Environmental Sustainability

GOAL

We've committed to implement five projects by 2023 to further reduce emissions in EJ communities. We will also set a science-based GHG reduction target by 2022 to drive further reductions.

PROGRESS

Installation of new Low NOx technology is currently in place at 2 out of the 4 units at our Fairfax Waste to Energy facility.

By providing an environmentally and socially responsible means of managing solid waste, Covanta's EfW and material processing facilities help our communities move up the waste hierarchy, recover resources in the form of materials and energy, and provide critical local and community waste management infrastructure—all while helping reduce GHG emissions from waste management. Our EfW facilities deliver clean, renewable baseload power right next to load centers, helping provide resiliency to the electrical grid.

Environmental Sustainability

Addressing Climate Change

The largest part of our business—operating EfW facilities—is widely recognized internationally as a source of GHG mitigation. On average, the U.S. EPA has determined that EfW facilities reduce the amount of GHGs expressed as CO_2 equivalents (GHGs or CO_2e) in the atmosphere by approximately one ton for every ton of municipal solid waste (MSW) combusted. By avoiding emissions that would have otherwise occurred, EfW is the only major source of electricity that reduces GHG emissions. In this way, EfW facilities play an important role in the climate change solution.

Covanta Palm Beach EfW facility

Reducing Net GHGs through EfW

The ways in which materials and waste are managed have a significant impact on climate. The U.S. EPA has found that the full life cycle of materials management, including the provision of goods and food, is responsible for 42% of U.S. GHG emissions. Waste reduction, reuse and recycling are the best ways to reduce GHG emissions from waste management. After we've exhausted those options, EfW is the next best option. Landfills, the third-largest source of the greenhouse gas methane, are the least preferable option. Methane is a potent short-lived climate pollutant that is 34 times stronger than CO_2 over 100 years and 80 times stronger over 20 years, when all of its impacts are considered. And yet, every year, the US landfills 64% of waste, roughly 250 million tons. **Learn more about the importance of methane here.**

EfW facilities reduce GHG emissions, even after consideration of stack emissions from combustion, by:

- diverting post-recycled solid waste from landfills, where it would have emitted the potent GHG methane for decades, even when factoring in landfill gas collection;
- generating energy that otherwise would have been produced by GHG-emitting fossil fuel power plants; and
- recovering metals for recycling, thereby avoiding GHGs and energy associated with the production of products and materials from virgin inputs.

The GHG reductions associated with these three factors are significantly more than the fossil-based CO_2 emissions from the combustion of plastics and other fossil-fuel-based MSW components. U.S. EPA scientists, in a prominent peer reviewed paper, concluded EfW facilities reduce GHG emissions relative to even those landfills equipped with energy recovery systems.

Climate Adaptation and Resiliency

Overwhelming scientific consensus points to a changing climate as a result of human activity. Even with dramatic reductions in GHG emissions, our climate will continue to change, and we will increasingly see the effects of climate change in the form of sea level rise, increased frequency of coastal flooding and increased frequency and severity of storms. A few of our facilities in the United States are located on estuaries that could become affected by storm surge. We also operate numerous inland facilities along the Eastern Seaboard that can be affected by hurricanes and other coastal storms.

During Superstorm Sandy in 2012, several facilities were impacted on a short-term basis due to disruption of MSW collection and transportation systems, local power distribution system outage and equipment damage. The most significant impacts were felt at our Essex County facility where a prolonged local grid outage prevented us from starting up even after our local repairs had been made. Since then, we've hardened critical infrastructure, raising electrical equipment and even installing a watertight bunker around our emergency generator, to ensure we can start up our facility without grid power.

GHG Inventory Reduction Targets

Many sustainability programs prominently feature reductions of Scope 1 (direct emissions), Scope 2 (purchased electricity), and Scope 3 (supply chain) GHG emissions, often in response to encouragement from groups like CDP and sustainability rankings. We applaud these initiatives, and in many cases, help support our customers' efforts to reduce their Scope 3 emissions inventories associated with waste management. Landfilling can be a major source of Scope 3 emissions. Switching to EfW provides an opportunity to reduce these emissions. As EfW generates a useful product in the form of recovered energy, stack GHG emissions from downstream waste managed at EfW facilities do not get attributed to a generator's Scope 3 inventory, in accordance with accepted Scope 3 guidance.

EfW facilities are known sources of GHG mitigation and are eligible to generate carbon offsets, by providing an alternative to landfill disposal. Our process generates a Scope 1 emission from the combustion of materials containing fossil-based carbon (e.g., plastics), yet also generates a GHG reduction simultaneously by diverting waste from landfills, recycling metals and displacing fossil fuel-fired electricity and steam generation. The more waste we divert from landfilling, the greater the net GHG reduction achieved overall. However, this also translates to an increase in our Scope 1 emissions.

EfW's Most Effective Tools in Reducing GHG Emissions

Project / GHG Reduction Goal Type	GHG Emissions Reduction as Tons CO_2e	
Additional energy recovery capacity	**0.6–1.2**	Per ton of MSW diverted
Recovery of metals from ash	**10.0**	Per ton of aluminum
	5.2	Per ton of copper
	2.0	Per ton of ferrous metal
Energy efficiency projects	**0.8**	Per MWh of electricity saved
Materials management	**1.0**	Per ton of MSW diverted
	0.7	Per ton of packaged foods diverted
Raw materials efficiency	**0.8**	Per ton of lime saved
	2.6	Per ton of ammonia saved

However, we know that we cannot remain complacent. While EfW is a critical element of reducing GHG emissions from the waste management sector today, reaching the levels of GHG reductions that we need by mid-century to stem the largest impacts of climate change will require innovative thinking. As part of our vision for protecting tomorrow, we have established a new sustainability goal to set a science-based target and implementation plan by 2022 in line with the level of decarbonization required to keep global temperature increase below 2°C compared to pre-industrial temperatures.

We remain committed to providing customers with more sustainable waste management practices, even though many external assessments of our corporate GHG performance do not recognize the indirect emissions benefits these solutions generate. We also remain committed to transparently reporting our GHG emissions. Covanta reports its GHG emissions to the U.S. EPA GHG Reporting Program and has been responding to the CDP climate change questionnaire since 2007. For more information, please see Covanta's 2018 and 2019 CDP responses, covering 2017 and 2018

disclosures, respectively. Our Scope 1 (direct), Scope 2 (indirect) and Scope 3 (indirect) emissions can be found in the Performance Tables.

EfW and Emissions-Limiting Programs

Although EfW is widely recognized as a source of GHG mitigation, our combustion process results in facility-level GHG emissions that could be subject to cap and trade or other laws or regulations designed to limit or reduce GHG emissions. In 2018, 3.1% of our total equity-share GHG emissions were subject to a cap and trade program. We continue to advocate for consistent treatment of GHG emissions from the waste management sector to ensure that economic signals (e.g., allowance purchase requirements, carbon taxes) align with the relative life cycle GHG emissions of different waste management options.

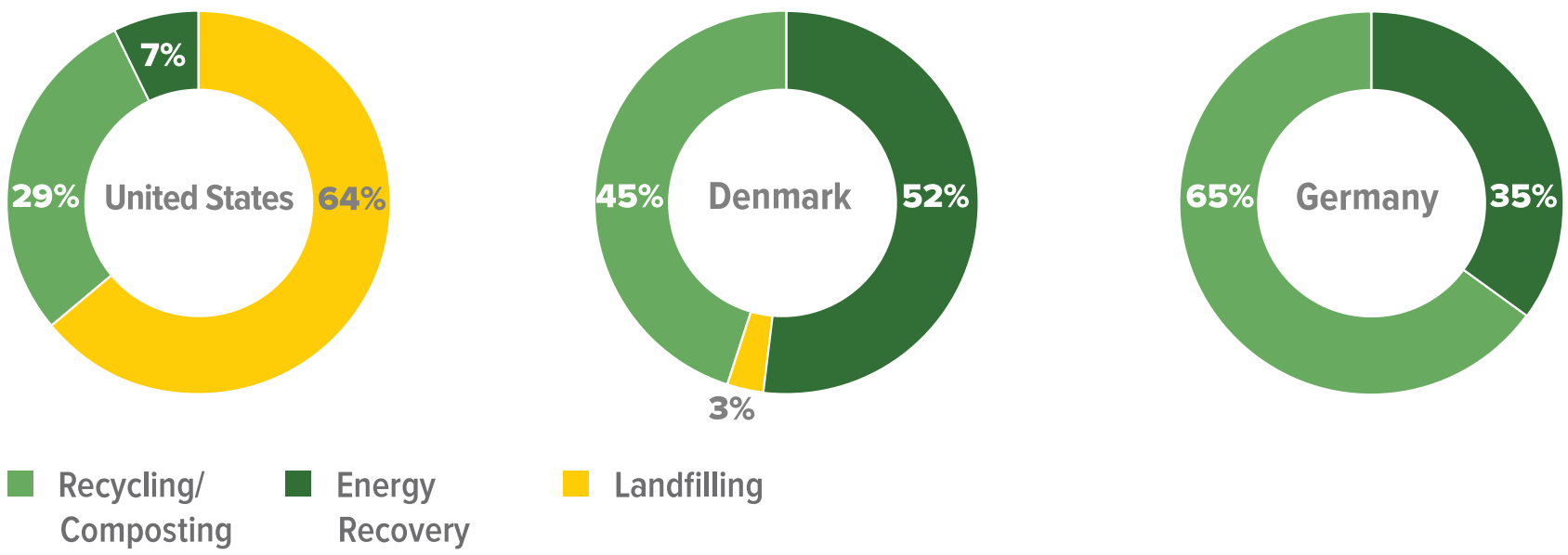
Covanta's EfW position in current emissions-limiting programs is as follows:

- The European Union Emissions Trading Scheme (EU-ETS), the largest and longest running carbon cap and trade program, excludes EfW from the cap. The benefits of EfW are also recognized though the concurrent inclusion of EfW in renewable energy programs *and* the implementation of the landfill directive. The landfill directive calls for a minimum 65% biodegradable waste diversion from landfills to alternatives, including recycling, composting, anaerobic digestion and EfW.
- California's Global Warming Solutions Act of 2006 ("AB 32") seeks to reduce GHG emissions in California to 1990 levels by 2020, through an economy-wide "cap and trade" program. EfW facilities were exempt from the cap and trade program through the end of 2017. A regulation was finalized in 2019 that brought EfW facilities into the cap and trade program with a provision for free allowances that reduce the compliance burden. A resolution passed by the Board of the California Air Resources Board ("CARB") in 2018 directed the agency to provide additional allowances to help further reduce the compliance burden. Landfills, despite being identified as having a higher GHG emissions intensity by California regulators, remain out of the program.
- The Regional Greenhouse Gas Initiative ("RGGI") is an operating regional cap and trade program in the Northeastern United States focused on fossil fuel-fired electric generators; it does not directly affect EfW facilities. We operate one natural gas-fired boiler at our Niagara facility included in the RGGI program.
- EfW is recognized as a source of credits under the United Nations' Clean Development Mechanism (CDM), where more than 40 projects have been registered with a combined annual GHG reduction of 5 million metric tonnes of CO_2e a year.

A Global Response to the Threat of Climate Change: Why Address GHG Emissions from Waste?

As affirmed by the Intergovernmental Panel on Climate Change, the warming of the climate system due to past and ongoing emissions is now unequivocal and many of the observed changes are unprecedented. Energy-from-Waste (EfW) can help reduce GHG emissions by keeping the waste, that remains after recycling efforts have been exhausted, out of landfills, generating electricity and recovering metals for recycling.

EfW Around the World



EfW is a widely accepted part of Europe's comprehensive waste management approach, which includes reducing, reusing, recycling/composting, recovering energy and then only landfilling what's left over. If all countries managed their waste as responsibly as European countries like Denmark and Germany, the GHG savings would be equivalent to:

- Closing 1,000 large coal-fired power plants;
- Building two million 1MW wind machines; or
- Doubling the global nuclear power plant capacity.

For more information, please see Covanta's white paper: "Waste and Climate: Reducing Your Footprint"

What about Plastics?

The combustion of plastics in the waste stream generates fossil CO_2, making its presence in the waste stream bound for EfW facilities undesirable from a climate standpoint.

In addition, plastics increase the overall heat content in the waste. Higher than normal amounts of plastic in the waste can reduce the waste processing capacity of our facilities. For these reasons, we fully support plastics recycling programs as a means to get plastics out of the waste and back into the economy. However, not all plastics are recyclable and some plastics can contain persistent organic pollutants and other compounds that we do not necessarily want reintroduced into new products. For these materials, EfW facilities serve an important role of providing proper solid waste management and recovering energy value from the materials to offset the use of fossil fuels for energy purposes.

Sustainable Waste Management: Learning from Life Cycle Assessments

Life cycle analysis (LCA) is a tool used by international organizations, including the International Panel on Climate Change (IPCC), and on a national basis by the U.S. EPA, to assess the environmental impacts of a product or process from cradle to grave, or from the extraction of raw materials to final disposition at the end of life. Applied to waste management, LCA facilitates an assessment of the environmental impacts and trade-offs of different management approaches; this assessment is a useful decision-making tool for communities, governments and industry as they consider sustainable waste management. All end-of-life processes have impacts, but an LCA allows for effective comparisons. Well executed LCAs often will validate, or "ground-truth," their results against measured data, such as the proportion of an EfW facility's CO_2 emissions that are from biogenic sources or an EfW facility's net electrical output.

Because LCA looks far beyond an inventory at a single facility, it allows us to quantify the positive and negative impacts of not only the energy recovery process itself, but also the benefits that accrue from avoiding landfill disposal, recovering metals for recycling and displacing grid-connecting electrical generation.

Turning 10 million Tons of MSW into Clean Energy in Pennsylvania

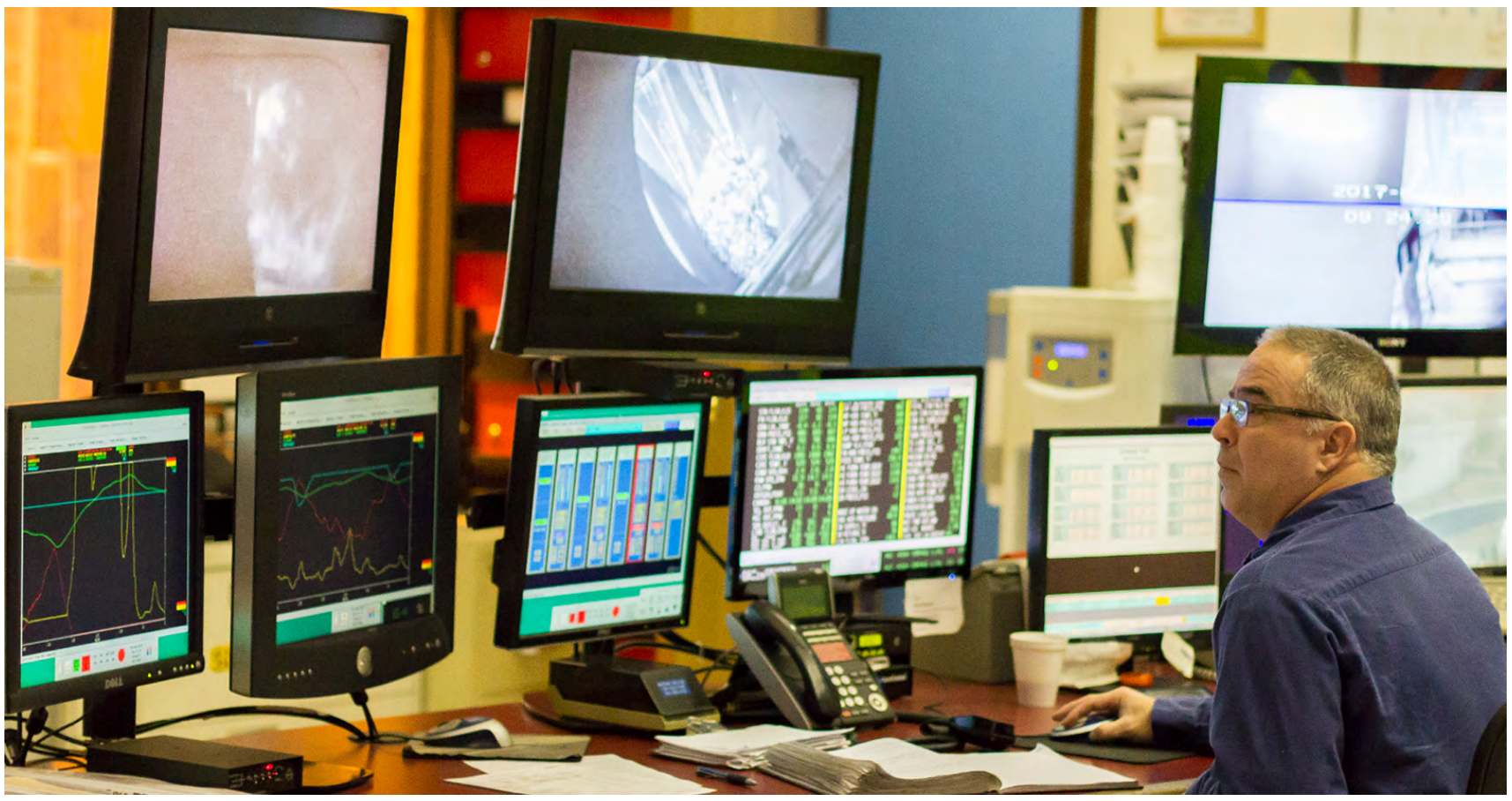
In March 2018, after 27 years of operation, Covanta reached the milestone of having processed 10 million tons of municipal solid waste (MSW) from the Lancaster County, PA, community—and thereby keeping it out of a landfill that would have been the equivalent of more than 600 football fields filled 10 feet deep. The environmental benefits of recovering the energy from this waste include:

- Offsetting the equivalent GHG emissions of over **1.9 million passenger cars** on the road for one year;
- Producing **5.6 million megawatt-hours of electricity**, enough to supply all the homes in the City of Lancaster for more than 21 years; and
- Recovering 180,000 tons of ferrous metal for recycling, **equivalent to over two Golden Gate Bridges**.

Environmental Sustainability

Minimizing Air Emissions

Like all combustion processes (e.g., cars, trucks, fossil-fuel power plants, landfill gas to energy) and nearly all waste management processes (e.g., landfilling, composting, anaerobic digestion, recycling), Energy-from-Waste (EfW) facilities have air emissions. To minimize emissions, EfW facilities employ a carefully controlled combustion process with temperatures in excess of 2,000°F and sophisticated air pollution control equipment. Emissions are monitored both continuously and with periodic testing performed by regulator-approved third parties. 99.9% of what comes out of the stack is comprised of normal components of air, including water vapor, nitrogen, oxygen and CO_2.



Since the implementation of stringent air pollution standards, such as the Clean Air Act Amendments of 1990, emissions from the industry have dropped dramatically, as the result of both closing outdated facilities and installing new air pollution control equipment. Emissions from Covanta's facilities ***continue*** to decrease. Since the start of the company's sustainability program in 2007, emissions of pollutants at Covanta operated facilities, as measured over the three-year period from 2017–2019, have decreased by up to 72% (Figure 1). In addition to our continued focus on operations and system optimization, our capital improvements are paying dividends in reducing emissions. The new baghouse installation we completed at our Essex County facility in 2016 continues to perform well, having reduced pollutants by up to 90%. Our proprietary low nitrous oxide system (Low NOx™), already installed in 24 units, helps us control NOx emissions and reduce reagent consumption. We are currently planning on installing the technology in nine additional units.

View Detailed 2019 Performance by Facility

These emissions reductions support Covanta's strong record of consistently falling well below federal regulatory limits for emissions (Figure 2). More information is available in our white paper on EfW Emissions.

Covanta Americas 2017–2019 EfW Emissions Compared to 2007

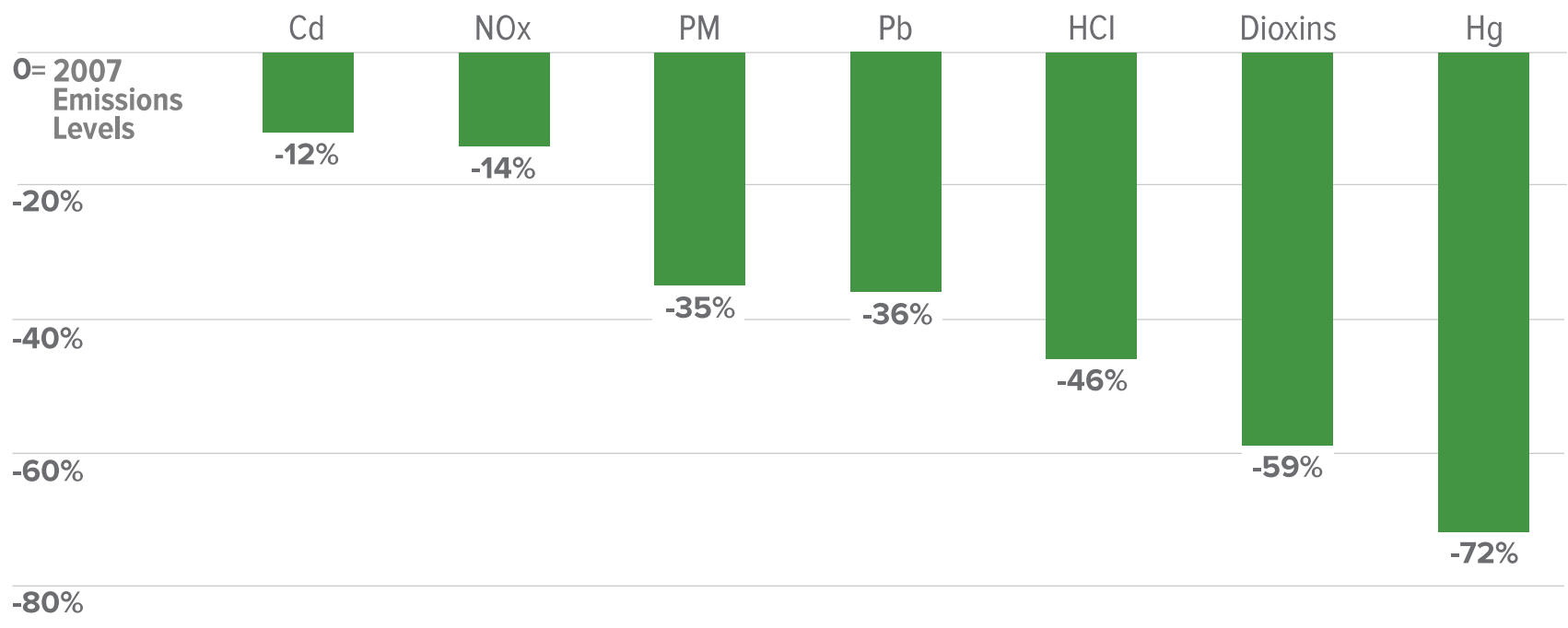


Figure 1. Since Covanta launched its sustainability program in 2007, emissions of pollutants at Covanta-operated facilities, as measured over the three-year period from 2017–2019, have decreased by up to 72%.

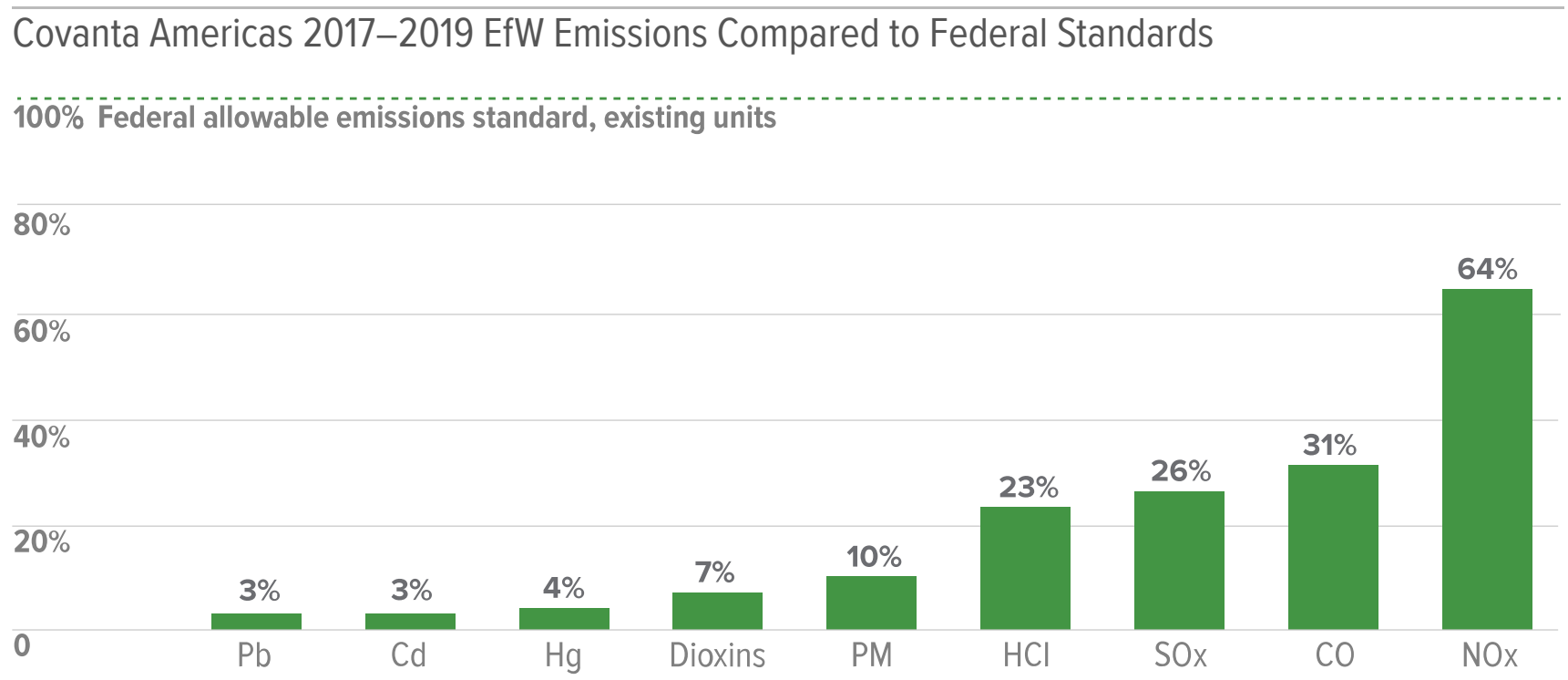


Figure 2. In the U.S., air emissions from Covanta usually operate at 60 to 90 percent or more below permitted parameters.

Detailed Facility Performance

Select an individual U.S. facility to see detailed 2019 environmental performance on life cycle GHG emissions, electricity generation, metals recycling, emissions performance relative to federal guidelines and emissions compared to total emissions in the local county.

Select a facility to download PDF

Our facilities use state-of-the-art control technologies to remove air pollutants associated with the EfW process.

Boiler Design:

Our boilers are specifically designed to ensure complete combustion, thereby recovering as much energy as possible out of the waste resource, including volatile organic compounds (VOCs) and other organic compounds.

Nitrogen Oxides (NOx) Control:

Most boilers are equipped with selective non-catalytic reduction (SNCR) systems, which inject ammonia or urea into the furnace to chemically convert NOx into gaseous nitrogen, a harmless gas that makes up the majority of our atmosphere. In addition, we have installed Covanta's proprietary low nitrous oxide system (Low NOx™) in 24 units, which helps us control NOx emissions and reduce reagent consumption.

Carbon Injection:

After leaving the boiler, combustion gases travel through an extensive air pollution control system. At many of our plants, activated carbon is added to the flue gas stream as it exits the boiler. Gaseous phase contaminants such as mercury and dioxins adsorb to the surface of the carbon so it can be removed downstream in the baghouse.

Scrubber:

A scrubber neutralizes acid gases, including sulfur dioxide and hydrochloric acid, by spraying a lime slurry into the exhaust stream.

Baghouse:

Operating like a very efficient vacuum cleaner, the baghouse removes over 99.5 percent of the particulate matter from the combustion gases. As air is drawn through the baghouse, particulate matter and fly ash are caught on the surface of the bags. Periodically, the bags are cleaned by temporarily reversing the airflow or, in other designs, pulsing the bags with a strong jet of air. The particulate and fly ash are removed from the bottom of the baghouse.

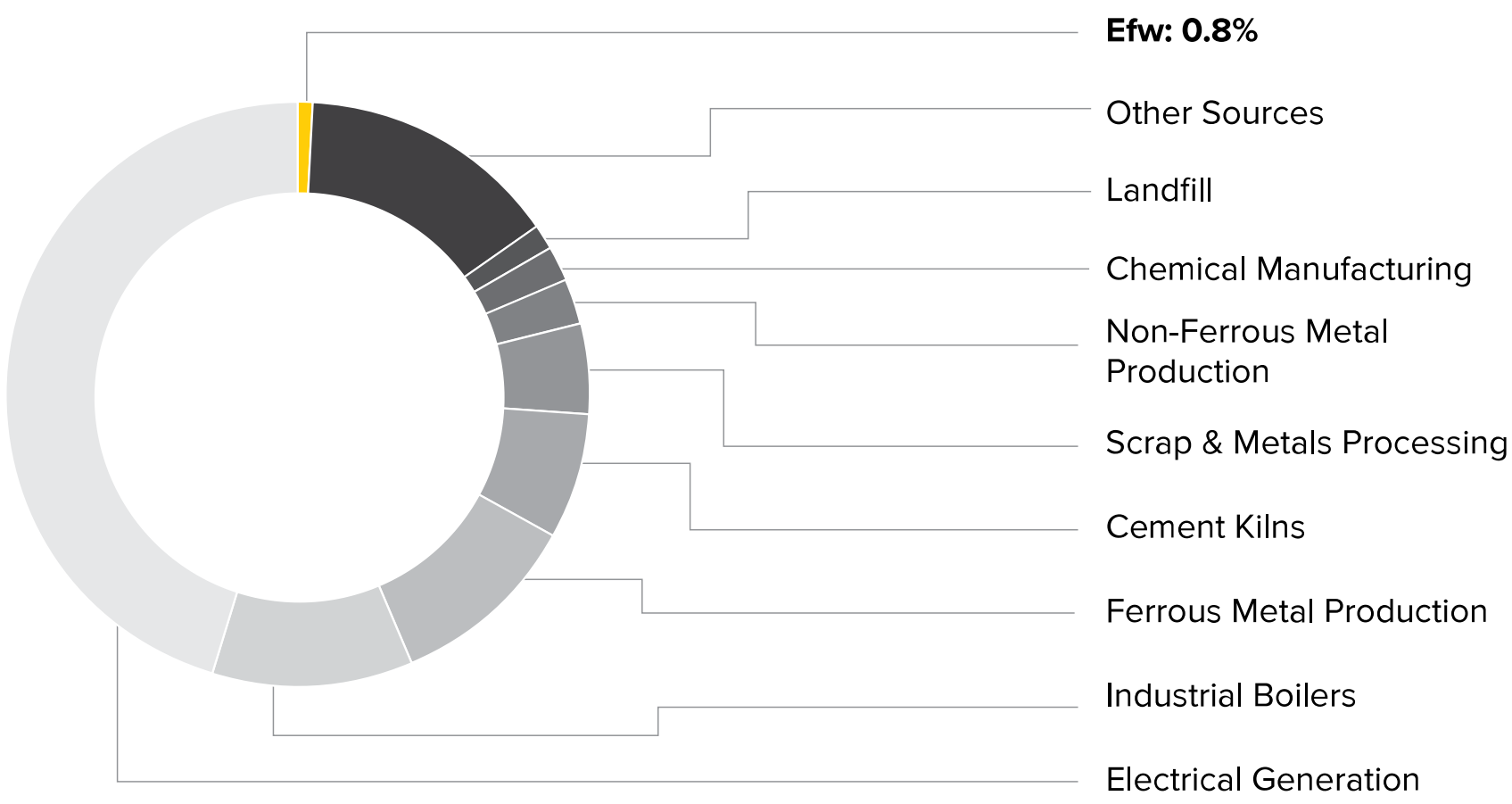
Emission Monitoring:

All of our facilities operate under strict air pollutant control limits. To demonstrate compliance, we use a combination of continuous emission monitoring systems and stack tests performed at least annually.

Human Health Impacts of Air Emissions Associated with Waste combustion: Is There a Risk?

Some of our stakeholders and community members have expressed concern about the environmental and human health impacts of air emissions associated with waste combustion. A comprehensive 2017 review of available literature on air quality health risk assessments and health surveillance programs surrounding EfW facilities was done for the city of Portland, Oregon. The review "determined that there was ***not a predictive or actual increase in health issues***, including for those in vulnerable or sensitive 'at-risk' populations such as children or the elderly."

U.S. 2014 Mercury Emissions by Source (Fig. 3)



Below, we take a closer look at some of the more common pollutants from EfW air emissions.

- **Mercury Emissions.** EfW facilities emit a fraction of the mercury emissions from coal plants, representing just 0.8 percent of man-made sources in 2014, or roughly half that emitted from landfills (Figure 3).
- **Dioxin Emissions.** Municipal waste combustors are no longer a leading source of dioxin emissions as they once were in the past, thanks to modern advancements in boiler design and air pollution control equipment. According to recent peer-reviewed research by Columbia University scientists, the total dioxin emissions of all U.S. EfW plants in 2012 represented less than one-tenth of one percent of total sources of dioxin.
- **Nanoparticulate Emissions.** Nanoparticulates agglomerate into larger particles within minutes of emission, increasing in size and correspondingly decreasing in number. The vast majority of particulate matter, including nanoparticulate, is removed via the air pollution control (APC) equipment installed at all EfW facilities. Recent published studies have concluded that EfW's emissions were negligible relative to typical exposures in urban environments and highways.

For more information, read Covanta's white paper, Energy-from-Waste & Health Risk.

Environmental Sustainability

Improving Our Performance

At Covanta, we know that maintaining our environmental performance—and exceeding, where possible, the expectations of our stakeholders—is critical to protecting our planet, our people and the prosperity of our business. We are committed to a goal of sustaining past emissions performance gains while maintaining 100 percent compliance with all discharge limits, including stack tests and the requirements of our continuous emission monitoring systems (CEMS). Our challenge is not only to meet these goals, but to meet them efficiently and consistently in the pursuit of continuous improvement.

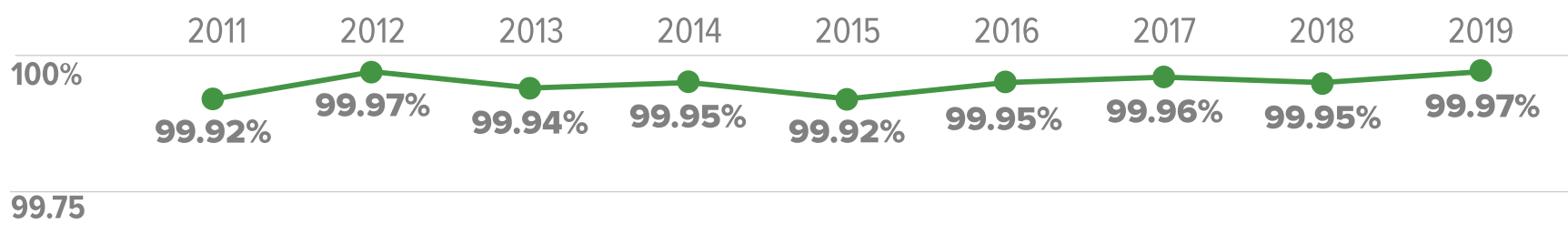
Operations Manager Lee Miller

We manage our environmental performance through a collaborative effort of our Operations and Environmental departments. Responsible for the day-to-day functioning of our facilities, the Operations department is ultimately responsible for operating our facilities in accordance with our permits and other requirements. The Environmental department is responsible for each facility's understanding and compliance with all permit conditions. We manage compliance through a combination of our Environmental Management Information System (EMIS), technical standards, environmental procedures and a vertically integrated team of environmental professionals located at both the facilities and corporate headquarters. EMIS allows us to track timely completion of compliance requirements and manage associated compliance data. Our environmental performance is reviewed monthly with senior management.

Air emissions from EfW facilities are heavily regulated by both the U.S. EPA and state environmental agencies. Emissions from EfW facilities are determined both through routine stack tests (performed at least once a year) and through continuous emissions monitoring systems (CEMS). CEMS monitor flue gases continuously for carbon monoxide (CO), nitrogen oxides (NO_x), sulfur dioxide (SO_2), opacity, and carbon dioxide and/or oxygen. Facility operators monitor these parameters and adjust as needed to ensure proper operation and compliance. For example, monitoring CO levels continuously allows operators to respond to changes in the waste (e.g. wetter than normal waste that may have been collected during a rainstorm) to ensure complete and efficient combustion.

Other regulated pollutants are checked through a rigorous stack testing program performed by a regulator-approved third-party. The operating parameters under which the stack test is conducted (e.g. activated carbon addition rate, steam flow rate) set the standard for the facility's operation until the next stack test is completed. Operating the combustion process and air pollution control equipment in accordance with these standards ensures compliance. These tests are scheduled well in advance of their performance, and contrary to myth, facility operators do not remove plastics from the waste stream or alter operations in any way to improve emissions performance during the test.

EfW Continuous Emission Monitoring System Compliance Performance

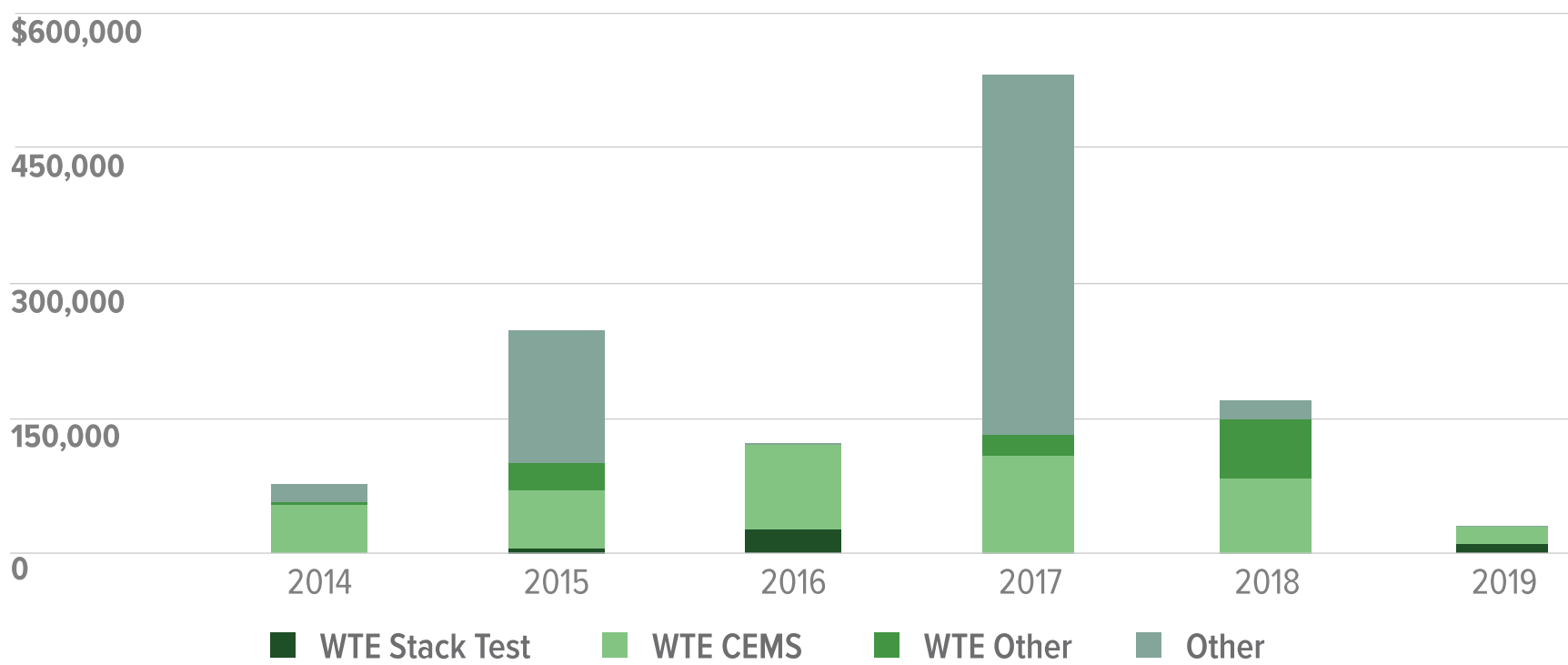


Our North American EfW facilities' performance, as measured by CEMS, averaged 99.96 percent compliance in 2018 and 2019. Our stack test compliance rate in 2018 and 2019 was 100 percent and 99.93% respectively. In 2019, cadmium results from one of three units at our Camden facility exceeded the limit by 5.4% due to a malfunction event. The average cadmium emissions across all three units was less than 50% of the limit. Within a week of the initial testing we took Unit #3 down for maintenance and fixed the malfunction. A second test performed the following month was 40% below the limit.

Our Covanta Environmental Solutions wastewater operations, which pre-treat water prior to discharging to a publicly owned treatment works (POTW), achieved a 99.8 and 99.0 percent compliance rate with pre-treatment permit limits in 2018 and 2019 respectively.

Occasionally, we are subject to proceedings and orders that pertain to environmental permitting and other regulatory requirements, potentially resulting in fines or penalties. Our total environmental-related fines and penalties at our facilities were $169,522 and $30,422 in 2018 and 2019, respectively. Since our last disclosure, the fines in 2018 have been updated to include a $65,600 assessment finalized in 2020 for the failure to demonstrate operation of a dust collector installed at our Essex County WTE facility. The dust collector is separate from the main air pollution control equipment and no emissions exceedance was observed at the time of a state regulatory inspection. In addition, our Covanta Environmental Solutions New Castle facility was fined $400,000 in 2019 for alleged violations of waste tracking requirements from 2016 to 2017 that resulted from a management process established by the former owner. There was no allegation of environmental harm in the consent assessment finalizing the fine.

Environmental fines



We have successfully maintained overall emissions reductions at our facilities: since the announcement of our first sustainability program in 2007, emissions are down by up to 72%. Today, we are finding ways to sustain our levels of emissions performance more efficiently by optimizing our operations.

To us, environmental excellence means that every Covanta facility meets or exceeds our strict standards for environmental performance, which we measure and track through continuous emissions monitoring systems, stack tests and discharge limits.

Environmental Excellence – Staying Vigilant

We will reach our goal of environmental excellence when every Covanta facility reaches 100% compliance with all discharge limits and meets or exceeds our strict standards for environmental performance.

We address facilities with the most room for improvement by enrolling them in our Environmental Improvement Plan (EIP), which takes a similar approach to our Safety Improvement Plans. The EIP requires the facility to identify the root causes of their exceedances and to create a customized solution that will be a path towards improved performance. Quarterly conference calls and/or face-to-face meetings maintain progress throughout the year while also encouraging communication between various subject matter experts, facility personnel and corporate personnel. A facility in the EIP plan will remain there until there is evidence that it has improved its performance. Covanta has been increasing the number of facilities in the EIP plan (three in 2016, five in 2017, six in 2018 and ten in 2019) on the premise that any facility with exceedances has room for improvement. Instead of a worrisome trend, this increase reflects a continued dedication to improve environmental performance across the fleet.

Achieving Rigorous Environmental Certification at Covanta Durham York

In 2018, Covanta Durham York in Ontario, Canada, achieved *ISO 14001:2015 Environmental Management System (EMS) certification*, an international standard that recognizes companies that have adopted environmentally responsible practices in their business processes.

In doing so, the Durham York facility joins four other Covanta facilities certified to the ISO 14001 standard, including Niagara Falls, Miami-Dade, Burnaby and our Covanta Environmental Solutions e-waste facility in Philadelphia. The ISO 14001 certification process serves as a framework for businesses to create environmental management systems and standards that meet three pivotal criteria: minimizing the negative impacts of operations on the environment, complying with regulations and driving continual improvement. Through this process, Covanta Durham York completed an Environmental Compliance Assessment, developed an online environmental manual, updated standard operating procedures and identified related goals to ensure a solid environmental program that will continue to be evaluated to ensure reductions of the impact of facility operations on the environment. Similarly, Covanta's operations in Fairfax County and Alexandria/Arlington continue their own EMS programs through Virginia's Environmental Excellence Program (VEEP).

Environmental Sustainability

Optimizing Water Use

Water is an essential natural resource and an important input to our materials management processes. As part of the environmental solutions we offer to our clients, we recycle millions of gallons of wastewater through pretreatment and discharge to POTWs every year. And as part of our commitment to environmental stewardship, we also strive to minimize freshwater use and wastewater discharge in our own operations as much as possible by recycling and reusing water. In addition to benefiting the environment, these steps frequently help us conserve costs too.

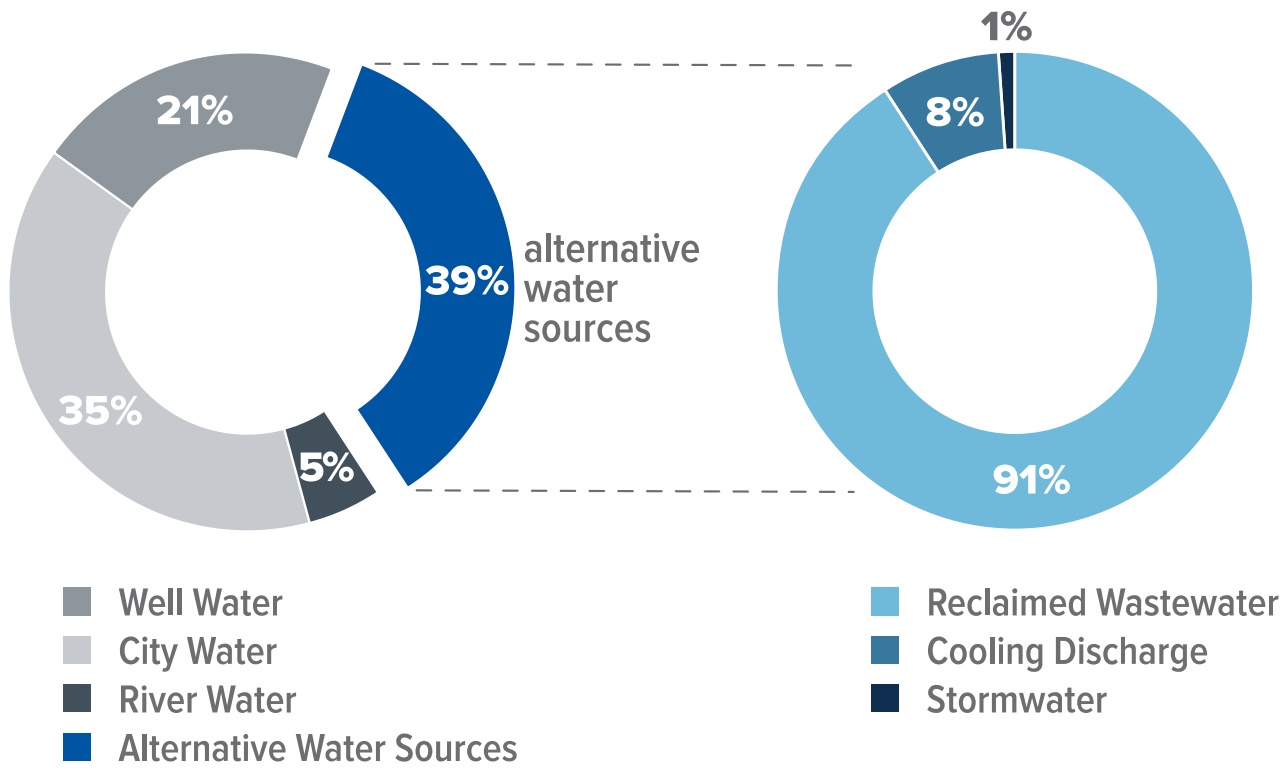
Covanta Environmental Solutions employee taking water sample.

Water Withdrawal

All thermal power plants—including our EfW facilities—use water to generate electricity. In the boiler, water is heated to generate steam, which runs the turbine to generate electricity. Most of this water is condensed and reused in the process of producing power. At some of our plants (such as the Covanta Niagara facility), we also generate steam that we export to communities and local businesses. While steam generation is a very efficient use of the waste resource, it can increase water withdrawal because the condensed water produced by the steam that is exported may not be returned to the facility to produce additional steam. At some of our facilities, water is also used in the cooling towers to condense the steam exhausted out of the turbine back into water for return to the boiler cycle. We also operate two once-through cooling plants, both of which use non-potable saline water.

The use of alternative, non-potable sources of freshwater continues to grow at our facilities. In 2018, the York County facility installed a roof rainwater collection tank, saving over three million gallons. Alternative water sources, including reclaimed wastewater (which now makes up over 30 percent of our freshwater consumption, up from 11 percent in 2007), made up 39 percent of our 2019 freshwater consumption.

Freshwater Source



*Does not total to 100% due to rounding

	2017	2018	2019
Total Freshwater Use (millions of gal.)	8,251	8,967	9,848
Percent Alternative (Non-potable) Water Sources	32%	33%	39%

Minimizing water consumption is also a key objective. In addition to the thermal cycle, a key use of water at our EfW facilities is for ash quenching. After the combustion process, the non-hazardous ash is quenched with water to reduce dusting. To reduce water consumption, we look for ways to use water more efficiently. For example, at our Delaware Valley facility, engineers identified an opportunity to reduce water consumption in the pugmill, an ash mixing device, by reducing process variability through a new automatic control system. With lower variation, we can lower the setpoint of water addition closer to its theoretical requirement, reducing excess water consumption. Annually, the facility expects to reduce potable water consumption by 14 million gallons.

In addition to minimizing our water consumption, we also minimize our wastewater discharge, using water internally as much as possible. A total of 19 of our facilities are zero process water discharge facilities, meaning that only sanitary wastewater is discharged to the local wastewater treatment plant.