility.⁴⁵ In response to these concerns, in 2018 the Baltimore City Council passed an ordinance known as the Baltimore Clean Air Act, which would impose limits to pollutants and require continuous emission monitors for certain pollutants.⁴⁶ However, this ordinance was struck down by a federal court, which found that only the State of Maryland or the U.S. Environmental Protection Agency (EPA) can change the facility's Clean Air Act permit.⁴⁷ The City of Baltimore then negotiated a 10-year contract extension with the Wheelabrator incineration facility, which included a commitment for \$40 million in pollution-control measures, albeit not as stringent as those proposed by the ordinance.⁴⁸ The local community continues to advocate for closure of the facility.⁴⁹

Framing waste incineration as an “alternative” to landfills simply replaces one dirty method with another and locks it in for the next few decades.



43 For example, see the description of the impacts of the Baltimore incinerator and how approximately eight out of the ten remaining incinerators are located in environmental justice communities in “U.S. Municipal Solid Waste Incinerators: An Industry in Decline”, <https://www.no-burn.org/u-s-municipal-solid-waste-incinerators-an-industry-in-decline/> and N. Seldman, (2020, Aug. 20), Local Activists in Baltimore Pressure Mayor to Protect Clean Air, Institute for Local Self-Reliance, <https://ilsr.org/activists-baltimore-clean-air-act>

44 <http://www.energyjustice.net/md/baltimore>

45 <https://www.cbf.org/document-library/cbf-reports/thurston-wheelabrator-health-impacts-2017.pdf>

46 Baltimore City Council Ordinance 18-0306

47 Wheelabrator Baltimore, L.P. v. Mayor and City Council of Baltimore, 449 F.Supp.3d 549 (D. Md. 2020), <https://law.justia.com/cases/federal/district-courts/maryland/mddce/1:2019cv01264/452788/52/>

48 <https://insideclimatenews.org/news/19022021/baltimore-continues-incinerating-trash-despite-opposition-from-its-new-mayor-and-city-council/>

49 <https://insideclimatenews.org/news/19022021/baltimore-continues-incinerating-trash-despite-opposition-from-its-new-mayor-and-city-council/>

50 U.S. EPA, EJScreen Version 2020, ACS Summary Report of five-mile radius, <https://ejscreen.epa.gov/mapper/>

51 For summaries of the air emissions from the two facilities during 2014-2018, see California Incinerator Report, p.7.

52 California Incinerator Report, p. 8

53 California Incinerator Report, p. 9

54 California Incinerator Report, p. 9

55 <https://www.no-burn.org/broad-opposition-to-state-money-for-burning-waste/>

56 California Incinerator Report, p. 18

CALIFORNIA: Closing the State's Last Two Waste Incinerators

California has two remaining waste incinerators, the Covanta Stanislaus incinerator in Stanislaus County and the Southeast Resource Recovery Facility in Long Beach. Both incinerators are located in areas where at least 80 percent of the population within a five-mile radius are BIPOC and the per capita income is lower than \$28,500.⁵⁰ These facilities have emitted and continue to emit many harmful pollutants, depending on the type of waste being burned. Historically, these emissions have included arsenic, benzene, cadmium, lead, formaldehyde, ammonia, and particulate matter.⁵¹ Both facilities have exceeded their permit limits and produce ash that is so toxic many landfills will not accept it at their facilities.⁵² This toxic ash, which is known to harm neurological development and cause cancer, has accumulated on the roads around the facility, putting the local community at risk.⁵³

There are real questions about whether these incinerators are financially viable, given the need for costly upgrades to maintain the old facilities. Even without these upgrades, the Long Beach facility has never been profitable. The facility had \$43 million in expenditures in 2020, with only around \$36 million in revenue.⁵⁴ Local community groups were able to successfully defeat the push from incinerators to receive additional climate subsidies,⁵⁵ and these activists are now calling on California to ban credits for diverting waste to incinerators and asking local governments to shut down both sites.⁵⁶

4

What are the clean energy and policy solutions to address waste incineration?

1. **Remove waste incineration from government definitions of renewable energy:** Today, 23 states classify waste incineration as “renewable” under their RPS goals.⁵⁷ Classifying incinerators as “renewable energy” creates revenue streams for facilities from programs designed to promote renewable energy. It also wrongly gives them environmental credibility, despite not being renewable or clean. Incinerators are rarely cost effective, so removing incentives or other revenue streams could help close facilities.⁵⁸
2. **Remove incineration from the definition of acceptable recycling methods for waste reduction/diversion:** Some states categorize incineration as a recycling method, which allows incinerators to earn subsidies and stay in operation. Reclassifying incineration as “disposal” rather than as “recycling” will eliminate an incentive to utilize incinerators rather than focus on reduction of waste and the alternatives of recycling and composting. In California, recently introduced legislation would prohibit facilities from classifying waste incineration as recycling, thereby removing an incentive to send waste to incinerators.⁵⁹
3. **Promote zero-waste measures:** Zero-waste measures — including composting, reuse, and recycling — are better for the air, climate, and jobs. Studies show that zero-waste solutions can create significantly more jobs on a per-ton basis, with composting creating four times more jobs, recycling creating 10 to 25 more jobs, and material reuse creating up to 296 times more jobs than landfilling or incineration.⁶⁰ A transition to zero-waste measures has helped facilitate the closure of incinerators across the country.
4. **Promote other clean, renewable energy solutions and alternatives:** Energy solutions that are truly clean and renewable can replace the small amount of energy provided by incinerators. These energy resources cost less and do not have the same harmful impacts on local communities as waste incineration. Clean, renewable alternatives include:
 - *Solar:* Solar energy can be deployed even in small spaces on rooftops of buildings, parking lots, and elsewhere within a community.
 - *Energy storage:* Batteries and other effective methods for storage can help to ensure that energy is available when needed.
 - *Wind:* A clean, renewable resource, wind often can provide energy at night to complement solar energy.
 - *Geothermal energy:* Geothermal energy takes energy from the earth’s heat and changes it into electricity. Geothermal processes should be designed to be closed loop and involve local communities in the planning process. When these protections are included, geothermal facilities can provide a steady supply of clean, renewable energy.
 - *Small hydro power:* Small, run-of-the-river hydro facilities create power from water flowing downstream. While large hydro facilities can cause environmental impacts, small hydro facilities can be designed to have minimal impacts on the local aquatic environment and create pollution-free, clean energy.
 - *Energy efficiency and demand response:* Although not technically a power-generating facility, energy efficiency and demand response can be the most effective ways to reduce the need for new power facilities. Energy efficiency can help households use less energy, and demand response shifts energy use to times the supply is high, like when the sun is shining.

Today, with safe waste management options that are more economical (like recycling and composting) and renewable energy sources, the case for waste incineration is obsolete.

57 California Incinerator Report

58 <http://www.energyjustice.net/incineration/closures.pdf>

59 California A.B. 1857 (Garcia 2022), https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=20212020AB1857

60 See Institute for Local Self-Reliance (2002, Feb. 1), Recycling Means Business, <https://ilsr.org/recycling-means-business/#:~:text=Recycling%20is%20an%20economic%20development,direct%20development%20opportunities%20for%20communities>; Global Alliance for Incinerator Alternative (2021), Zero Waste and Economic Recovery, <https://zerowasteworld.org/wp-content/uploads/Job-Report-ENGLISH-2.pdf>; NY Circular City Initiative (2020), Three Scenarios for Future Employment, https://assets.website-files.com/5e3d73eaf2dec70808520e3/5f68cb57aa9627a90fc9caa0_three_scenarios_infographic_V2.pdf

5 Conclusion

The case is clear on waste incineration: it is an outdated, obsolete, deeply harmful practice. Policies that classify trash burning as “renewable” bolster this aging, unjust, costly industry at the expense of surrounding communities, when safer, more cost-effective renewable energy solutions and

cheaper waste management strategies exist. An equitable transition to clean energy cannot happen with such policy loopholes. To shift us to a truly clean energy future, policymakers and local government officials must proactively redress the harmful legacy of waste incineration.

6 Frequently Asked Questions

My city has a waste incineration plant. What are some clean alternatives to replace the energy it's currently providing?

The answer to this question will vary widely with the local specifics of each waste incineration plant and how they are providing energy. However, some strategies to consider include solar energy, increased energy efficiency and demand response, wind energy, battery storage, and geothermal facilities.

What about environmentalists who say waste incineration is better for the climate than traditional landfills?

Sustainable land management that promotes composting, recycling, and reuse is better for the climate than incineration and landfills. These types of zero-waste solutions have started to be more effectively deployed to reduce the need for incineration. Furthermore, comparing incineration facilities and landfills is an ineffective approach to fight climate change — it effectively compares one dirty method to another worse dirty method. Neither method is zero emission nor pollution-free, and both would lock in environmental sacrifice zones for decades.

What about capturing landfill gas? What's that about, and how is it related?

Landfill gas is the byproduct of the decomposition of materials in landfills. It is generally about 50-percent methane, 50-percent carbon dioxide, with small amounts of other pollutants⁶¹ that can include dioxin, mercury, and many other toxins.⁶² If not controlled, these gases can cause highly noxious odors and have negative health impacts.⁶³ Studies have found that communities living near a landfill experience increased health risks.⁶⁴ Landfill gas can be captured and converted into energy instead of being released into the air, but there are other, likely better,

ways to manage it. For example, in the short term using a flare to burn off landfill gas may emit less pollution than other methods.⁶⁵ It should be noted that flares still produce some level of pollution and are an issue for surrounding communities.

Landfill gas is similar to waste incineration in that landfill gas projects can also receive climate subsidies and/or be classified as “renewable.” Both landfill gas and waste incineration generate energy from municipal solid waste, and both release health-damaging pollution, although to varying degrees depending on the facility. If landfills are around and emitting methane, it's better to capture this gas than not, but capturing landfill gas is not a reason to keep landfills around. The best solution to both landfill gas and waste incineration is to produce less waste in the first place and to ensure that organic wastes are composted instead of thrown into a landfill.⁶⁶

For additional reading, check out:

Cliff Chen & Nathanael Greene (National Resources Defence Council, 2003), [Is Landfill Gas Green Energy?](#)

Sierra Club (n.d.), [Frequently Asked Questions and Answers About Landfill Gas to Energy.](#)

What about burning other stuff, like biomass and biogas?

In general, burning any type of material for energy is not great. Biomass energy, produced by burning wood and agricultural products, is overtaking coal as one of the top polluters from electricity generation in many states. Biogas is created by capturing gas from landfills, wastewater facilities, and dairy farms. The sources of biogas are also sources of pollution. Biogas facilities face challenges with leakages, and biogas itself is being misused by industry advocates. Biogas and biomass will be covered in future briefs.

61 <https://www.epa.gov/lmop/basic-information-about-landfill-gas>; <https://www3.epa.gov/ttnchie1/ap42/ch02/final/c02s04.pdf>

62 <https://www3.epa.gov/ttnchie1/ap42/ch02/final/c02s04.pdf>

63 https://www.health.ny.gov/environmental/outdoors/air/landfill_gas.htm#:~:text=The%20reported%20health%20complaints%20included,with%20exposure%20to%20hydrogen%20sulfide

64 See, e.g., <https://www.sciencedaily.com/releases/2016/05/160524211817.htm>

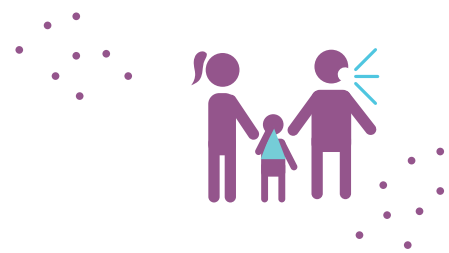
65 <https://www3.epa.gov/ttnchie1/ap42/ch02/final/c02s04.pdf>

66 See, e.g., the Sierra Club recommendations related to landfill gas at <https://www.sierraclub.org/sites/www.sierraclub.org/files/landfill-gas-qa.pdf>

7 Additional Resources

Reports and Articles

- For a good overview of the issue, see: Marie Donahue (Institute for Local Self-Reliance, 2018), [Waste Incineration: A Dirty Secret in How States Define Renewable Energy](#).
- This petition is a great summary of the health impacts of waste incineration and the failure of the EPA to take action: Earthjustice (2021), [Petition to the EPA to update incinerator requirements](#).
- Energy Justice Network, [Trash Incineration Fact Sheet](#).



Resources for Organizing

- An excellent resource for learning about other actions against waste incineration around the country and how to organize: Global Alliance for Incinerator Alternatives (2021), [Community Tools for Anti-Incineration Organizing](#).

If you have an incinerator in your city, check out p. 14 for “key questions to ask about your incinerator”!



Region-Specific Resources

- Earthjustice (2021), [New Jersey's Dirty Secret: The Injustice of Incinerators and Trash Energy in New Jersey's Frontline Communities](#).
- Earthjustice (2021). [Vestiges of Environmental Racism: Closing California's Last Two Municipal Waste Incinerators](#).
- [Sample Fact Sheet](#) from [Breathe Free Detroit's](#) campaign.

