Module: Introduction

Page: Introduction

CC0.1

Introduction

Please give a general description and introduction to your organization.

Our mission is to provide sustainable waste and energy solutions. We seek to do this through a variety of service offerings, including our core business of owning and operating infrastructure for the conversion of waste to energy (also known as “energy-from-waste” or “EfW”).

Our EfW facilities earn revenue from the disposal of waste and the generation of electricity, generally under long-term contracts, as well as from the sale of metals recovered during the EfW process. Our facilities process approximately 20 million tons of solid waste annually, equivalent to 7% of post-recycled municipal solid waste (“MSW”) generated in the United States. We operate and/or have ownership positions in over 40 EfW facilities, which are primarily located in North America, and several other renewable energy generation facilities in North America. In total, these assets produce approximately 10 million megawatt hours (“MWh”) of baseload renewable electricity annually. We also operate waste management infrastructure, including 17 waste transfer stations, 15 environmental services facilities, one regional metals recycling facility, and 4 landfills (primarily for ash disposal), all of which are complementary to our core EfW business.

Energy-from-waste serves two key markets as both a sustainable waste management solution that is environmentally superior to landfilling and as a source of clean energy that reduces overall greenhouse gas emissions. Energy-from-waste is considered renewable under the laws of many states and under federal law. Our facilities are critical infrastructure assets that allow our customers, which are principally municipal entities, to provide an essential public service through sustainable practices.

CC0.2

Reporting Year

Please state the start and end date of the year for which you are reporting data.

The current reporting year is the latest/most recent 12-month period for which data is reported. Enter the dates of this year first.

We request data for more than one reporting period for some emission accounting questions. Please provide data for the three years prior to the current reporting year if you have not provided this information before, or if this is the first time you have answered a CDP information request. (This does not apply if you have been offered and selected the option of answering the shorter questionnaire). If you are going to provide additional years of data, please give the dates of those reporting periods here. Work backwards from the most recent reporting year.

Please enter dates in following format: day(DD)/month(MM)/year(YYYY) (i.e. 31/01/2001).

Enter Periods that will be disclosed

Fri 01 Jan 2016 - Sat 31 Dec 2016

CC0.3
Country list configuration

Please select the countries for which you will be supplying data. If you are responding to the Electric Utilities module, this selection will be carried forward to assist you in completing your response.

Select country

United States of America

Italy

CC0.4
Currency selection

Please select the currency in which you would like to submit your response. All financial information contained in the response should be in this currency.

USD($)

CC0.6

Modules

As part of the request for information on behalf of investors, companies in the electric utility sector, companies in the automobile and auto component manufacturing sector, companies in the oil and gas sector, companies in the information and communications technology sector (ICT) and companies in the food, beverage and tobacco sector (FBT) should complete supplementary questions in addition to the core questionnaire.

If you are in these sector groupings, the corresponding sector modules will not appear among the options of question CC0.6 but will automatically appear in the ORS navigation bar when you save this page. If you want to query your classification, please email respond@cdp.net.

If you have not been presented with a sector module that you consider would be appropriate for your company to answer, please select the module below in CC0.6.

Further Information

Module: Management

Page: CC1. Governance

CC1.1
Where is the highest level of direct responsibility for climate change within your organization?

Board or individual/sub-set of the Board or other committee appointed by the Board

CC1.1a
Please identify the position of the individual or name of the committee with this responsibility

Board Public Policy Committee

CC1.2
Do you provide incentives for the management of climate change issues, including the attainment of targets?

Yes

CC1.2a
Please provide further details on the incentives provided for the management of climate change issues

Who is entitled to benefit from these incentives?	The type of incentives	Incentivized performance indicator	Comment
Environment/Sustainability managers	Monetary reward		The company has assigned specific personnel to manage the company's progress and status regarding climate change and each of those individuals receives an annual bonus based on individual performance wherein their success in the area of climate change would be among the factors considered. Furthermore, specific individuals in the company are tasked with implementation of specific initiatives that, among other benefits, result in net GHG emissions reductions. These employees are also evaluated on their individual performance on these initiatives. These evaluations impact the employees' bonuses.
Corporate executive team	Monetary reward		We have taken a deliberate approach to develop sustainability goals in concert with our business goals. As a consequence, we believe that strong performance on our sustainability goals is a key driver of our long-term financial performance demonstrated through the specific financial and stock performance metrics used in our management incentive program. In our Sustainability Report, we articulate the linkage between our sustainability goals and financial performance (See http://covanta-csr.com/goals-and-performance/future-goals/). Providing sustainable waste management services is a key part of our business strategy as outlined on pages 6-7 of our most recent 10-K and meeting our sustainability goals helps us respond to our customers' increasing interest in sustainability and the sustainable solutions we provide, mitigate certain risks, and gain a competitive advantage in business development opportunities. As described on pages 9-10 of our 2017 Proxy Statement, our Board Public Policy and Technology Committee maintains direct oversight of our sustainability strategies and goals.

Further Information

Attachments

https://www.cdp.net/sites/2017/89/3989/Climate Change 2017/Shared Documents/Attachments/ClimateChange2017/CC1.Governance/Covanta Holding 10-K 2016.pdf
https://www.cdp.net/sites/2017/89/3989/Climate Change 2017/Shared Documents/Attachments/ClimateChange2017/CC1.Governance/Covanta 2017 Proxy Filing.pdf

Page: CC2. Strategy

CC2.1
Please select the option that best describes your risk management procedures with regard to climate change risks and opportunities

Integrated into multi-disciplinary company wide risk management processes

CC2.1a
Please provide further details on your risk management procedures with regard to climate change risks and opportunities

Frequency of monitoring	To whom are results reported?	Geographical areas considered	How far into the future are risks considered?	Comment
Annually		Global	1 to 3 years	

CC2.1b
Please describe how your risk and opportunity identification processes are applied at both company and asset level

Covanta is unique in that our primary business, EfW, is a GHG mitigation technology. Therefore, risks and opportunities presented by climate change are a key focus of our risk management processes. Primarily, we evaluate the potential impact of future climate regulations on our business. We are a highly regulated business, and any changes to regulations in response to climate change may have a significant impact. Risks and opportunities are evaluated both on a corporate and facility level through the sustainability and environmental compliance departments. For example, the opportunities to generate carbon offsets are evaluated on a facility level. Opportunities to communicate our ability to mitigate greenhouse gas emissions are evaluated on a corporate level, taking into account several factors, including state and federal policy direction.

CC2.1c
How do you prioritize the risks and opportunities identified?

In the corporate sustainability and government affairs departments, climate change risks and opportunities are evaluated continuously as part of the department's core responsibilities. The criteria applied to assess materiality and prioritize the risks and opportunities identified includes financial, public relations, policy, and strategic considerations.

CC2.2
Is climate change integrated into your business strategy?

Yes

CC2.2a
Please describe the process of how climate change is integrated into your business strategy and any outcomes of this process

Covanta is unique in that our primary business, EfW, is a GHG mitigation technology. According to the U.S. Environmental Protection Agency (EPA), for every ton of municipal solid waste (MSW) diverted from landfill to an Energy-from-Waste (EfW) facility we can reduce life cycle GHG emissions by one ton of CO2e. EfW GHG reductions are quantified using a life cycle assessment (LCA) approach that includes GHG reductions from,A voided methane emissions from landfills(even when considering landfill gas capture and energy recovery), EfW electrical generation that offsets or displaces fossil-fuel-based electrical generation, and the recovery of metals for recycling reduces the amount of mining for new metal that must be done.

We have taken a deliberate approach to develop sustainability goals in concert with our business goals. As a consequence, we believe that strong performance on our sustainability goals is a key driver of our long-term financial performance demonstrated through the specific financial and stock performance metrics used in our management incentive program. In our Sustainability Report, we articulate the linkage between our sustainability goals and financial performance (See http://covanta-csr.com/goals-and-performance/future-goals/). Providing sustainable waste management services is a key part of our business strategy as outlined on pages 6-7 of our most recent 10-K and meeting our sustainability goals helps us respond to our customers' increasing interest in sustainability and the sustainable solutions we provide, mitigate certain risks, and gain a competitive advantage in business development opportunities. As described on pages 9-10 of our 2017 Proxy Statement, our Board Public Policy and Technology Committee maintains direct oversight of our sustainability strategies and goals.

CC2.2c
Does your company use an internal price on carbon?

Yes

CC2.2d
Please provide details and examples of how your company uses an internal price on carbon

We selectively use the U.S. Federal Government's Social Cost of Carbon to demonstrate & communicate the economic benefits of landfill diversion and energy from waste with policy and decision makers.

CC2.3
Do you engage in activities that could either directly or indirectly influence public policy on climate change through any of the following? (tick all that apply)

Direct engagement with policy makers
Trade associations
Funding research organizations

CC2.3a
On what issues have you been engaging directly with policy makers?

Focus of legislation	Corporate Position	Details of engagement	Proposed legislative solution
Mandatory carbon reporting	Support with minor exceptions	Submittal of comments in response to proposed regulation.	Covanta recommended that the latest science pertaining to emission factors and the determination of biogenic carbon through the latest radiocarbon dating methods be incorporated into revisions to the US EPA's mandatory GHG reporting rule.
Cap and trade	Support with minor exceptions	Direct engagement with policymakers and regulators.	Covanta supports cap and trade programs as long as their design and scope provide for the recognition of energy-from-waste's well proven ability to mitigate GHG emissions or the relative lifecycle GHG emissions of EfW and landfilling.
Clean energy generation	Support with minor exceptions	Direct engagement with policymakers and regulators.	Covanta supports clean energy and renewable energy generation policies that include energy-from-waste technologies.
Carbon tax	Support with minor exceptions	Direct engagement with policymakers and regulators.	Covanta supports a carbon tax, as long as the tax can be implemented equitably. We propose the best path forward is an aggressive strategy targeting short-lived climate pollutants like methane coupled with upstream carbon tax approach on fossil fuels capturing the vast majority of GHG emissions in an equitable manner.

CC2.3b
Are you on the Board of any trade associations or provide funding beyond membership?

Yes

CC2.3c
Please enter the details of those trade associations that are likely to take a position on climate change legislation

Trade association	Is your position on climate change consistent with theirs?	Please explain the trade association's position	How have you, or are you attempting to, influence the position?

Trade association	Is your position on climate change consistent with theirs?	Please explain the trade association's position	How have you, or are you attempting to, influence the position?
Energy Recovery Council	Consistent	The Energy Recovery Council is active in communicating energy-from-waste's (EfW's) role as a key source of GHG mitigation and advocating for the proper treatment of EfW in state and federal policies in recognition of its benefits.	As a member of the Energy Recovery Council's board, we are involved in developing policy positions for the organization.
Biomass Power Association	Consistent	The Biomass Power Association (BPA) is actively involved in the legislative process, promoting biopower as an important addition to America's energy portfolio, and helping to shape government policies that encourage the development and use of biomass energy. BPA's advocacy efforts are vital as American policymakers at every level explore ways to reduce our nation's dependence on foreign oil, and reduce the greenhouse gas emissions that contribute to global warming.	As a member of the Biomass Power Association's board, we are involved in developing policy positions for the organization.

CC2.3d
Do you publicly disclose a list of all the research organizations that you fund?

No

CC2.3f
What processes do you have in place to ensure that all of your direct and indirect activities that influence policy are consistent with your overall climate change strategy?

Covanta's direct and indirect activities that influence policy are coordinated through our Chief Sustainability Officer. In the corporate sustainability and government affairs departments, our policy positions pertaining to climate change are part of the department's core responsibilities. The Chief Sustainability Officer regularly (at least annually) updates the board's Public Policy committee on key issues, including policy developments, related to climate change.

Further Information

Page: CC3. Targets and Initiatives

CC3.1
Did you have an emissions reduction or renewable energy consumption or production target that was active (ongoing or reached completion) in the reporting year?

Absolute target
Renewable energy consumption and/or production target

CC3.1a
Please provide details of your absolute target

ID	Scope	% of emissions in scope	% reduction from base year	Base year	Base year emissions covered by target (metric tonnes CO2e)	Target year	Is this a science-based target?	Comment
Abs1	Scope 3: Waste generated in operations			2014		2020	Yes, but this target has not been approved as science-based by the Science Based Targets initiative	Goal is to Increase total wastes avoided, recycled, or reused under our management by 25% by 2020 relative to a 2014 baseline of 548,000 tons. This includes both metals that we recover from our combustion ash, as well as waste recycling, reuse, or avoidance services we offer to our clients. For example, in 2014, we began a program to use industrial wastewaters as process make-up water at our SeMass energy from waste facility.

CC3.1d

Please provide details of your renewable energy consumption and/or production target

ID	Energy types covered by target	Base year	Base year energy for energy type covered (MWh)	% renewable energy in base year	Target year	% renewable energy in target year	Comment
RE1	Electricity production	2014	8950000	100%	2020	100%	One of our sustainability performance indicators is, by 2020, to increase the amount of waste managed through energy recovery and other sustainable waste management operations by 10% relative to a 2014 baseline. To the extent that the growth in sustainable waste management services is from energy recovery, renewable energy generation will increase relative to the 2014 baseline.
RE2	Electricity production	2014					Achieve additional energy efficiency improvements at our energy recovery facilities of 60,000 MWh in total by the end of 2020.

CC3.1e
For all of your targets, please provide details on the progress made in the reporting year

ID	% complete (time)	% complete (emissions or renewable energy)	Comment

ID	% complete (time)	% complete (emissions or renewable energy)	Comment
Abs1		100%	We have exceeded our goal to increase wastes avoided, reuse, and recycled under our management, reaching over 900,000 tons in 2016, inclusive of, but not limited to, water pre-treatment, non-ferrous and ferrous metal recycling, and e-waste recycling. Waste reduction, reuse and recycling is recognized as generally reducing GHG emissions relative to both disposal (landfilling) and energy recovery.
RE1		1%	Increase in net electrical generation from energy-from-waste (EfW) facilities.
RE2	33%		We are one-third of the way through the timeframe of our sustainability goal to implement energy efficiency projects.

CC3.2
Do you classify any of your existing goods and/or services as low carbon products or do they enable a third party to avoid GHG emissions?

Yes

CC3.2a
Please provide details of your products and/or services that you classify as low carbon products or that enable a third party to avoid GHG emissions

Level of aggregation	Description of product/Group of products	Are you reporting low carbon product/s or avoided emissions?	Taxonomy, project or methodology used to classify product/s as low carbon or to calculate avoided emissions	% revenue from low carbon product/s in the reporting year	% R&D in low carbon product/s in the reporting year	Comment

Level of aggregation	Description of product/Group of products	Are you reporting low carbon product/s or avoided emissions?	Taxonomy, project or methodology used to classify product/s as low carbon or to calculate avoided emissions	% revenue from low carbon product/s in the reporting year	% R&D in low carbon product/s in the reporting year	Comment
Company-wide	Sustainable waste management services, inclusive of energy from waste (EfW), and Unwrapp process, which de-packages consumer packaged goods, recovering liquids for treatment or energy recovery through AD and recycling the packaging material. Our reporting is consistent with that of the FTSE Russell's Green Revenues (LCE) data model.	Avoided emissions	Other: Comparative life cycle analysis	99.7%	More than 80% but less than or equal to 100%	Numerous international governments, NGOs, and researches recognize the climate benefits of EfW, including the U.S. EPA; U.S. EPA scientists; the Intergovernmental Panel on Climate Change ("IPCC"); the World Economic Forum; the European Union; CalRecycle; California Air Resources Board; the Center for American Progress; Third Way; the Joint Institute for Strategic Energy Analysis (NREL); the Berkeley Law Center for Law, Energy, and the Environment; and other researchers. EfW facilities generates carbon offsets credits under both the Clean Development Mechanism (CDM) of the Kyoto Protocol and voluntary carbon offset markets. Under CDM, more than 40 EfW projects have been registered, with a combined annual GHG reduction of 5 million metric tons of CO2e per year. To date, three EfW expansions have been validated as carbon offset projects in North America. The Lee and Hillsborough County facilities, operated on behalf of municipal owners in Florida, have been selling carbon credits into the voluntary market for several years.

CC3.3
Did you have emissions reduction initiatives that were active within the reporting year (this can include those in the planning and/or implementation phases)

No

CC3.3d
If you do not have any emissions reduction initiatives, please explain why not

All of our emissions reductions initiatives are included as part of our emissions reduction or renewable energy consumption or production targets described above.

Further Information

Page: CC4. Communication

CC4.1

Have you published information about your organization's response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s)

Publication	Status	Page/Section reference	Attach the document	Comment
In mainstream reports (including an integrated report) but have not used the CDSB Framework	Complete	2016 10-K Report	https://www.cdp.net/sites/2017/89/3989/Climate Change 2017/Shared Documents/Attachments/CC4.1/Covanta Holding 10-K 2016.pdf	
In mainstream reports (including an integrated report) but have not used the CDSB Framework	Complete	2017 Proxy Statement	https://www.cdp.net/sites/2017/89/3989/Climate Change 2017/Shared Documents/Attachments/CC4.1/Covanta 2017 Proxy Filing.pdf	
In voluntary communications	Complete	Sustainability Report	https://www.cdp.net/sites/2017/89/3989/Climate Change 2017/Shared Documents/Attachments/CC4.1/covanta-csr-2014-2015 (1).pdf	

Further Information

Module: Risks and Opportunities

Page: CC5. Climate Change Risks

CC5.1
Have you identified any inherent climate change risks that have the potential to generate a substantive change in your business operations, revenue or expenditure? Tick all that apply

Risks driven by changes in regulation

CC5.1a
Please describe your inherent risks that are driven by changes in regulation

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Uncertainty surrounding new regulation	California Assembly Bill AB32	Increased operational cost	1 to 3 years	Direct	Unknown	Low-medium	The future treatment of EfW facilities under this program is uncertain at this time.	California's Global Warming Solutions Act of 2006 ("AB 32"), seeks to reduce GHG emissions in California to 1990 levels by 2020. AB 32 includes an economy-wide “cap-and-trade” program, which could impact our California EfW facilities, but not our biomass facilities. Regulatory amendments in 2013 and 2014 excluded EfW facilities from the cap-and-trade program through the end of 2015 and proposed amendments to the program would exclude EfW through the end of 2017. We are actively engaged in California to ensure the proper treatment of EfW facilities in the cap and trade program in line with EfW's recognition as a source of GHG emissions mitigation relative to landfilling.	Not disclosed

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Uncertainty surrounding new regulation	Ontario, Canada cap and trade program		3 to 6 years	Direct	Unknown	Unknown	We cannot predict at this time the outcome of this policy development and its potential impact on our business.	The province of Ontario, Canada has finalized a greenhouse gas cap and trade program which will begin operating in 2017. The Durham-York energy-from-waste facility, which we operate on behalf of the Durham and York regions, is effectively exempted from compliance obligations under the first compliance period, which extends from 2017-2020. However, the treatment of energy-from-waste facilities in the second compliance period, beginning in 2021, is uncertain. We are actively engaged in Ontario to ensure the proper treatment of EfW facilities in the cap and trade program in line with EfW's recognition as a source of GHG emissions mitigation relative to landfilling.	Not disclosed

CC5.1e

Please explain why you do not consider your company to be exposed to inherent risks driven by changes in physical climate parameters that have the potential to generate a substantive change in your business operations, revenue or expenditure

While Covanta is subject to physical risks associated with climate change, we do not expect them to be significant at this time. Covanta owns/operates a portfolio of relatively modern facilities, the oldest of which began operation in 1987. The facilities were built to modern hurricane standards and should be able to withstand these and other weather-related events. Rising sea level attributable to climate change could become a long-term issue at several facilities; however, significant impacts are unlikely because the useful life of existing facilities would be expended by the time this phenomenon might result in sufficient sea level rise to impact these facilities.

A few facilities in the United States and Asia are located on estuaries that could become affected by storm surge, and in fact did become effected during Hurricane Sandy that impacted the northeast during fall 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; however, the impacts were confined to the facilities impacted by the storm and did not impact the long-term ability of these facilities to operate. Covanta is currently evaluating appropriate steps that can be taken to minimize future storm-related damage and business disruption.

CC5.1f
Please explain why you do not consider your company to be exposed to inherent risks driven by changes in other climate-related developments that have the potential to generate a substantive change in your business operations, revenue or expenditure

Covanta does not feel there are other significant risks associated with climate change at this time. While resource scarcity is a potential risk for the future, it does not appear to be significant. While climate change may result in a greater focus on resource efficiency and recovery, we believe this will more strongly impact waste management technologies, such as landfilling, which are net GHG sources and are not able to extract significant value from municipal solid waste. Although consumer behavioral patterns and commodity prices may reduce the quantity of waste used by the company to fuel EfW facilities, a general waste surplus currently exists and growing population and economic prosperity is a driver for increased quantities.

Further Information

Page: CC6. Climate Change Opportunities

CC6.1
Have you identified any inherent climate change opportunities that have the potential to generate a substantive change in your business operations, revenue or expenditure? Tick all that apply

Opportunities driven by changes in regulation
Opportunities driven by changes in physical climate parameters

CC6.1a
Please describe your inherent opportunities that are driven by changes in regulation

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Cap and trade schemes	Federal cap and trade legislation	Reduced operational costs	3 to 6 years	Direct	Unknown	Unknown		In October 2015, EPA published two new rules regulating greenhouse gas emissions. The first rule, the Clean Power Plan, regulates existing fossil fuel fired electric generating units. The second regulation sets greenhouse gas emissions standards for new power plants. Our facilities are not regulated entities under either of these	

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								rules. States were required to develop their plans for implementing the new emission guidelines by 2016 or request an extension until 2018. However, these requirements have been stayed by the Supreme Court pending the Court's hearing of the appeal. Depending on the outcome of the Supreme Court decision, and specific details of the state plans, implementation of the Clean Power Plan may create additional demand for our power and new MWC capacity may benefit from certain credits; implementation scope and schedule is uncertain as a result of court challenges. We cannot predict at this time the magnitude of the potential impact to our business of these newly promulgated rules. We continue to closely follow developments in this area.	

CC6.1b

Please describe your inherent opportunities that are driven by changes in physical climate parameters

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Other physical climate opportunities	Geographic proximity to population centers	Increased demand for existing products/services	Unknown	Direct	Unknown	Unknown	There may be opportunities associated with Covanta's facility locations that are generally closer to waste generating population centers than competing landfills. Escalating fuel costs will motivate disposal of MSW at sites closer to the point where MSW is generated. There may also be opportunities to manage wastes from storm events. These opportunities could reduce the cost differential between landfilling and energy from-waste, allowing energy-from-waste to become more cost competitive. Given the significant uncertainty in predicting the impacts of climate change, Covanta has	Management of opportunities driven by responses to climate change is handled through our normal business development activity. Members of our sustainability team are integrally involved with business development efforts as appropriate.	

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
							not quantified the financial implications at this time.		

CC6.1f
Please explain why you do not consider your company to be exposed to inherent opportunities driven by changes in other climate-related developments that have the potential to generate a substantive change in your business operations, revenue or expenditure

The significant opportunities for Covanta have been identified above. The broadest opportunity is from Covanta's investment in renewable energy-from-waste and other sustainable waste management services, which displaces the need for fossil fuel-fired generators and landfills.

Further Information

Module: GHG Emissions Accounting, Energy and Fuel Use, and Trading

Page: CC7. Emissions Methodology

CC7.1
Please provide your base year and base year emissions (Scopes 1 and 2)

Scope	Base year	Base year emissions (metric tonnes CO2e)
Scope 1		
Scope 2 (location-based)		
Scope 2 (market-based)		

CC7.2
Please give the name of the standard, protocol or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions

Please select the published methodologies that you use

US EPA Mandatory Greenhouse Gas Reporting Rule

CC7.2a
If you have selected "Other" in CC7.2 please provide details of the standard, protocol or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions

CO2 emissions from MSW combustion in the United States are based on a USEPA emission factor for units with throughput less than 600 tpd and continuous emissions rate monitoring systems (CERMS) for units with MSW throughput greater than or equal to 600 short tons per day (tpd). For non-U.S. facilities, emissions from MSW combustion are generally based on an assumed 30%

carbon for developed countries and 15% carbon for emerging countries. (See B. Bahor, M. Van Brunt, K. Weitz, A. Szurgot, “Life Cycle Assessment of Waste Management Greenhouse Gas Emissions Using Municipal Waste Combustor Data” Journal of Environmental Engineering, August 2010, 749-755) MSW is a mixture of biogenic (e.g. wood, paper) and anthropogenic (e.g. plastics, rubber) components. The split between the anthropogenic and biogenic CO2 emissions at facilities in developed countries is determined from analysis of EfW flue gas completed using ASTM method D-6866 “Standard Test Methods for Determining the Biobased Content of Solid, Liquid, and Gaseous Samples Using Radiocarbon Analysis” on samples collected over a 24-hour period in accordance with ASTM method D-7459 “Standard Practice for Collection of Integrated Samples for the Speciation of Biomass (Biogenic) and Fossil-Derived Carbon Dioxide Emitted from Stationary Emissions Sources”. Site specific data was applied to those facilities where sufficient testing has been completed. For those facilities without data, the U.S. average of 65% was applied, based on Bahor et al. (2010). The ASTM methods are well accepted, including by the California Air Resources Board, TCR, and the U.S. EPA.

CC7.3
Please give the source for the global warming potentials you have used

Gas	Reference
CO2	IPCC Fifth Assessment Report (AR5 - 100 year)
CH4	IPCC Fifth Assessment Report (AR5 - 100 year)
N2O	IPCC Fifth Assessment Report (AR5 - 100 year)

CC7.4
Please give the emissions factors you have applied and their origin; alternatively, please attach an Excel spreadsheet with this data at the bottom of this page

Fuel/Material/Energy	Emission Factor	Unit	Reference

Further Information

Attachments

https://www.cdp.net/sites/2017/89/3989/Climate Change 2017/Shared Documents/Attachments/ClimateChange2017/CC7.EmissionsMethodology/CVA 2017 CDP Response GHG Emission Factors.xlsx

Page: CC8. Emissions Data - (1 Jan 2016 - 31 Dec 2016)

CC8.1
Please select the boundary you are using for your Scope 1 and 2 greenhouse gas inventory

Equity share

CC8.2
Please provide your gross global Scope 1 emissions figures in metric tonnes CO2e

4378546

CC8.3

Please describe your approach to reporting Scope 2 emissions

Scope 2, location-based	Scope 2, market-based	Comment
We are reporting a Scope 2, location-based figure	We have operations where we are able to access electricity supplier emissions factors or residual emissions factors, but are unable to report a Scope 2, market-based figure	Covanta generates electricity for export to the grid. However, we do, on occasion, purchase electricity from the grid to sustain operations during maintenance outages or for other purposes. Our 2016 purchased electricity was equivalent to less than 2% of our total gross electrical generation. For consistency, we report using the average grid factors from U.S. EPA's eGRID tool which are a data-based set of emission factors for individual power control regions in the U.S.

CC8.3a
Please provide your gross global Scope 2 emissions figures in metric tonnes CO2e

Scope 2, location-based	Scope 2, market-based (if applicable)	Comment
33845		

CC8.4
Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure?

Yes

CC8.4a
Please provide details of the sources of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure

Source	Relevance of Scope 1 emissions from this source	Relevance of location-based Scope 2 emissions from this source	Relevance of market-based Scope 2 emissions from this source (if applicable)	Explain why the source is excluded
Regional Offices	Emissions are not relevant	Emissions are not relevant	Emissions are not relevant	Regional offices not located at other Covanta facilities are very small, consisting of one to no more than ten employees and are expected to have an immaterial impact on the overall inventory.
Transfer Stations	Emissions are not relevant	Emissions are not relevant	Emissions are not relevant	A detailed assessment of GHG emissions performed in several states as part of our earlier participation in The Climate Registry found that transfer station Scope 1 and Scope 2 GHG emissions represented 0.02% of total Scope 1 and Scope 2 GHG emissions. Exclusion of transfer station emissions is not expected to have a material impact on the inventory.

Source	Relevance of Scope 1 emissions from this source	Relevance of location-based Scope 2 emissions from this source	Relevance of market-based Scope 2 emissions from this source (if applicable)	Explain why the source is excluded
PFCs	Emissions are not relevant	No emissions excluded	Emissions are not relevant	A review of Covanta's operations in California, New Jersey, and New York completed as part of both voluntary reporting to the California Climate Action Registry (CCAR), mandatory reporting to the California Air Resources Board (CARB), and our earlier participation in The Climate Registry (TCR) voluntary reporting program, has revealed no emissions of perfluorocarbons (PFCs) from our operations. Therefore, PFC emissions have not been considered as part of this inventory.
Mobile Equipment	Emissions are not relevant	No emissions excluded	No emissions excluded	Covanta consumes relatively small amounts of fossil fuels, predominately diesel, for operations of heavy equipment at its facilities. Our reporting experiences to date, described above, have revealed these sources to be very small relative to our stationary combustion emissions from our electrical and steam generation facilities; therefore, they have not been included in the CDP inventory.
SF6 Emissions	Emissions are not relevant	No emissions excluded	No emissions excluded	Covanta also has relatively minor emissions of SF6, predominately associated with high-voltage switchgear. Our reporting experiences to date, described above, have revealed these sources to be very small relative to our stationary combustion emissions from our electrical and steam generation facilities; therefore, they have not been included in the CDP inventory.
Covanta Environmental Solutions Acquisitions	Emissions excluded due to a recent acquisition	Emissions excluded due to a recent acquisition	Emissions excluded due to a recent acquisition	In 2014, Covanta began acquiring materials processing facilities which are small operations located in commercial-style buildings. These facilities are involved in the receiving, processing, and shipping of waste & materials. We have not evaluated these facilities for their GHG emissions; however, based on their emissions, we expect their contribution to be relatively small. We expect to review these operations again over the coming year, and will include them in our 2018 CDP report if they are determined to be material.

CC8.5

Please estimate the level of uncertainty of the total gross global Scope 1 and 2 emissions figures that you have supplied and specify the sources of uncertainty in your data gathering, handling and calculations

Scope	Uncertainty range	Main sources of uncertainty	Please expand on the uncertainty in your data

Scope	Uncertainty range	Main sources of uncertainty	Please expand on the uncertainty in your data
Scope 1	More than 2% but less than or equal to 5%	Data Gaps Assumptions Metering/ Measurement Constraints Sampling	CO2 emissions from MSW combustion in the United States are based on a USEPA emission factor for units with throughput less than 600 tpd and continuous emissions rate monitoring systems (CERMS) for units with MSW throughput greater than or equal to 600 short tons per day (tpd). Both emission factors and direct measurement of CO2 flow rate introduce error. For our equity share of an EfW facility in Trezzo, Italy, emissions from MSW combustion are generally based on an assumed 30% carbon for developed countries. MSW composition can vary based on location and time of year. However, given that the CDP inventory is reported at the country and global levels, use of an average carbon content is appropriate. MSW is a mixture of both fossil-based and biogenic carbon. The fraction of biogenic carbon is determined in the U.S. using quarterly samples as required by the regulation, introducing potential sampling error. Furthermore, in certain cases, actual data was not available at the time of inventory completion. In these cases, estimates were used based on historic data and other operating parameters available. Estimated data is expected to be less than 2% of total emissions data.
Scope 2 (location-based)	More than 2% but less than or equal to 5%	Data Gaps Extrapolation	For our North American facilities, purchased electricity is closely tracked and metered. We estimate the electricity purchased at the facility in Trezzo, Italy based on our U.S. operations.
Scope 2 (market-based)			

CC8.6
Please indicate the verification/assurance status that applies to your reported Scope 1 emissions

No third party verification or assurance – regulatory CEMS required

CC8.6b
Please provide further details of the regulatory regime to which you are complying that specifies the use of Continuous Emission Monitoring Systems (CEMS)

Regulation	% of emissions covered by the system	Compliance period	Evidence of submission
Other: 40 CFR 98	52	Fri 01 Jan 2016 - Sat 31 Dec 2016	https://www.cdp.net/sites/2017/89/3989/Climate Change 2017/Shared Documents/Attachments/CC8.6b/CVA USEPA MRR Submittal Proof (2016).pdf

CC8.7
Please indicate the verification/assurance status that applies to at least one of your reported Scope 2 emissions figures

No third party verification or assurance

CC8.8
Please identify if any data points have been verified as part of the third party verification work undertaken, other than the verification of emissions figures reported in CC8.6, CC8.7 and CC14.2

Additional data points verified **Comment**

No additional data verified

CC8.9
Are carbon dioxide emissions from biologically sequestered carbon relevant to your organization?

Yes

CC8.9a
Please provide the emissions from biologically sequestered carbon relevant to your organization in metric tonnes CO2

5953805

Further Information

Page: CC9. Scope 1 Emissions Breakdown - (1 Jan 2016 - 31 Dec 2016)

CC9.1
Do you have Scope 1 emissions sources in more than one country?

Yes

CC9.1a
Please break down your total gross global Scope 1 emissions by country/region

Country/Region	Scope 1 metric tonnes CO2e
United States of America	4369684
Italy	8862

CC9.2
Please indicate which other Scope 1 emissions breakdowns you are able to provide (tick all that apply)

By GHG type
By activity

CC9.2c
Please break down your total gross global Scope 1 emissions by GHG type

GHG type	Scope 1 emissions (metric tonnes CO2e)
CO2	4338957
CH4	1476
N2O	38113

CC9.2d
Please break down your total gross global Scope 1 emissions by activity

Activity	Scope 1 emissions (metric tonnes CO2e)
Energy-from-Waste	4315839
Other Industrial Steam Supply	62707

Further Information

Page: CC10. Scope 2 Emissions Breakdown - (1 Jan 2016 - 31 Dec 2016)

CC10.1
Do you have Scope 2 emissions sources in more than one country?

Yes

CC10.1a
Please break down your total gross global Scope 2 emissions and energy consumption by country/region

Country/Region	Scope 2, location-based (metric tonnes CO2e)	Scope 2, market-based (metric tonnes CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low carbon electricity, heat, steam or cooling accounted in market-based approach (MWh)
United States of America	33789	0	0	0
Italy	56	0	0	0

CC10.2
Please indicate which other Scope 2 emissions breakdowns you are able to provide (tick all that apply)

By activity

CC10.2c
Please break down your total gross global Scope 2 emissions by activity

Activity	Scope 2, location-based (metric tonnes CO2e)	Scope 2, market-based (metric tonnes CO2e)
Energy-from-Waste	33845	0
Other Industrial Steam Supply	0	

Further Information

Page: CC11. Energy

CC11.1
What percentage of your total operational spend in the reporting year was on energy?

More than 0% but less than or equal to 5%

CC11.2
Please state how much heat, steam, and cooling in MWh your organization has purchased and consumed during the reporting year

Energy type	MWh
Heat	0
Steam	0
Cooling	0

CC11.3

Please state how much fuel in MWh your organization has consumed (for energy purposes) during the reporting year

33604032

CC11.3a
Please complete the table by breaking down the total "Fuel" figure entered above by fuel type

Fuels	MWh
Distillate fuel oil No	260600
Natural gas	292079
Propane	2137
Wood or wood waste	4677
Municipal waste	33244538

CC11.4
Please provide details of the electricity, heat, steam or cooling amounts that were accounted at a low carbon emission factor in the market-based Scope 2 figure reported in CC8.3a

Basis for applying a low carbon emission factor	MWh consumed associated with low carbon electricity, heat, steam or cooling	Emissions factor (in units of metric tonnes CO2e per MWh)	Comment
No purchases or generation of low carbon electricity, heat, steam or cooling accounted with a low carbon emissions factor	0		

CC11.5

Please report how much electricity you produce in MWh, and how much electricity you consume in MWh

Total electricity consumed (MWh)	Consumed electricity that is purchased (MWh)	Total electricity produced (MWh)	Total renewable electricity produced (MWh)	Consumed renewable electricity that is produced by company (MWh)	Comment
948607	106986	5969819	5969819	841622	

Further Information

Page: CC12. Emissions Performance

CC12.1
How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to the previous year?

Decreased

CC12.1a
Please identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined) and for each of them specify how your emissions compare to the previous year

Reason	Emissions value (percentage)	Direction of change	Please explain and include calculation
Emissions reduction activities		No change	
Divestment	7.2	Decrease	Covanta divested its interest in its China operations, which included a coal-fired combined heat and power facility. We have also divested and/or shuttered our biomass electricity facilities in the U.S., resulting in a decrease in CO2 emissions associated with CH4 and N2O emissions from biomass.
Acquisitions		No change	
Mergers		No change	
Change in output		No change	
Change in methodology		No change	
Change in boundary		No change	

Reason	Emissions value (percentage)	Direction of change	Please explain and include calculation
Change in physical operating conditions		No change	
Unidentified			
Other		No change	

CC12.1b

Is your emissions performance calculations in CC12.1 and CC12.1a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?

Location-based

CC12.2
Please describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tonnes CO2e per unit currency total revenue

Intensity figure =	Metric numerator (Gross global combined Scope 1 and 2 emissions)	Metric denominator: Unit total revenue	Scope 2 figure used	% change from previous year	Direction of change from previous year	Reason for change
2.6	metric tonnes CO2e	1000	Location-based	10.1	Decrease	Operating revenues increased, and total Scope 1 and Scope 2 emissions decreased for reasons described above

CC12.3
Please provide any additional intensity (normalized) metrics that are appropriate to your business operations

Intensity figure =	Metric numerator (Gross global combined Scope 1 and 2 emissions)	Metric denominator	Metric denominator: Unit total	Scope 2 figure used	% change from previous year	Direction of change from previous year	Reason for change
1232	metric tonnes CO2e	full time equivalent (FTE) employee	1	Location-based	8.3	Decrease	FTE employment increased and total Scope 1 and 2 emissions decreased

Further Information

Page: CC13. Emissions Trading

CC13.1
Do you participate in any emissions trading schemes?

Yes

CC13.1a
Please complete the following table for each of the emission trading schemes in which you participate

Scheme name	Period for which data is supplied	Allowances allocated	Allowances purchased	Verified emissions in metric tonnes CO2e	Details of ownership
Regional Greenhouse Gas Initiative	Fri 01 Jan 2016 - Sat 31 Dec 2016	0	45000	26146	Facilities we own and operate

CC13.1b
What is your strategy for complying with the schemes in which you participate or anticipate participating?

Covanta is subject to the RGGI cap and trade program for an auxiliary boiler installed at our Niagara Falls, NY facility. Our current strategy is to purchase allowances needed through the secondary market. Our core business, EfW, is not subject to the RGGI cap and trade program. Therefore, we currently have minimal market exposure to this program.

CC13.2
Has your organization originated any project-based carbon credits or purchased any within the reporting period?

No

Further Information

Page: CC14. Scope 3 Emissions

CC14.1
Please account for your organization's Scope 3 emissions, disclosing and explaining any exclusions

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
Purchased goods and services	Relevant, calculated	118055	Calculation based on consumption of relevant raw materials, including lime, carbon, limestone, urea, and ammonia and published emission factor data.	0.00%	
Capital goods	Not relevant, explanation provided				Peer-reviewed literature has found that capital goods and maintenance materials are a minor part of the GHG emissions associated with energy-from-waste and biomass-to-energy facilities.

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
Fuel-and-energy-related activities (not included in Scope 1 or 2)	Not relevant, explanation provided				All emissions associated with Covanta's fuel and energy use (on an equity share basis) are included in our Tier 1 and Tier 2 emissions
Upstream transportation and distribution	Not relevant, explanation provided				In general, Covanta's energy-from-waste facilities are located close to transportation centers from which waste is procured.
Waste generated in operations	Not relevant, explanation provided				Covanta's primary business is management of waste in our energy-from-waste facilities. These operations generate an inert ash that is either beneficially used, placed in MSW landfills, or placed in ash monofills.
Business travel	Not evaluated				
Employee commuting	Not evaluated				
Upstream leased assets	Not relevant, explanation provided				Covanta Energy does not have any appreciable upstream leased assets.
Downstream transportation and distribution	Not relevant, explanation provided				Covanta's primary products / outputs are energy products in the form of steam and electricity. Any downstream losses associcated with delivery of these products are already included in our scope 1 emissions.
Processing of sold products	Not relevant, explanation provided				Covanta's sold products include electricity, steam and metals recovered for recycling. While metals recovered for recycling would generate GHGs during the recycling process, they offer a net savings relative to the use of raw materials. Steam and electricity are not subject to further processing.
Use of sold products	Not relevant, explanation provided				Sold products, namely metals recovered for recycling, are not suitable for use without processing.

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
End of life treatment of sold products	Not relevant, explanation provided				Covanta's primary products steam and electricity, do not require end of life treatment. The recovery of metals for recycling is further processed and the end of life emissions associated with the final product into which the recovered metal is used is not attributable to Covanta.
Downstream leased assets	Not relevant, explanation provided				Covanta does not have downstream leased assets.
Franchises	Not relevant, explanation provided				Covanta does not have franchises.
Investments	Not relevant, explanation provided				Covanta does not have significant investments outside of equity investments already included in our Scope 1 inventory.
Other (upstream)	Not evaluated				
Other (downstream)	Not evaluated				

CC14.2
Please indicate the verification/assurance status that applies to your reported Scope 3 emissions

No third party verification or assurance

CC14.3
Are you able to compare your Scope 3 emissions for the reporting year with those for the previous year for any sources?

Yes

CC14.3a
Please identify the reasons for any change in your Scope 3 emissions and for each of them specify how your emissions compare to the previous year

Sources of Scope 3 emissions	Reason for change	Emissions value (percentage)	Direction of change	Comment

Sources of Scope 3 emissions	Reason for change	Emissions value (percentage)	Direction of change	Comment
Purchased goods & services	Change in output	5	Increase	Estimated increase in Scope 3 emissions from purchased goods and services as a result of slightly higher raw material consumption.

CC14.4
Do you engage with any of the elements of your value chain on GHG emissions and climate change strategies? (Tick all that apply)

Yes, our customers

CC14.4a
Please give details of methods of engagement, your strategy for prioritizing engagements and measures of success

Covanta works closely with its clients to identify opportunities to improve the efficiency of plant operations or implement metals recovery systems. Metal recovery systems extract ferrous and non-ferrous metals for recycling from the ash resulting in significant GHG and energy savings relative to processing metals from raw materials. Projects (engagements) are prioritized by practicality and return on investment potential. Performance of projects is measured by tracking electricity or steam generation efficiency improvements or energy savings or through the incremental metals recovered by the project.

In addition, Covanta is currently working with two of its clients on the continued generation of carbon offset credits through the Verified Carbon Standard associated with recent capital expansions of energy-from waste facilities.

Further Information

Module: Sign Off

Page: CC15. Sign Off

CC15.1
Please provide the following information for the person that has signed off (approved) your CDP climate change response

Name	Job title	Corresponding job category
Michael Van Brunt	Senior Director, Sustainability	Environment/Sustainability manager

Further Information