



# Garbage Incineration: What a Waste

Waste burning facilities are the most toxic, expensive, and climate-polluting energy industries in the U.S. These facilities are predominantly sited and built in low-income communities and communities of color across the country<sup>i</sup> burdening these communities with mercury, dioxins, and particulate matter<sup>ii</sup> while undermining investments for local economic resilience and job creation.<sup>iii</sup>

**Waste of energy:** Due to the low calorific value of waste, incinerators are only able to make small amounts of energy while destroying large amounts of reusable materials. While older incinerators generate electricity at very low efficiency rates of 19-27%, a UK study found that conversion efficiencies of new incineration technologies are even lower.<sup>iv</sup> **While producing very little energy, incinerators emit large quantities of climate pollution.** In fact, incinerators emit more carbon dioxide per unit of electricity, contributing far higher levels of greenhouse gas emissions and overall energy throughout their lifecycles than source reduction, reuse, and recycling of the same materials.<sup>v</sup> The 2017 Conference of Mayors also excluded incineration from their clean energy resolution.<sup>vi</sup>



**Waste of resources:** Municipal waste is non-renewable, consisting of discarded materials such as paper, plastic and glass that are derived from finite natural resources such as forests. Burning these materials in order to generate electricity creates a demand for “waste” and discourages much needed efforts to conserve resources, reduce packaging and waste and encourage recycling and composting. **More than 90% of materials currently disposed of in incinerators and landfills can be reused, recycled and composted.**<sup>vii</sup>

**Waste of money:** Two studies done for the Energy Information Administration since 2010 show that **trash incineration is the most expensive way to make electricity.**<sup>viii</sup> According to 2013 U.S. Energy Information Administration data, the operating costs of waste incinerators are over ten times that of coal power plants, and the capital costs are twice that of nuclear.<sup>ix</sup> In addition to extremely high initial building costs<sup>x</sup>, incinerators incur high ongoing operation and maintenance costs.<sup>xi</sup> This exorbitant price tag makes it impossible for an incinerator proposal to be a profit-generating activity. Incinerators may provide a financial return to the companies that operate them, **but the costs are borne by the public in the form of billions of dollars in public financing and fees, sometimes even running cities into bankruptcy.**<sup>xii</sup>

**Wasted opportunity:** Cities around the world are promoting zero waste practices that benefit public health and the climate.<sup>xiii</sup> **Zero waste practices such as recycling and composting serve to conserve three to five times the amount of energy produced by waste incineration,<sup>xiv</sup> and create significantly more jobs.<sup>xv</sup>** The amount of energy wasted in the U.S. by *not* recycling aluminum and steel cans, paper, printed materials, glass, and plastic is equal to the annual output of 15 medium-sized power plants.<sup>xvi</sup> Incinerators directly undermine zero waste efforts by diverting valuable resources (both money and materials) and locking cities in to wasteful systems. Instead of promoting expensive and polluting facilities that distract attention from the real problem, we can and should be giving zero waste practitioners the credit and resources they need to expand and strengthen their work.

## FAQs about incineration

**Don't modern incinerators have pollution control devices such as filters and scrubbers that make them safe for communities?** In newer incinerators, air pollution control devices such as air filters capture and concentrate some of the pollutants; but they don't eliminate them. The captured pollutants are transferred to other by-products such as fly ash, bottom ash, boiler ash/ slag, and wastewater treatment sludge that are then released into the environment<sup>xvii</sup>. However, even modern pollution control devices such as air filters do not prevent the escape of many hazardous emissions such as ultra-fine particles.<sup>xviii</sup>

**Don't modern European incinerators produce clean energy and less pollution?** Waste incinerators in the EU continue to pollute the climate and cause significant public health risk, while burning billions of dollars-worth of valuable, non-renewable resources. A public health impacts report states that modern incinerators in the EU are a major source of ultra-fine particulate emissions.<sup>xix</sup> In 2009, the Advertising Standards Agency in the UK banned the SITA Cornwall waste company from distributing its booklet on incineration for, among other things, making unsubstantiated claims that the UK Health Protection Agency stated that modern incinerators are safe.<sup>xx</sup> In fact, Europe is largely moving away from incineration. The 2012 Resource Efficiency Roadmap directs states to reduce, reuse, or recycle all possible materials<sup>xxi</sup>, and the European Union has recently advised member states to end subsidies for incineration.<sup>xxii</sup> In 2013 the Danish Minister for the Environment released a plan called "Denmark Without Waste: Recycle More, Incinerate less" in which she described the loss of resources resulting from Denmark's incineration policy and called for a reduction in the amount of waste being burned.<sup>xxiii</sup>

**What about gasification, pyrolysis, plasma arc, and other new technologies?** Gasification and pyrolysis attempt to convert solid waste into synthetic gas or oils, followed by combustion (meaning they are regulated in the U.S. and EU as waste incinerators). Pollutants from gasification facilities—and their record of unsafe emission levels—are similar to those of "traditional" mass burn incineration.<sup>xxiv</sup> Since WWII attempts to gasify municipal solid waste (MSW) have failed repeatedly, wasting billions of dollars that could have been used to develop zero waste systems.<sup>xxv</sup> As recent as 2016, the failed UK project by U.S.-based Air Products lost \$1 billion alone.<sup>xxvi</sup>

<sup>i</sup> 3 Bullard, Robert. Dismantling Energy Apartheid in the U.S., Black History Month Special Report. February 2011.

<sup>ii</sup> NY Department of Conservation, Comments to New York State Public Service Commission in the Matter of the application of Covanta Energy Corporation. 19 August 2011

<sup>iii</sup> Global Alliance for Incinerator Alternatives: Burning Public Money for Dirty Energy: Misdirected Subsidies for "Waste-to-Energy" Incinerators, 2011. Available at: <http://www.no-burn.org/burning-public-money-for-dirty-energy>

<sup>iv</sup> Fichtner Consulting Engineers Limited, The Viability of Advanced Thermal Treatment in the UK, 2004, p.4.

<sup>v</sup> U.S. EPA, "Solid Waste Management and Greenhouse Gases, A Life-Cycle Assessment of Emissions and Sinks 3rd edition," 2006.

<sup>vi</sup> Global Alliance for Incinerator Alternatives, U.S. Mayors Stand Up to Incinerator Industry in Landmark Renewable Energy Resolution. Available at: [http://www.no-burn.org/incinerators\\_denied/](http://www.no-burn.org/incinerators_denied/)

<sup>vii</sup> Platt, Brenda et al, Stop Trashing the Climate, ILSR, Eco-Cycle & GAIA, 2008.

<sup>viii</sup> U.S. Energy Information Administration, Updated Capital Cost Estimates for Utility Scale Electricity Generating Plants, April 2013. Available at: <https://www.eia.gov/outlooks/capitalcost/>

<sup>ix</sup> U.S. Energy Information Administration (Department of Energy), Updated Capital Cost Estimates for Electricity Generation Plants, November 2010.

[http://www.eia.gov/oiaf/beck\\_plantcosts/pdf/updatedplantcosts.pdf](http://www.eia.gov/oiaf/beck_plantcosts/pdf/updatedplantcosts.pdf)

<sup>x</sup> Global Alliance for Incinerator Alternatives: Technical Critique of "Stemming the Tide." Available at: [http://www.no-burn.org/wp-content/uploads/Technical\\_critique\\_Stemming\\_the\\_Tide\\_report.pdf](http://www.no-burn.org/wp-content/uploads/Technical_critique_Stemming_the_Tide_report.pdf)

<sup>xi</sup> Eunomia Research and Consulting, "Costs for Municipal Waste Management in the EU." Available at: <http://ec.europa.eu/environment/waste/studies/pdf/eucostwaste.pdf>

<sup>xii</sup> Tavernise, Sabrina, City Council in Harrisburg Files Petition of Bankruptcy, The New York Times, October 2011.

<sup>xiii</sup> Global Alliance for Incinerator Alternatives, Zero Waste Case Studies. Available at: <http://www.no-burn.org/zero-waste-case-studies/>

<sup>xiv</sup> Morris, Jeffrey, Comparative LCAs for Curbside Recycling Versus Either Landfilling or Incineration with Energy Recovery, The International Journal of Life Cycle Assessment, July 2005. Available at: <http://www.springerlink.com/content/m423181w2hh036n4/>

<sup>xv</sup> Tellus Institute with Sound Resource Management, More Jobs Less Pollution. Available at: <http://www.no-burn.org/wp-content/uploads/MoreJobsLessPollutionFinal.pdf>

<sup>xvi</sup> U.S. Senate. Bill S. 3654 [109th]: Recycling Investment Saves Energy. Introduced July 13, 2006.

<sup>xvii</sup> Römcke, J., et al. Ecotoxicological characterisation of 12 incineration ashes using 6 laboratory tests. Waste Management, 2009

<sup>xviii</sup> Howard, C.Vyvyan, Statement of Evidence, Particulate Emissions and Health, Proposed Ringaskiddy Waste-to-Energy Facility, June 2009.

<sup>xix</sup> Howard, C.Vyvyan, Statement of Evidence, Particulate Emissions and Health, Proposed Ringaskiddy Waste-to-Energy Facility, June 2009

<sup>xx</sup> UK Without Incineration Network: Burner Booklet Banned, July 2009: <http://ukwin.org.uk/>

<sup>xxi</sup> Zero Waste Europe, New EU's Resource Efficiency roadmap points in the Zero Waste direction

<sup>xxii</sup> Zero Waste Europe, Commission Calls for Defunding of Waste-to-Energy, January 2017. Available at: <https://www.zerowasteurope.eu/2017/01/commission-calls-for-defunding-of-waste-to-energy/>

<sup>xxiii</sup> The Danish Government, "Denmark Without Waste: Recycle More, Incinerate Less," Accessed at: [http://mfvm.dk/fileadmin/user\\_upload/MFVM/Miljoe/Ressourcestrategi\\_UK\\_web.pdf](http://mfvm.dk/fileadmin/user_upload/MFVM/Miljoe/Ressourcestrategi_UK_web.pdf)

<sup>xxiv</sup> Facts Rule out Trash Gasification. Available at: <http://www.no-burn.org/wp-content/uploads/Gasification-fact-sheet-Jan-2013-final.pdf>

<sup>xxv</sup> Global Alliance for Incinerator Alternatives, Waste Gasification & Pyrolysis: High Risk, Low Yield Processes for Waste Management, March 2017. Available at: <http://www.no-burn.org/wp-content/uploads/Waste-Gasification-and-Pyrolysis-high-risk-low-yield-processes-march-2017.pdf>

<sup>xxvi</sup> ibid