

INCINERATORS IN TROUBLE

- ✔ Waste incineration is a false solution that is expensive, polluting, and inefficient; aging incinerators are causing trouble with toxic emissions, odor, fires, financial insecurity, and environmental injustice.
- ✔ We are calling for a just transition to a zero waste society to protect the environment, communities, and workers from harm and to redesign our future by progressively minimizing and ultimately ending waste disposal in incinerators and landfills.



Currently there are 77 waste incinerators also known as “waste to energy” plants in the U.S. Most of them are reaching their lifespan of 30 years, as all but one of the incinerators were built in the 1980s and 1990s. Proposals for expansion have been popping up all over the country evading local demands for decommissioning and a safer environment. Challenges caused by aging incinerators are still present today, constantly harming communities with an ever-increasing number of emissions violations, explosions and fires, and worker safety issues.

WHAT’S THE PROBLEM WITH WASTE INCINERATION?

Incineration — including gasification, pyrolysis, and plasma arc — is not a viable solution for waste management and is harmful. Here’s why:

WASTE OF ENERGY: Waste incinerators generate electricity at a low efficiency rate due to the low calorific value of waste.¹ Still, they emit large quantities of climate pollution including carbon dioxide, mercury, dioxins, and ultra-fine particles. **Compared to coal, waste incineration produces higher carbon pollution per unit of energy.**²

WASTE OF RESOURCES: Waste incinerators create a demand for “waste” once they have been put in place. More than 90% of materials currently disposed of in incinerators and landfills can be reused, recycled, and composted.³ Compared to more sustainable waste management methods,⁴ incinerators and landfills contribute far higher levels of greenhouse gas emissions and overall energy throughout their lifecycles.

WASTE OF MONEY: Waste incineration is the most expensive way to produce electricity.⁵ The waste incineration industry has the highest ratio of negative economic impacts from air pollution compared to the financial value added by the industry.⁶ In addition waste incineration capital and operation costs exceed those of advanced nuclear energy, coal, solar, and wind.⁷

WASTED OPPORTUNITIES: Zero waste practices such as source reduction, reuse, recycling, and composting serve to mitigate climate change more efficiently, emitting significantly less greenhouse gas throughout the life cycles of the same materials.⁸ The same goes for renewable energies including solar and wind power. Opportunities are lost with green jobs as well. In the U.S, recycling creates 10-20 times more jobs than incinerators.⁹

OVERBURDENED COMMUNITIES: Waste incineration industry in the U.S. is disproportionately located in low-income communities and communities of color, burdening residents with high toxicity, accidents, and noise. This leads to significant health risks including asthma¹⁰ and cancers¹¹.

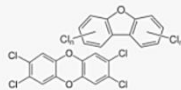
POTENTIAL POLLUTANTS GENERATED FROM BURNING OF WASTE

CARBON MONOXIDE



Causes dizziness, headaches and slowed reflexes; affects mental function, visual acuity and alertness and reacts with other pollutants in the air to form ground level ozone

DIOXINS AND FURANS



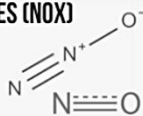
May cause cancer; causes growth defects; affects DNA; affects immune and reproductive systems

POLYNUCLEAR AROMATIC HYDROCARBONS (PAH)



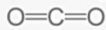
Cancer causing agent in most animal species including mammals, fish and birds

NITROGEN OXIDES (NOX)



Form ground-level ozone, or smog when combined with other pollutants; long-term exposure can cause respiratory and reproductive damage

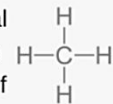
CARBON DIOXIDE (CO₂)



A major greenhouse gas, representing about 80 percent of all greenhouse gas emissions in the U.S.; can cause hyperventilation, respiratory and neurological damage

METHANE (CH₄)

Burning of agricultural waste also produces significant amounts of methane, a major greenhouse gas, due to its generally high water content



VOLATILE ORGANIC COMPOUNDS (VOCs)

May cause problems ranging from cancer risks to nervous disorders, respiratory irritation/illness, chronic lung disease; contributes to low level ozone (smog)

PARTICULATE MATTER (PM)

A complex mixture of extremely small particles and liquid droplets; causes irritation of respiratory tract, aggravated asthma, contributes to chronic obstructive pulmonary disease

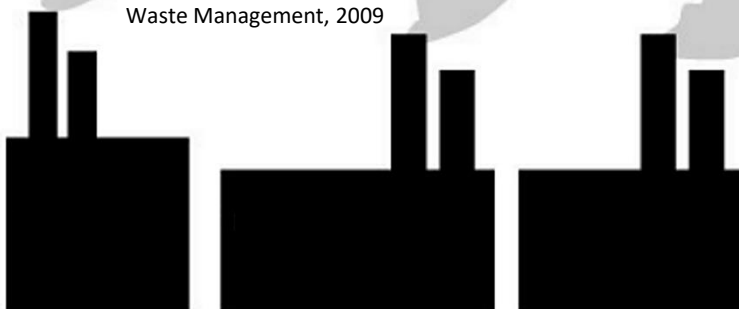
ALDEHYDES



Toxic chemicals that result from the combustion of hydrocarbons. An animal carcinogen; causes eye and respiratory illness and headaches

* Modern air pollution control devices can capture and concentrate some of the pollutants in the incinerators. However, they neither prevent captured pollutants from being released into the environment in the form of ash, slag, or sludge, nor can they capture many hazardous emissions such as ultra-fine particles.

Source: Römbke, J., et al. Ecotoxicological characterisation of 12 incineration ashes using 6 laboratory tests. Waste Management, 2009



COMMERCE REFUSE-TO-WASTE FACILITY (CREF)

#Shutdown

FACILITY HISTORY

Commerce Refuse-to-Waste Facility (CREF) occupies approximately 5.7 acres of land in an industrial area within the City of Commerce. The facility has combusted an average of 350 tons of solid waste per day since its operation began in late 1986. CREF is owned by Valley Plating Works, Inc. and the Commerce Refuse to Energy Authority, a joint powers authority between the City of Commerce and the County Sanitation District of Los Angeles.¹² The facility claims that it has been awarded and recognized for being the cleanest waste-to-energy plant in the world for its advanced air pollution control.¹³

ISSUES

The air quality in Southeast LA is among the worst in the nation. Residents have been exposed to toxic emissions from industrial sources including the incinerator and rail yards, ports, which can lead to cancer risks and respiratory conditions. The facility has several records of significant non-compliance of the Resource Conservation and Recovery Act (RCRA) in 2013 and through 2016 to 2018, that were reported to EPA by Los Angeles County Fire Department with no further details available to the public.¹⁴ California's monthly inspection report also raises concerns about an unusual occurrence of purple smoke, emission exceedances of nitrogen oxide (NOx), exceedances of permitted tonnage and forced outages from 2011 to 2017.¹⁵

1986
Began operation

2018
Shutdown



From left to right, the EPA EJScreen map shows that communities near the incinerator face the country's greatest health risks in respiratory hazards, fine particulate matters levels in the air and cancer risks.¹⁶

COMMUNITY EFFORTS

The local community group East Yard for Communities Environmental Justice (EYCEJ) has raised their voice against state incentives and legislation favorable to the incinerator. Lobbying efforts to block renewable energy subsidies for incineration paid off when the facility was forced to cease operation after losing its Power Purchase Agreement (PPA) with its energy suppliers. Community activists are excited about the facility's closure, an achievement, which was made possible by more than 30 years of community efforts against incineration. The groups have led the conversation on air quality regulations and lead contamination in the area, placing a strong emphasis on environmental justice to ensure that communities of all races and incomes have strong environmental protections and equal access to a safe and healthy environment.



LATEST DEVELOPMENTS

The closure of Commerce Refuse-to-Energy Facility is scheduled for June 30, 2018. Officials cited insufficient funds as the main cause. The groups will watch and guide the decommissioning process to ensure a just transition of the post-incinerator site. As two other incinerators are still present in California, they will continue to demand a shift from trash incineration to zero waste systems placing environmental justice and safety as a priority for nearby communities.



SOLUTIONS: ZERO WASTE SYSTEMS

A FALSE SOLUTION

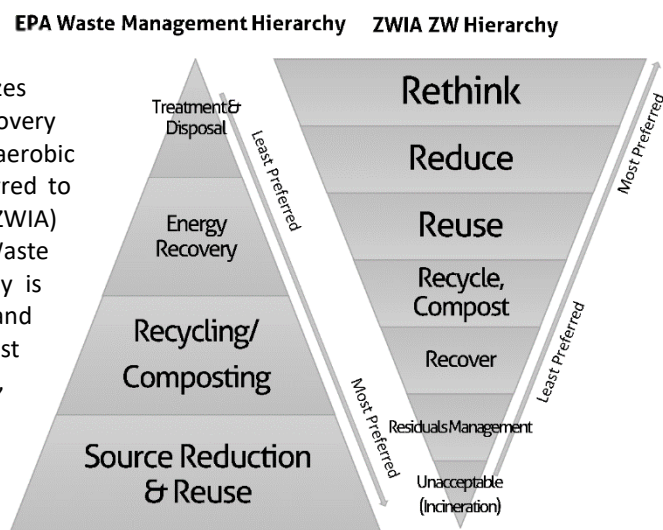
In many cities, incinerators came online as a remedy for worsening waste crises. Their cheerful prognosis had strings attached however, including toxic emission violations, odor, noise, and the constant demand for a sufficient amount of waste to be used as a daily feedstock. Beyond the extremely high costs of building, operating, and maintaining them, incinerators inflict economic and environmental damage on communities by discouraging much-needed efforts to conserve resources, reduce waste, and encourage recycling and composting. Economies and ecosystems can be sustained only if cities dramatically prevent and reduce waste, replacing obsolete waste burning with vibrant, people-led zero waste systems, the real remedy for the world's trash crisis.

WHAT IS ZERO WASTE?

Zero waste means setting a new goal for how we live in the world – one that aims to reduce what we trash in landfills and incinerators to zero – and to rebuild our local economies in support of community health, sustainability, and justice. Adopting a zero waste approach to resource management is critical to the future of our planet and its peoples.

RETHINKING WASTE MANAGEMENT

Many governmental bodies in the U.S. follow a waste management hierarchy developed by EPA. The hierarchy ranks various waste management strategies to guide policy planning. While it prioritizes reducing, reusing, and recycling, energy recovery including combustion, gasification, pyrolyzation, anaerobic digestion, and landfill gas (LFG) recovery is preferred to landfilling. Zero Waste International Alliance (ZWIA) counter-argued this norm by adopting the Zero Waste Hierarchy, pointing out how the current hierarchy is being used to promote incineration over landfilling and highlighting the core principle of the highest and best use.¹⁷ According to ZWIA's Zero Waste Hierarchy, which many environmental groups endorse, high temperature systems are classified as "Unacceptable" and recovering energy is only acceptable using systems that operate at biological temperature and pressure. The highest tier, "Rethink," lists measures to be taken for a systemic change such as redesigning, financial incentives, reduction of consumption, and community engagement.



ALTERNATIVES EXIST

Fortunately, the transformation toward a waste-free, just society has already begun. Many cities have implemented zero waste plans and comprehensive strategies getting close to their zero waste goals. Driven by local leaders and recyclers in both the formal and informal sectors, zero waste solutions are changing our perception and the narrative around resource consumption, protecting the environment and marginalized communities from toxic pollution.

REFERENCES

- ¹ Calorific value of waste. Available at: <http://www.igniss.com/calorific-value-waste>; Fuels - Higher and Lower Calorific Values. Available at: https://www.engineeringtoolbox.com/fuels-higher-calorific-values-d_169.html
- ² Earth Justice Network. Trash Incineration More Polluting than Coal. Available at: <http://www.energyjustice.net/incineration/worsethancoal>
- ³ Platt, Brenda et al, Stop Trashing the Climate, ILSR, Eco-Cycle & GAIA, 2008.
- ⁴ U.S. EPA, "Solid Waste Management and Greenhouse Gases, A Life-Cycle Assessment of Emissions and Sinks 3rd edition," 2006.
- ⁵ U.S. Energy Information Administration (Department of Energy), Updated Capital Cost Estimates for Electricity Generation Plants, November 2010.
- ⁶ Muller, Nicholas Z., Robert Mendelsohn, and William Nordhaus. 2011. "Environmental Accounting for Pollution in the United States Economy." *American Economic Review*, 101(5): 1649-75.
- ⁷ U.S. Energy Information Administration (Department of Energy), Updated Capital Cost Estimates for Electricity Generation Plants, November 2010.
- ⁸ U.S. EPA, "Solid Waste Management and Greenhouse Gases, A Life-Cycle Assessment of Emissions and Sinks 3rd edition," 2006.
- ⁹ Tellus Institute, More Jobs, Less Pollution: Growing the Recycling Economy in the United States, 2011.
- ¹⁰ Centers for Disease Control and Prevention - Asthma - Most Recent Asthma State Data. Available at: https://www.cdc.gov/asthma/most_recent_data_states.htm. Accessed June 24, 2018.
- ¹¹ Roberts R, Chen M. Waste incineration—how big is the health risk? A quantitative method to allow comparison with other health risks. *Journal of Public Health*. 2006.
- ¹² Eaton M, Smisko J. Operational Costs of Breakdowns at the Commerce Refuse-to-Energy Facility. National Waste Processing Conference Proceedings. 1994. Available at: <http://www.seas.columbia.edu/earth/wtert/sofos/nawtec/1994-National-Waste-Processing-Conference/1994-National-Waste-Processing-Conference-26.pdf>
- ¹³ Commerce Refuse-to-Energy Authority Facility. Official Website of Commerce, CA. Available at: <http://www.ci.commerce.ca.us/index.aspx?NID=534>. Accessed June 24, 2018.
- ¹⁴ U.S. EPA. ECHO Detailed Facility Report. Enforcement and Compliance History Online. Available at: <https://echo.epa.gov/detailed-facility-report?fid=110009554099>. Accessed June 24, 2018.
- ¹⁵ CalRecycle. Solid Waste Site Inspection Report. Available at: <http://www.calrecycle.ca.gov/SWFacilities/Directory/19-AA-0506/Inspection>. Accessed June 24, 2018.
- ¹⁶ U.S. EPA. EJSCEEEN. Available at: www.epa.gov/ejscree. Accessed June 24, 2018.
- ¹⁷ Zero Waste International Alliance. Zero Waste International Alliance Adopts Zero Waste Hierarchy.; 2013. Available at: <http://zwia.org/standards/zero-waste-hierarchy>. Accessed June 24, 2018.