



Climate Change 2017 Information Request Owens Corning

Module: Introduction

Page: Introduction

CC0.1

Introduction

Please give a general description and introduction to your organization.

Owens Corning (the "Company") was founded in 1938. Since then, the Company has continued to grow as a market-leading innovator of glass fiber technology. A Fortune® 500 company for 63 consecutive years, the company is committed to expanding our impact through sustainability as a core value and an essential element of our business. Owens Corning has earned its reputation as a market-leading innovator of glass-fiber technology by consistently providing new solutions that deliver a strong combination of quality and value to its customers across the world. Owens Corning is a world leader in composite and building materials systems, delivering a broad range of high-quality products and services. Our products range from glass fiber used to reinforce composite materials for transportation, electronics, marine, infrastructure, wind-energy and other high-performance markets to insulation and roofing for residential, commercial and industrial applications.

SUSTAINABILITY Owens Corning is committed to balancing economic growth with social progress and environmental stewardship as it delivers sustainable solutions to its building materials and composites customers around the world. Owens Corning is striving to be a net-positive company by reducing the environmental footprint from its operations while growing its handprint – or positive impacts the company causes or enables to happen. Owens Corning's ability to deliver on this commitment has earned the company membership on the Dow Jones Sustainability World Index and recognition as the Building Products Industry Group Leader by the RobecoSAM 2017 Sustainability Yearbook.

SAFETY: Owens Corning's commitment to safety is unconditional. In its quest for an injury-free workplace, the company has a long history of improvement as evidenced by safety improvement in 11 of the past 13 years. Since 2001, Owens Corning has reduced the number of injuries by more than 94 percent. The company had 86 percent fewer injuries than the average manufacturing company when measured against the rates published by the U.S. Department of Labor. The Company has been recognized by the National Safety Council with the 2014 Green Cross Medal Award.

Owens Corning reported sales of \$5.7 billion in 2016 and employs approximately 16,000 people in 26 countries on five continents. Additional information is available at: www.owenscorning.com.

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
Belgium
Brazil
Canada
Chile
China
France
India
Italy
South Korea
Mexico
Netherlands
Russia
Singapore
Spain
United Kingdom
United States of America

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

The complete Board of Directors monitors Owens Corning's progress against sustainability and climate change. Sustainability is embedded in the company from the products we make to the actions we drive within the communities we operate. Specific responsibility for climate change and sustainability in general lies with the Audit Committee of the Board of Directors. According to the Audit Committee Charter([http://s21.q4cdn.com/855213745/files/doc_downloads/committee_charters/Audit-Committee-Charter-\(revised-2015-09-17\).pdf](http://s21.q4cdn.com/855213745/files/doc_downloads/committee_charters/Audit-Committee-Charter-(revised-2015-09-17).pdf)): The Committee is responsible to review the impact of significant regulatory changes, proposed regulatory changes and accounting or reporting developments, including significant reporting developments related to the principles of sustainability. Owens Corning has a Chief Sustainability Officer, Frank O'Brien-Bernini, who reports directly to the CEO, Michael Thaman. The CSO is responsible for the execution of the company's sustainability and climate change strategy.

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
Corporate executive team	Monetary reward	Emissions reduction target Energy reduction target Efficiency target	Monetary rewards for the corporate executive team are based on progress to our 2020 energy/emission reduction goals.
Energy managers	Monetary reward	Energy reduction target	Monetary rewards for energy managers are based on progress to our 2020 energy reduction goals.
Environment/Sustainability managers	Monetary reward	Emissions reduction target Energy reduction target Efficiency target Behavior change related indicator	Monetary rewards for environmental & sustainability managers are based on progress to our 2020 energy reduction goals.
All employees	Monetary reward	Energy reduction project	Our Composites business has an annual contest designed to drive participation for the Plant Energy Teams each year with cash awards which managed by the Energy Efficiency Program Manager. This program evaluates, among other items: (1) Implementation of low cost/no cost improvement projects (2) energy intensity metric improvement year over year, (3) a project listing for the following year is completed, (4) engagement in an energy program, (5) participating in energy program communications, (6) & implementing electrical reliability actions. Engagement in the Energy Program includes scoring for (1) holding site energy meetings with published minutes (2) holding at least one energy kaizen or assessment at the given plant, (3) participating in at least one kaizen events & assessments at another facility, (4) making at least one formal presentation for the internal energy network, (5) best practices shared across the network, (5) attending a given number of global energy network conference calls, (6) capital projects being implemented, (7) completing 16 or more hours of energy training.
All employees	Recognition (non-monetary)	Emissions reduction project	The Environmental Excellence award is designed to recognize sustained excellence in environmental stewardship & areas of regulatory or public interest. Teams or individuals considered for this award oversee mature, well-run environmental management systems, have no non-conformities for significant periods of time, & maintain high levels of trust & engagement with regulatory agencies. They may also oversee the effective implementation of broad regulatory changes, large equipment installations, or process & product changes with

Who is entitled to benefit from these incentives?	The type of incentives	Incentivized performance indicator	Comment
			significant environmental impact. Winners of this category may also be recognized as outstanding mentors & talent leaders who influence & develop others. 2016 Winner: The Toronto Energy Savings and Environmental Impact team implemented a project that achieved significant energy savings as well as significant environmental impact reductions. The project included converting from natural gas to electricity supplied through Toronto Hydro with a rebate incentive, which was the largest ever received within the Insulation business. This project was also the largest energy savings project undertaken by a company in the history of Toronto Hydro's Energy Incentive Program.
All employees	Recognition (non-monetary)	Other: Environmental Outreach	The Environmental Outreach award recognizes teams or individuals who actively participate in community environmental programs or initiatives, who may organize special events to raise environmental awareness, or who work to mentor smaller facilities, customers, or vendors in environmental stewardship. The 2016 awardees included the Asian Plant Community Environmental Volunteers. This group of Owens Corning employees has cleaned up a seaside park near their plant every month since 2014. The Korean Ministry of the Environment and local government encouraged groups to volunteer for cleanup work by sponsoring a contest. About 42 individual and public institutions participated in this volunteer work locally during 2016.
All employees	Recognition (non-monetary)	Other: Environmental Impact	The Environmental Impact Improvement award is given to individual or team efforts which significantly reduced negative environmental impact, or who also received public recognition or award for environmental impact improvement. The 2016 awardees included the Aiken Waste Water Project. This group was a composite team of EHS, maintenance and engineering who were tasked to redesign the waste water treatment plant. The project team was able to overcome challenges in a short timeline by providing a long-term, efficient solution for managing waste water and being a responsible environmental citizen.

Further Information

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	Board or individual/sub-set of the Board or committee appointed by the Board	All countries of operation	> 6 years	Risk assessments over a varied time frame of three, five & ten year projections. The annual risk assessments are reviewed annually to add or delete any impacts

CC2.1b

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

At the asset level, our business units (BUs) create business specific risk registers which are used in their Strategic & Operational Planning processes. In creating these registers, the BUs identify internal and external factors that could pose threats and opportunities to their business. They evaluate the potential impact and likelihood, and then establish management plans to mitigate the risk.

At the company level, Owens Corning has a risk committee that considers significant risk. The risk registers from the individual BUs as well as legal are consolidated and evaluated for the company as a whole. The company and BUs use risk maps as a risk analysis tool. They also use correlation analysis, sensitivity analysis & stress testing. Risk are retained, reduced/transferred or avoided.

The various types of risks are outlined as follows:

- Risks retained (risk exposure is accepted without further mitigation): raw material inflation, employment practices, political risks, trade credit & privacy & cyberliability
- Risks reduced/transferred (risk exposure is reduced or transferred to others or consequences are reduced): Property Damage, Product Liability, Cargo, General/Casualty Liability, Directors & Officers, Fiduciary, & Crime
- Risks avoided (risk exposure will be eliminated entirely, e.g., through ceasing a business): liquidity risk-refinanced debt

There are also efforts for identifying risks & opportunities with respect to climate change that are coordinated through the Sustainability organization by on-going work with each BU to identify & address opportunities & identify & reduce risk through:

1. Operations Sustainability
2. Product & Supply Chain Sustainability
3. Innovation & collaboration to deliver energy efficiency & durable material solutions at scale
4. Employee safety, health & engagement & community vitality

CC2.1c

How do you prioritize the risks and opportunities identified?

The company has a risk committee that considers significant risk to the corporation. They have a process in which they:

1. Review the Owens Corning Risk Register substantiated by business and functional reviews. The risks are prioritized based on their placement on the register. The Y-axis is a measure of financial impact and the X-axis is a measure of probability of occurrence. A risk, for example, located toward the upper left of the risk map would be indicative of risk that is high in financial impact but low in probability. Additional prioritization is provided by color coding. Risks plotted in green indicates that level of exposure is acceptable, while yellow indicates mitigation plans are actively in place, and red indicates that improved risk mitigation is needed.
2. Align around key mitigation programs – Based on the Risk assessment register outputs, the risk committee identifies the various mitigation actions to be taken and a planned approach is taken towards implementing them through the businesses.
3. Review Risk Register with Executive Committee – All risk assessment results and outputs are reviewed by the executive committee and feedback received is incorporated in the action register and also reflected in the mitigation planning.
4. Meet semi- annually as a Risk Committee – The risk committee meets semi-annually to review emerging risks and their potential impact to Owens Corning as well as review the existing risk aspects, add any new risks being identified from internal or external sources and update any risks which are no longer considered applicable the businesses. The risk committee also reviews the mitigation actions and outputs for the annual cycle.
5. Provide yearly update to Owens Corning Board of Directors

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

- I. Owens Corning's business strategy has been influenced by climate change risks & opportunities that have been identified & managed by our risk organization as well as within our distinct business units. All risk assessment results & outputs are reviewed by the executive committee (including the CEO). Feedback received is incorporated in the action register & also reflected in mitigation planning. The strategy is also influenced by our major stakeholders, which include NGO's, customers, suppliers, investors, as well as through our interactions with universities & business groups. The internal processes identifying our corporate footprint & handprint also influence the decisions made by our leaders.
- II. An example given of how the business strategy has been influenced by climate change is our inclusion of energy into our risk register. OC has an active team including internal and external resources who evaluate both boutique onsite renewable programs and large offsite installations. In 2015 OC signed a power purchase agreement to purchase 125 megawatts of wind energy from the Wake Wind Energy Facility in TX, owned by Invenergy, & an additional agreement with NextEra for another 125 megawatts – totalling a 250 megawatt power purchase agreement for renewable electricity. Through these two wind farm investments OC has agreed to purchase enough renewable energy to power 65,000 U.S. homes per year.

In Q4 2016 both wind farms came online and are now providing renewable energy into the grid. For purposes of GHG accounting, the impact will be seen in 2017. Also in 2016 OC continued to look for opportunities to expand our renewable portfolio with several reviews of onsite & offsite programs. To ensure we are evaluating each opportunity thoroughly a proposal is received from potential Energy Providers & the information is vetted through a consortium of internal and external parties who review the opportunity for impact, value, & ROI to determine if the next step should be taken. Based on this process we evaluated several opportunities with one or more to be announced in 2017. The renewable energy programs listed above are directly tied to our business strategy and 2020 emission reduction targets of 50% GHG intensity and 20% primary power intensity reductions since 2010.

III. There are several aspects of climate change that have influenced our business strategy. The climate change influence on increasing frequency & severity of storms, as well as changing weather patterns over regions of the world has driven changes to our strategy that have improved our company's products. For example, in recent years we have made it a priority to develop roofing products with higher wind resistance & greater durability.

a. Opportunities to partner with companies who drive programs which are forward thinking on topics such as progressing building standards & safety has influenced our business strategy. One major strategy of the company is to participate at the board level at the Residential Energy Services Network (RESNET), BPI, NAHB, BICAP, EEBA, NSC, & the Campbell Institute. We are members of BICEP & on the advisory board of SASB.

b. Another climate change driver to OC's business strategy is regulatory change. We are supporting regulation to eliminate GHG emissions. Other factors of climate change that influence our strategy include water shortages & the need to reduce greenhouse gas emissions & energy use. We have committed to perform Life Cycle Assessments to continue to develop our footprint & handprint.

IV. The short term strategy has been influenced by climate change in several ways. OC has instituted in the last 2 years a conversion process of the blowing agent used in manufacturing our foam products. The new blowing agent blends will reduce our GHG emissions. We published a residential builders' guide on how to build a net zero home for all climate zones. Other initiatives have included instituting a sustainability mapping tool that influences & measures the positive sustainability aspects of 100% of our R&D projects, new products, & new processes, an increase in the amount of renewable energy sources, & reduced energy usage in automobiles, energy, & buildings. Due to the financial impact of increasing energy costs & the political reality of potential carbon taxes, we are striving to reduce energy use & emissions.

V. There are also several aspects to our long term strategy that have been influenced by climate change.

a. Power Supply Sourcing – We have moved from a mindset of 1 to 3 years of power supply to 15 to 20 years to access renewable energy in a cost effective manner.

b. Inclusion of offsite renewable programs in our energy analysis & portfolio.

c. Impending water shortages in water stressed areas is part of our evaluation of suppliers & customers.

d. R&D Portfolio – Our R&D portfolio is guided by our sustainability mapping tool & our focus to ultimately be a net positive company. Innovation & sustainability are key drivers of our long term strategy. Owens Corning's products make the world a better place.

VI. Owens Corning sees a strategic advantage over its competitors through its integration of climate change in its long term strategy in several important ways. Our focus on sustainability has led to many new product & process developments, for example, the formaldehyde free EcoTouch® insulation & Sustaina® veil products, the sustainability R&D mapping tool, reduced energy intensity & related GHG emissions & increasing use of renewable energy. Since moving to EcoTouch® for residential insulation, we have continued to expand formaldehyde free formulations to heavier density products, and we were the first manufacturer to announce our mineral wool will be formaldehyde free. This combines high performance with sustainable attributes. These product qualities give us a competitive advantage in the marketplace, particularly in the green building space. Another competitive advantage is our shingle recycling program, which lowers disposal costs for our customers & helps construction projects gain LEED credits.

VII. Several key business decisions made were a direct result of climate change influence. In 2016, Owens Corning carriers fueled by natural gas moved 11% of our over the road miles in natural gas powered equipment, an increase over 2015. Additionally we increased miles moved via alternative modes such as intermodal and boxcar to 21%, also an increase from 2015. The reality of increased storm activity due to climate change resulted in our development & launch of shingles with greater wind & hail resistance. The importance of reducing GHG also led Owens Corning to perform a preliminary analysis on supply chain GHG including raw materials. In 2016 we remained active in board positions in major energy efficiency organizations.

The U.S. withdrawal from the Paris Agreement in 2017 does not change Owens Corning's commitment to reducing its environmental footprint.

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 consider Scope 1, 2 & 3 emissions, & have both internal & externally published reduction goals. We use our aligned & committed reduction goals to drive strategy & action, not an actual carbon charge such as an internal carbon tax. For use in internal decision making & risk analysis, we place an economic value on carbon emissions to help frame the challenges & opportunities in monetary, more broadly understood terms than simply tons of emissions. This includes considering the impact on our operations & our supply chain. Quantifying these added costs, in the event that a price is put on carbon in regions around the world where a current price or trading scheme is not in place, provides additional insight into our business decisions. We bracket this analysis, on the low end at \$10/metric ton & a high of \$60/metric ton.

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
Energy efficiency	Support	Texas Energy Code Adoption & Enforcement: Local engagement with State Energy & Building Professionals to either adopt or enforce energy codes; Authored 2 sections, #2 and #3 of the RECOMMENDATIONS of the SPEER COMMISSION on Texas Energy Efficiency Policy	Owens Corning has worked with NGOs like ACC, NICE and NAIMA to propose the following in the Texas legislation, numbered as the sections in the Speer Commission Recommendations: 2. Ensure High Energy Performance in New Homes & Buildings. (2a) Improve Compliance with Building Energy Codes; (2b) Create Voluntary Builder Incentives for Homes that Exceed the Energy Code; (2c) Adopt Statewide Energy Codes As They Are Issued; 3 Enable Access to Financing for Energy Efficiency Retrofits; (3a) Adopt Commercial Property Assessed Clean Energy (C-PACE) Programs; (3b) Create a Residential Energy Efficiency Retrofit Loan Program; (3c) Expand Water Conservation Funds to Include Energy Efficiency; (3d) Make Residential PACE Financing Available
Energy efficiency	Support	Local and State Energy Codes, Gaining adoption of 2015 energy codes: Local engagement with State Energy & Building Professionals to either adopt or enforce energy codes; Engagement & training with local leaders, building codes officials, policy makers. Mostly at the State level.	Adopt the 2015 Energy Code, Enforce the energy codes that have been adopted.
Energy efficiency	Oppose	Florida Building Commission - will onsite generation be allowed as trade-off for energy efficiency as a compliance option with the Florida Building Code: The Florida Building Commission is deciding whether to allow on-site renewable energy generation to count for compliance with the Florida building code. Owens Corning opposes this legislation and has acted through the North American Insulation Manufacturers Association (NAIMA) and the National Insulation Contractors' Exchange to encourage the Commission to reject the proposal.	Owens Corning, working with NAIMA and NICE, believes that allowing the unlimited on-site renewable energy generation to substitute for cost-effective, long lasting energy conservation measures is not the best solution. Solar leases accounted for more than 70 percent of home solar sales in 2014. That means a solar panel is likely to be an impermanent part of a new Florida home – providing a benefit of an uncertain quantity for an uncertain duration. In contrast, building energy conservation measures like sealing and insulation provide demonstrated energy savings for the life of the building. Allowing for the construction of a less efficient home simply because it comes with solar panels should not be the goal of the updated Florida Building Energy Code. Therefore, Owens Corning, NICE, and NAIMA urge the Commission to prohibit or tightly limit the amount of credit allowed for on-site generation for building energy code compliance.
Energy efficiency	Oppose	CA Energy Code for Net Zero Ready Homes - worked to mitigate the allowance of generation/PV as a trade-off against insulation in the base energy code: The Gov of CA made a political concession to the builders at the 11th hour to allow the use of solar/PV as a trade-off against building insulation. We worked to limit the amount of solar included in the energy code. Because of this accommodation, the Governor will NOT be able to hit his policy goal of having Zero Energy Homes by 2020. A band-aid to attempt to fix this problem is being initiated via the CPUC w/ input from the Governor's Office and CEC/ARB to put in place builder incentives for high performance building envelopes through 2020	Owens Corning did modeling and forecasting to lay out the problem for the CEC and State with respect to the problem caused by allowing solar/PV into the energy code. We have built a coalition of NGOs and Trade Assn (incl NRDC & the home builders assn) to push through a stop-gap fix until the new 2019 energy code can be developed and put in place.
Energy efficiency	Support	2018 International Energy Conservation Code - defended conservation, included new compliance options for builders for Net Zero Ready Homes: We worked to defend against the weakening of the 2015 IECC, limit the inclusion and reach of solar PV as a compliance path, and create new options for builders with attic systems and duct systems.	Owens Corning lead the stealth effort to build a scientific and economic model showing how ill-advised it was on consumers and climate to allow solar/PV to be included in the code "unrestrained" and mapped out a win-win path that allowed solar into the code provided some mandatory minimums were complied with in new homes.

Focus of legislation	Corporate Position	Details of engagement	Proposed legislative solution
Energy efficiency	Support	Grain Belt Express Clean Line: Owens Corning publicly supported a large scale wind opportunity, Grain Belt Express Clean Line, brought by a transmission company to build a line to transmit 4,000 megawatts of low-cost wind energy from Kansas to Missouri and PJM.	Owens Corning encouraged the Missouri Public Service Commission to provide companies increased access to affordable, renewable energy by approving the Grain Belt Express Clean Line.
Energy efficiency	Oppose	Freeze on Ohio's energy efficiency and renewable energy standards: Owens Corning supported lifting the freeze on Ohio's energy efficiency and renewable energy standards through CERES. https://www.ceres.org/press/press-releases/ohio-businesses-to-lawmakers-strengthen-standards-for-renewable-energy-and-efficiency	In 2014, Ohio launched an experiment on energy policy, becoming the first state to freeze its energy efficiency and renewable energy standards. The freeze has been in place ever since. State lawmakers, with Senate Bill 320 and other proposals, are debating what to do once the freeze expires at the end of the year. Owens Corning was in public opposition to the freeze. The governor ultimately vetoed the freeze in 2016.

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?
NAIMA	Consistent	NAIMA works closely with worldwide manufacturers of fiber glass, rock wool & slag wool insulation products & other allied organizations to advance sustainable development through activities that promote the following as they relate to insulation: 1. Pollution reduction through increased insulation 2. Energy efficiency awareness 3. Natural resource preservation NAIMA, along with other international organizations, unite to inform government agencies, environmental building organizations, manufacturing companies, consumers & academia around the globe about the role insulation plays in energy efficient construction, the reduction of greenhouse gas emissions & mitigating climate change.	We are active on the board & committees to further these goals
RESNET	Consistent	In April 1995, the National Association of State Energy Officials & Energy Rated Homes of America founded the Residential Energy Services Network (RESNET) to develop a national market for home energy rating systems & energy efficient mortgages. RESNET's standards are officially recognized by the federal government for verification of building energy performance for such programs as federal tax incentives, the Environmental Protection Agency's ENERGY STAR program & the U.S. Department of Energy's Building America Program. RESNET standards are also recognized by the U.S. mortgage industry for capitalizing a building's energy performance in the mortgage loan, & certification of "White Tags" for private financial investors. The RESNET website is a one-stop solution where homeowners can learn about the energy audit & rating processes, & search the RESNET directory to find certified energy auditors & raters & qualified contractors & builders. To be included in the directory, these independent, unbiased professionals must complete the required energy training to meet the high standards of excellence that RESNET demands. All RESNET-certified & RESNET-qualified professionals agree to abide by the RESNET Code of Conduct.	We are active on the board & committees to further these goals
BICEP	Consistent	BICEP is an advocacy coalition of businesses committed to working with policy makers to pass meaningful energy & climate change legislation that will enable a rapid transition to a low-carbon, 21st century economy that will create new jobs & stimulate economic growth while stabilizing our planet's fragile climate. BICEP offers a new arena for business involvement in advancing climate & energy policies to counter the far reaching risks & challenges posed by global climate change	We are a member & active supporter
ASHRAE	Consistent	ASHRAE, founded in 1894, is a global society advancing human well-being through sustainable technology for the built environment. The Society & its members focus on building systems, energy efficiency, indoor air quality, refrigeration &	Previously members of the board & currently

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?
		sustainability within the industry. ASHRAE/AIRAH JOINT RESOLUTION ON CLIMATE CHANGE acknowledges the reality of climate change & its human causes	an active supporter
AWEA	Consistent	The American Wind Energy Association (AWEA) is the national trade association for the U.S. wind industry – the country's fastest growing energy industry. With thousands of wind industry members & wind policy advocates, AWEA promotes wind energy as a clean source of electricity for American consumers.	We are a member & active supporter
EEBA	Consistent	A world where everyone can live in a healthy, safe, durable, energy efficient home	We are active on the board & committees to further these goals

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?

Our climate policy is stated on our sustainability website and is clearly in favor of reducing energy use and greenhouse gas emissions. Our policy work and engagement with trade groups is focused on these same goals, to facilitate the ease of consumers and industry professionals to employ energy efficiency and renewable energy practices in conjunction with Owens Corning or using Owens Corning's expertise and products. In addition, "engaging our impact through sustainability" is a company value. The Owens Corning company values underpin our company operations, and all decisions are made through the lens of our corporate values, including sustainability. From the standpoint of engaging with policy makers, our Government Affairs team controls all aspects of our communications and ensures that these activities are completely aligned with our climate policy. We regularly review language and activities with both external affairs and sustainability and conduct legal reviews of all external communications including letters, testimony and activities with outside advocates or NGOs.

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?

Intensity target

CC3.1b

Please provide details of your intensity target

ID	Scope	% of emissions in scope	% reduction from base year	Metric	Base year	Normalized base year emissions covered by target	Target year	Is this a science-based target?	Comment
Int1	Scope 1+2 (market-based)	100%	50%	Metric tonnes CO2e per metric tonne of product	2010	4707812	2020	Yes, but this target has not been approved as science-based by the Science Based Targets initiative	Owens Corning as a 2020 goal to reduce its GHG intensity by 50%. We follow the World Resource Institute (WRI) GHG protocol to account for Scope 1, 2, and 3 emissions. Based on interviews with internal and external stakeholders, and the influence of the WBCSD Vision 2050 as well as past goals, reduction of GHG is a material topic for Owens Corning. We measure our impact through our GHG intensity goals. Our biggest contributor to this intensity is the blowing agent we use in our foam production process. By 2014, we had already exceeded our internal 2020 targets to reduce by 20% from the base year. Given this, in 2015 we announced a new 50% goal in the fourth quarter of 2015. Upstream and downstream Scope 3 emissions are excluded. Scope 3 includes only business travel.

CC3.1c

Please also indicate what change in absolute emissions this intensity target reflects

ID	Direction of change anticipated in absolute Scope 1+2 emissions at target completion?	% change anticipated in absolute Scope 1+2 emissions	Direction of change anticipated in absolute Scope 3 emissions at target completion?	% change anticipated in absolute Scope 3 emissions	Comment
Int1	Decrease	50	No change	0	Owens Corning recognizes that greenhouse gas (GHG) emissions are the main cause of climate change and is committed to doing its part to reduce emissions within the company as well as through our suppliers and customers. Owens Corning has a 2020 goal to reduce its greenhouse gas intensity by 50 percent. We follow the World Resource Institute (WRI) GHG protocol to account Scope 1, 2 and 3 emissions. In 2016, we are reporting a 35 percent reduction in GHG intensity from our base year 2010. Going forward as a company we expect the majority of our reductions to be realized in Scope 1 and Scope 2 although we will continue to implement changes to reduce our Scope 3 emissions where appropriate. During 2016, SCS Greenhouse Gas Verification program has conducted a verification of Owens Corning's end of year 2016 emissions against the requirements of the Carbon Disclosure Project and the WRI/WBCSD GHG Protocol. The Verification Statement documents that SCS Global Services has conducted verification activities in compliance with ISO 14064-3: Specification with guidance for the validation and verification of greenhouse gas assertions. The statement also attests that SCS Global Services can provide reasonable assurance that Owens Corning's reported Scope1 and Scope 2 greenhouse gas emissions from 1 January 2016 to 31 December 2016 are in all material respects in accordance with the reporting criteria. Furthermore, SCS Global Services can provide limited assurance, based on the procedures performed and evidence obtained, that no matters have come to the attention of the audit team to cause the verification body to believe that Owens Corning's reported Scope 3 greenhouse gas emissions from 1 January 2016 to 31 December 2016 were materially misstated.

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
Int1	60%	70%	In 2015 Owens Corning raised its 2020 goal to reduce its greenhouse gas intensity from 20 percent to 50 percent. In 2014, we had achieved registered a reduction of 34 percent from our base year, exceeding our initial 2020 target by 14 percent five years early. This can be attributed to our diligent efforts around the reduction in our blowing agent emissions and beginning the journey of converting to a renewable energy portfolio. The 2016 reduction from base year 2010 is 35 percent.

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
Group of products	Types of insulation materials manufactured throughout our global operations include fiberglass, extruded polystyrene (XPS) foam and mineral wool and a small subset of our roofing product line that is Energy Star rated.	Avoided emissions	Other: Insulation by its nature reduces energy use along with corresponding emissions	0%	Less than or equal to 10%	For more details, please see our 2016 Sustainability Report (GRI G4) under EN7 page 57.

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)

Yes

CC3.3a

Please identify the total number of projects at each stage of development, and for those in the implementation stages, the estimated CO2e savings

Stage of development	Number of projects	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	157	0
To be implemented*	50	17776
Implementation commenced*	45	15538
Implemented*	48	30535
Not to be implemented	99	0

CC3.3b

For those initiatives implemented in the reporting year, please provide details in the table below

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
Energy efficiency: Building services	Implemented 6 individual lighting projects focused on improving energy efficiency of lighting in various manufacturing plants across U.S, Brazil and China.	3034	Scope 2 (market-based)	Voluntary	280267	855326	1-3 years	16-20 years	These lighting projects were mostly LED upgrades implemented in production areas, warehouses and offices across our Owens Corning manufacturing sites.
Energy efficiency: Building services	Implemented 3 HVAC projects focused on improving the energy efficiency and reliability of HVAC systems.	686	Scope 2 (market-based)	Voluntary	84292	122973	1-3 years	11-15 years	These HVAC upgrades were implemented in plants located in the U.S., Brazil, and Europe.
Energy efficiency: Building services	Implemented 7 VFD projects for various fans, pumps and miscellaneous motors within the OC's manufacturing operations	3743	Scope 2 (market-based)	Voluntary	253608	389938	<1 year	Ongoing	These VFD upgrades were implemented across plants located in the U.S. and Canada.
Energy efficiency: Building services	Implemented 10 energy efficiency projects of various types across the U.S., China and Europe including electrical controllers, motor upgrades, compressor upgrades, steam system improvements, etc.	2950	Scope 2 (market-based)	Voluntary	266335	87120	<1 year	Ongoing	These projects were implemented across our U.S., China and Europe sites.
Energy efficiency: Processes	Implemented 19 projects impacting our processes resulting in energy efficiency and operational improvements including controls, reuse of process water, right-sizing systems and system automation.	19149	Scope 2 (market-based)	Voluntary	1505213	6477097	1-3 years	16-20 years	These projects were implemented across OC sites in the U.S., Canada, Brazil, South Korea, China, Europe and Russia
Energy efficiency: Processes	Various energy efficiency programs globally	973	Scope 2 (market-based)	Voluntary	87053	82679	<1 year	Ongoing	Projects implemented at several global locations.

CC3.3c

What methods do you use to drive investment in emissions reduction activities?

Method	Comment
Compliance with regulatory requirements/standards	Owens Corning has an Environmental Management System (EMS) that is required at all facilities. The system includes 17 different modules which are separately tracked for implementation status. Our EMS is based on ISO guidelines and is internally self-audited, as well as through our divisional/corporate EHS audit team. 32% of our sites are ISO certified 14001 or OSHAS 18001.
Dedicated budget for energy efficiency	Owens Corning has a dedicated energy budget within each business unit that is managed by the corresponding Energy Efficiency Program Managers. The energy portfolios are created through submission of a capital request form that evaluates ROI, location, impact of CO2, MWh reductions, timing of implementation, rebate opportunities, risk, as well as the ability to propagate initiatives across other Owens Corning plants.
Employee engagement	All Owens Corning plants have designated Plant Energy Leaders (PEL's). Although this is not their full-time responsibility, they do spend a portion of their time engaging the plant in energy efficiency projects/activities, identifying energy savings opportunities, developing/scoping out projects, as well as implementing the projects. Each business unit holds monthly or bi-monthly energy calls to report YTD and annual energy intensity performance against goals, and provides a platform to not only share status of energy projects, but also share best practices, and discuss new, innovative technologies. Owens Corning has forward reaching Sustainability Goals that includes reductions in energy intensity and GHG, which in turn become the goals for each plant as well. Additionally, in 2016 several employees toured and visited ORNL as part of being a Better Plants Partner. This visit was to help us better understand the resources and support offered through the Better Plants Program.
Internal price on carbon	We consider Scope 1, 2 and 3 emissions, and have both internally and externally published reduction goals. We use our aligned and committed reduction goals to drive strategy and action, not an actual carbon charge such as an internal carbon tax. For use in internal decision making and risk analysis, we place an economic value on carbon emissions to help frame the challenges and opportunities in monetary, more broadly understood terms than simply tons of emissions. This includes considering the impact on our operations and our supply chain. Quantifying these added costs in the event that a price is put on carbon in regions around the world where a current price or trading scheme is not in place, provides additional insight into our business decisions. We bracket this analysis, on the low end at \$10/metric ton and high of \$60/metric ton.
Internal incentives/recognition programs	Owens Corning has annual global EHS Awards which are available to all employees. Two of the awards provide recognition to our employees specific to Environmental Impact Improvement and Environmental Outreach. The Environmental Impact award was granted to a group of employees as well as outside consultants who spent several years designing and implementing a solution for a solar array installation at our corporate headquarters. This array will satisfy about 30% of the buildings energy needs and offset the GHG emitted from the commute of its workforce. The array is comprised of a solar canopy of nearly 8,000 panels that cover about 1,000 parking spaces. Toledo workers benefit from covered parking for their cars – keeping them out of direct sun and protecting them from rain and snow. Four electric charging stations for electric cars also were part of the project. The Environmental Outreach award was given to a group of employees who hosted a learning forum for other companies, which focused on renewable energy and industrial scale energy efficiency. The event was held on Oct. 30, in conjunction with the commissioning of the solar array. Participants were about 125 external and internal stakeholders including suppliers, community representatives, nongovernmental organizations, and students. Two panels of subject-matter experts shared approaches and best practices. Furthermore, Owens Corning recognized three different programs through the Innovation Awards program as well as two initiatives in the annual Board of Director's Cup which represent our commitment to reducing the impact on the world's resources. One of the teams recognized was accountable for executing the power purchase agreement of new installed capacity to the grid (250 MW) that made us the largest industrial purchaser of renewable energy in the world through 2015. Finally, the Composites business has an annual contest designed to drive participation for the Plant Energy Teams each year with cash awards with are managed by the Energy Efficiency Program Manager. This program evaluates, among other items: (1) site energy meetings with minutes generated, (2) low cost/no cost savings projects implemented, (3) kaizen events and assessments completed, (4) best practices shared across the network, (5) capital projects being implemented, and (6) energy network meetings attended.
Partnering with governments on technology development	Owens Corning completed modeling and forecasting to lay out the problem for the CEC and the state of California with respect to the problem caused by allowing solar/PV into the energy code. We have built a coalition of NGOs and Trade Assn (incl NRDC & the home builders association) to push through a stop-gap fix until the new 2019 energy code can be developed and put in place
Other	In 2016, Owens Corning was recognized externally for our focus on energy efficiency, receiving the EPA ENERGY STAR Partner of the Year award for our energy management in 2015. 2015 accomplishments that were recognized included our reduction in energy intensity, # of completed energy efficiency projects, designated capital for energy projects, having a network of Plant Energy Leaders, a system for sharing best practices, expanded use of three renewable energy projects (solar and two wind projects).
Other	In 2016, our Chambéry, France, composites plant became the first Owens Corning site to be awarded ISO 50001 certification for energy management. As a result of a plant team effort. ISO 50001 Standard supports efficient energy use through the development of an energy management system. It provides a framework to: (1) develop a policy for more efficient use of energy, (2) fix targets and objectives to meet the policy, (3) use data to better understand and make decisions about energy use, (4) measure the results, (5) review how well the policy works, (6) continually improve energy management and efficiency

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	4+ Item 1A Risk Factors; 3 - 2020 Sustainability Goals	https://www.cdp.net/sites/2017/32/14132/Climate Change 2017/Shared Documents/Attachments/CC4.1/2016 10-K.pdf	10K for the fiscal year end December 31,2016; our risks outlined clearly align with our risk responses above related to climate change
In mainstream reports (including an integrated report) but have not used the CDSB Framework	Complete	19-20; Note 12 Environmental Matters	https://www.cdp.net/sites/2017/32/14132/Climate Change 2017/Shared Documents/Attachments/CC4.1/Q1 2016 10-Q.pdf	10Q for period ending March 31, 2016; discussion of environmental matters
In mainstream reports (including an integrated report) but have not used the CDSB Framework	Complete	22; note 12 Environmental Matters	https://www.cdp.net/sites/2017/32/14132/Climate Change 2017/Shared Documents/Attachments/CC4.1/Q2 2016 10-Q.pdf	10Q for period ending June 30, 2016; discussion of environmental matters
In mainstream reports (including an integrated report) but have not used the CDSB Framework	Complete	22-23; Note 12 Environmental Matters	https://www.cdp.net/sites/2017/32/14132/Climate Change 2017/Shared Documents/Attachments/CC4.1/Q3 2016 10-Q.pdf	10Q for period ending September 30, 2016; discussion of environmental matters

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
- Risks driven by changes in physical climate parameters
- Risks driven by changes in other climate-related developments

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
Air pollution limits	Recent interpretation of the Clean Air Act could limit or even prohibit the use of specific raw materials in select Owens Corning products due to GHG emissions, requiring Owens Corning to alter product specifications and/or changing production locations. This could disrupt or reduce Owens Corning's production capacity.	Reduction/disruption in production capacity	1 to 3 years	Direct	Likely	Medium-high	\$5 million - \$20 million	Our management action plan is to proactively expend R&D resources to either deliver revised product formulations or to have additional engineering solutions in place prior to the enforcement date of the tighter restrictions. The goal of this plan would be to prevent government fines or loss of sales, and it may have the potential to change this risk into an opportunity for increased market share if our competition is behind in modifying their products. Owens Corning's Pure Safety® high-performance insulation, which was introduced in 2016, provides up to 65% less dust and is mold and mildew resistant. It is the world's first building insulation to earn the asthma & allergy friendly™ Certification from the Asthma and Allergy Foundation of America (AAFA). In 2016 Owens Corning has evaluated and implemented changes in our foam process which provide for lower GWP.	\$1 million - \$3 million
Air pollution limits	Broad and gradual tightening of limits on emissions by federal governments, the EPA, or State run EPAs could impact Owens Corning by causing a disruption in production capacity across our portfolio. For example, given our global nature, we are impacted by country specific/regional CO2 regulations for the majority of our	Reduction/disruption in production capacity	>6 years	Direct	Likely	Low	\$1 million - \$5 million	Our management action plan is to proactively expend R&D resources to deliver revised product formulations or to have additional engineering solutions in place prior to the enforcement date of the tighter restrictions. The goal would be to prevent government fines or loss of sales, and it may have the potential to change this risk into an opportunity for increased market share if our competition is behind in modifying their products. In 2016 Owens Corning opened a new facility in	up to \$5 million

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	businesses. Aggressive CO2 regulations in Europe and other regions could disrupt our use of specific raw materials which in turn would disrupt our production capacity for products using those materials.							Gastonia, NC, with state-of-the-art equipment that will add manufacturing flexibility to produce the company's new Sustaina® non-woven glass fiber fabric. This product uses a bio-based binder system with high tensile strength performance and does not contain formaldehyde. Additionally the facility has an on-site business center being built to be LEED certified. As part of the Product Stewardship process, developers are asked to complete a questionnaire that generates a sustainability map of the product throughout its life cycle. This Sustainability Mapping Tool evaluates how a new product or process will impact our sustainability goals and drive decisions in the design phase for more sustainable products. In 2016, 62% of new products and 75% of new applications show net sustainability gains, most frequently caused by product developments that improved our manufacturing footprint (lower plant air emissions, lower material consumption, lower energy usage and higher process efficiencies).	

CC5.1b

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

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Other physical climate drivers	Many of Owens Corning's business activities involve substantial investments in manufacturing	Reduction/disruption in production capacity	1 to 3 years	Direct	More likely than not	Low	Estimated financial implication is \$5 million to \$10 million per incident net of	Insurance, loss prevention and business continuity programs are in place. The loss prevention program focuses on proactively preventing or mitigating	Up to \$2 million for administration of programs and for physical loss prevention improvements.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>facilities and many products are produced at a limited number of locations. These facilities could be materially damaged by natural disasters such as floods, tornados, hurricanes and earthquakes or by sabotage. In our recent history, we have experienced flooding at plants in New Jersey and India. Owens Corning could incur uninsured losses and liabilities, as well as disruptions in production capacity. In addition, natural disasters pose a significant threat to the safety of our employees, contractors, and customers.</p>						insurance recovery	<p>damages. Our business continuity program is an integrated approach that involves supply chain and product stewardship to enable redundant production at alternate locations and the means to deliver to customers. This program is expected to ensure customer delivery with a minimum of delay/disruption, as well as shorter production down times at our facilities to minimize production losses. Owens Corning's commitment to safety is unconditional. As such, we continuously review and update our emergency procedures throughout all our facilities. Owens Corning facilities also maintain backup generators, tornado and storm shelters, and rigorous drill schedules to ensure employee and visitor safety. In some plants we have raised electrical equipment further off the ground in the event of flooding. At one plant we have increased the size of a dike, also to prevent or minimize flood damage. One specific example of how Owens Corning has managed this risk is by the development of region specific products like regional roofing shingles. These regional shingles are important to mitigate the impact of damage to a particular plant. In this way we can have consistent colors across many of our roofing plants to prevent issues with mixing shingles from different plants in the event of a disaster.</p>	<p>Owens Corning has a dynamic safety program that maintains and executes safety strategies, so there is minimal incremental cost to offset the risk of severe weather with respect to employee and visitor safety.</p>

CC5.1c

Please describe your inherent risks that are driven by changes in other climate-related developments

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Reputation	<p>Many of Owens Corning's products are made from heavy manufacturing processes. While Owens Corning continuously strives to be better than regulatory requirements, our factories do produce pollutants, including formaldehyde. Owens Corning has removed formaldehyde from residential insulation through our EcoTouch products. We also became the first mineral wool manufacturer to announce a commitment to remove formaldehyde from our products, however this is still in progress. The production of pollutants exposes the company to reputational risk in areas with active environmental advocacy groups. There is additional reputational risk for Owens Corning if the potential effects of climate change worsen. This could cause us to lose customers and sales to competing solutions.</p>	Other: Reduction in Sales	Up to 1 year	Direct	About as likely as not	Low	\$1 million to \$5 million. Negative public perceptions of Owens Corning's products and production process could impact our sales and profitability. With sales of over \$5 billion in 2016, even a very small impact on sales could cost Owens Corning \$5 million or more.	<p>Our Sustainability organization actively and broadly promotes our company's stand for sustainability in the community, throughout our company, and publicly through our sustainability website and annual GRI report. We invest continuously in the reduction of our environmental footprint. At the local level, our plants reach out to their neighbors to cultivate strong relationships with residents and community leaders. Overall, our company works hard to promote the value of our products in reducing GHG emissions and in reducing energy consumption, as well as clearly communicating our efforts to be a net-positive company by reducing our footprint and increasing our handprint. Owens Corning in 2015 made significant renewable energy investments. We installed a solar array at our corporate headquarters to satisfy about 30% of the buildings energy needs and offset the equivalent GHG emitted from the building's commuters. In 2015 OC signed power purchase agreements totaling 250 megawatt power purchase agreement for renewable electricity. In Q4 2016 both wind farms came online and are now providing renewable energy into the grid. For purposes of GHG accounting, the impact will be seen in 2017. Additionally</p>	Up to \$5 million. Owens Corning invests in the communities where we operate at the plant level, corporately, and through the Owens Corning Foundation. These investments include product donations, employee volunteering, and direct financial support. Owens Corning also has a variety of energy and greenhouse gas reduction projects ongoing and in the pipeline.

Risk driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								in 2016 OC continued to look for opportunities to expand our renewable portfolio with several reviews of onsite & offsite programs.	

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
- Opportunities driven by changes in other climate-related developments

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
Product efficiency regulations and standards	More aggressive building codes and regulations regarding energy efficiency drive the use of Owens Corning's insulation and other energy savings products and systems. Increased transportation industry related energy efficiency regulations help drive the use of lighter	Increased demand for existing products/services	Up to 1 year	Direct	More likely than not	Medium	Up to \$200 million	Owens Corning actively lobbies the U.S. DOE and other legislative bodies through its Governmental Affairs organization for increased energy conservation requirements. In support of these efforts and in anticipation of tighter standards, Owens Corning's Conscientious Builder Program identifies builders that strive to build net zero buildings. These builders have partnered with us to capitalize on our building science knowledge & experience. In 2016, we continued to partner with builders throughout the US and Canada who are building in a wide variety of climates, regions & communities. Our deep commitment to help builders turn building science into	Up to \$1 million

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	and stronger materials like our glass-fiber reinforcements. Demand for products in our roofing business is generally driven by both residential repair and remodeling activity and by new residential construction.							building genius was brought to life in the 2016 edition of The New American Home in Las Vegas. One example of this is our work with the Canadian government's Natural Resources Canada (NRCan). NRCan received funding to support energy technology innovation to produce and use energy in a cleaner and more efficient way. As part of this initiative, NRCan in partnership with Owens Corning leads the housing industry in an effort to combat the ever growing effects of climate change and global warming. Five builders across Canada in Quebec, Ontario, Nova Scotia, and Alberta were selected to develop the next generation of Canadian homes: Net Zero Energy Homes. http://www.zeroenergy.ca/press-release/canadian-net-zero-energy-home-builders-recognized-for-contribution-to-industry-changing-project/	

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
Change in precipitation extremes and droughts	Demand for products in our roofing business is generally driven by both residential repair and remodeling activity and by new residential construction. As the effects of climate change are felt in the increased frequency and	Increased demand for existing products/services	Up to 1 year	Direct	About as likely as not	Medium	Up to \$100 million	Owens Corning has a strong network of facilities throughout the United States. Through sophisticated supply chain planning, production from each of these locations can be redirected to serve a storm damage market. Over the last few years and continuing in 2016, Owens Corning has been developing regional shingles that dramatically improve our ability to get	\$0 incremental management costs. Increased freight costs are easily passed through in price when serving storm ravaged areas.

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	severity of storms, Owens Corning as a building materials company may see an increased demand for our products in our roofing business due to storm related roof damage.							shingles to weather impacted areas from multiple plants. With state of the art technology and stringent testing requirements, Owens Corning Roofing is able to provide regional shingles which allow more efficient service during storm surge demand, more flexibility for multiple locations, and easy inventory management. A regional shingle is a shingle produced at different manufacturing facilities, tested and proven to be color matched to allow mixing between all or some of the producing manufacturing facilities in a specific region. We feel our regional shingle gives us the flexibility to have a competitive advantage in storm reaction time.	

CC6.1c

Please describe your inherent opportunities that are driven by changes in other climate-related developments

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Reputation	As the awareness of environmental deterioration increases, Owens Corning's products become more important to consumers and to builders who market energy efficient structures. Our products, specifically insulation, are significant to the reduction of GHG from buildings. For	Increased demand for existing products/services	Up to 1 year	Direct	More likely than not	Medium	Up to \$50 million	Owens Corning recognizes the importance of sustainability & has embedded building science professionals into the business. We understand the impacts of our products & aim to innovate solutions that provide positive impacts on the building envelope. Our sustainability organization & our sales force actively & broadly promote our company's	Up to \$1 million

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>example, in 2016 about 2,600 homes in Texas were air sealed with Owens Corning's innovative PROPINK ComfortSeal™ gasket system that was developed by our Building Science Team with an additional ribbed featured to enhance the air tightness of homes. With code requirements dropping to 3 ACH50, few options existed for builders, and with this product and air sealing systems developed by Owens Corning, builders were better able to comply with these stringent code requirements. Because of this, Owens Corning stands to benefit from the reputation of promoting sustainability, as consumers concerned with climate change and the environment are likely to prefer Owens Corning products over those of our competitors.</p>							<p>stand for sustainability & trains professionals on how to achieve maximum environmental benefits using our products. The company is a significant user of recycled content. Additionally, we strive to reduce the energy usage & GHG emissions from producing our products while tracking avoided emissions from product usage. In 2016 Owens Corning remained committed to the Net Positive Project, a cross-sector coalition that aims to expand the number of companies that go beyond reducing their negative sustainability impacts to contribute in a "net positive" way to society, the environment, & the global economy. The project will develop practices & tools companies can use to quantify, assess, communicate, & enhance their positive impacts on society & the environment. It will guide companies to reduce their negative impacts or footprints. It also will support efforts that grow the positive impacts or handprints. Expanding our impact through sustainability is one of our core values. To bring this to life, we want to operate as a net positive company. Our positive economic, social, & environmental impact should be larger than our negative impact.</p>	

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	Fri 01 Jan 2010 - Fri 31 Dec 2010	3188800
Scope 2 (location-based)	Fri 01 Jan 2010 - Fri 31 Dec 2010	1506717
Scope 2 (market-based)	Fri 01 Jan 2010 - Fri 31 Dec 2010	1506717

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
The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

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

Gas	Reference
HFCs	IPCC Fourth Assessment Report (AR4 - 100 year)
CO2	IPCC Fourth Assessment Report (AR4 - 100 year)
CH4	IPCC Fourth Assessment Report (AR4 - 100 year)
N2O	IPCC Fourth Assessment Report (AR4 - 100 year)
Other: HCFC	IPCC Fourth Assessment Report (AR4 - 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
Diesel/Gas oil	73.96	Other: kg/MMBtu	Final Rule (40 CFR 98) - Industrial Sector 2013.
Motor gasoline	70.22	Other: kg/MMBtu	Final Rule (40 CFR 98) - Industrial Sector 2013.
Coke oven coke	93.9	Other: kg/MMBtu	The Climate Registry - General Reporting Protocol USA Industrial Sector 2015 http://www.theclimateregistry.org/wp-content/uploads/2015/04/2015-TCR-Default-EF-April-2015-FINAL.pdf

Fuel/Material/Energy	Emission Factor	Unit	Reference
Kerosene	75.2	Other: kg/MMBtu	Final Rule (40 CFR 98) - Industrial Sector 2013.
Liquefied petroleum gas (LPG)	61.71	Other: kg/MMBtu	Final Rule (40 CFR 98) - Industrial Sector 2013.
Natural gas	53.06	Other: kg/MMBtu	Final Rule (40 CFR 98) - Industrial Sector 2013.
Distillate fuel oil No 1	73.25	Other: kg/MMBtu	Final Rule (40 CFR 98) - Industrial Sector 2013.
Distillate fuel oil No 2	73.96	Other: kg/MMBtu	Final Rule (40 CFR 98) - Industrial Sector 2013.
Distillate fuel oil No 6	75.1	Other: kg/MMBtu	Final Rule (40 CFR 98) - Industrial Sector 2013.
Propane	62.87	Other: kg/MMBtu	Final Rule (40 CFR 98) - Industrial Sector 2013.
Electricity		lb CO2e per MWh	US Locations:eGRID 2017 (w2014 data) - AKA eGRID2014; International Locations: International Energy Agency (IEA) CO2 Emissions from Fuel Combustion 2016-year 2014

Further Information

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

Operational control

CC8.2

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

2559224

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 are reporting a Scope 2, market-based figure	Owens Corning is committed to following the GHG Protocol Scope 2 Guidance and reports market-based Scope 2 emissions gathered from utilities by Schneider Electric.

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
1398725	1388792	Owens Corning's GHG emissions were verified by SCS Global Services in 2016. This Verification Statement documents that SCS Global Services has conducted verification activities in compliance with ISO 14064-3: Specification with guidance for the validation and verification of greenhouse gas assertions. This statement also attests that SCS Global Services can provide reasonable assurance that Owens Corning's reported Scope1 and Scope 2 greenhouse gas emissions from 1 January 2016 to 31 December 2016 are in all material respects in accordance with the reporting criteria. Furthermore, SCS Global Services can provide limited assurance, based on the procedures performed and evidence obtained, that no matters have come to the attention of the audit team to cause the verification body to believe that Owens Corning's reported Scope 3 greenhouse gas emissions from 1 January 2016 to 31 December 2016 were materially misstated. SCS applies the International Standard ISO 14065:2013 - Requirements for greenhouse gas validation and verification bodies for use in accreditation or other forms of recognition and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements. In accordance with the requirements of ISAE 3000, SCS has complied with the commercial independence and other ethical requirements of the International Standard ISO 14065:2013 - Requirements for greenhouse gas validation and verification bodies for use in accreditation or other forms of recognition, which is founded on fundamental principles of impartiality, competence, objective decision making, openness, and confidentiality.

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?

No

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 1	Less than or equal to 2%	No Sources of Uncertainty	Owens Corning for the last four years has undergone an extensive and rigorous process to get its Scope 1 emissions certified by a third party auditor. The Verification Statement documents that SCS Global Services has conducted verification activities in compliance with ISO 14064-3: Specification with guidance for the validation and verification of greenhouse gas assertions. This statement also attests that SCS Global Services can provide reasonable assurance that Owens Corning's reported Scope1 and Scope 2 greenhouse gas emissions from 1 January 2016 to 31 December 2016 are in all material respects in accordance with the reporting criteria. SCS applies the International Standard ISO 14065:2013 - Requirements for greenhouse gas validation and verification bodies for use in accreditation or other forms of recognition and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements. In accordance with the requirements of ISAE 3000, SCS has complied with the commercial independence and other ethical requirements of the International Standard ISO 14065:2013 - Requirements for greenhouse gas validation and verification bodies for use in accreditation or other forms of recognition, which is founded on fundamental principles of impartiality, competence, objective decision making, openness, and confidentiality. We state no sources of uncertainty as the accuracy range (or percentage of confidence) on our emissions have been stated at 99.9% by a third party provider.
Scope 2 (location-based)	Less than or equal to 2%	No Sources of Uncertainty	Owens Corning for the last four years has undergone an extensive and rigorous process to get its Scope 1 emissions certified by a third party auditor. The Verification Statement documents that SCS Global Services has conducted verification activities in compliance with ISO 14064-3: Specification with guidance for the validation and verification of greenhouse gas assertions. This statement also attests that SCS Global Services can provide reasonable assurance that Owens Corning's reported Scope1 and Scope 2 greenhouse gas emissions from 1 January 2016 to 31 December 2016 are in all material respects in accordance with the reporting criteria. SCS applies the International Standard ISO 14065:2013 - Requirements for greenhouse gas validation and verification bodies for use in accreditation or other forms of recognition and accordingly maintains a comprehensive system of quality

Scope	Uncertainty range	Main sources of uncertainty	Please expand on the uncertainty in your data
			control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements. In accordance with the requirements of ISAE 3000, SCS has complied with the commercial independence and other ethical requirements of the International Standard ISO 14065:2013 - Requirements for greenhouse gas validation and verification bodies for use in accreditation or other forms of recognition, which is founded on fundamental principles of impartiality, competence, objective decision making, openness, and confidentiality. We state no sources of uncertainty as the accuracy range (or percentage of confidence) on our emissions have been stated at 99.9% by a third party provider.
Scope 2 (market-based)	Less than or equal to 2%	No Sources of Uncertainty	Owens Corning for the last four years has undergone an extensive and rigorous process to get its Scope 1 emissions certified by a third party auditor. The Verification Statement documents that SCS Global Services has conducted verification activities in compliance with ISO 14064-3: Specification with guidance for the validation and verification of greenhouse gas assertions. This statement also attests that SCS Global Services can provide reasonable assurance that Owens Corning's reported Scope1 and Scope 2 greenhouse gas emissions from 1 January 2016 to 31 December 2016 are in all material respects in accordance with the reporting criteria. SCS applies the International Standard ISO 14065:2013 - Requirements for greenhouse gas validation and verification bodies for use in accreditation or other forms of recognition and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements. In accordance with the requirements of ISAE 3000, SCS has complied with the commercial independence and other ethical requirements of the International Standard ISO 14065:2013 - Requirements for greenhouse gas validation and verification bodies for use in accreditation or other forms of recognition, which is founded on fundamental principles of impartiality, competence, objective decision making, openness, and confidentiality. We state no sources of uncertainty as the accuracy range (or percentage of confidence) on our emissions have been stated at 99.9% by a third party provider.

CC8.6

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

Third party verification or assurance process in place

CC8.6a

Please provide further details of the verification/assurance undertaken for your Scope 1 emissions, and attach the relevant statements

Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/section reference	Relevant standard	Proportion of reported Scope 1 emissions verified (%)
Annual process	Complete	Reasonable assurance	https://www.cdp.net/sites/2017/32/14132/Climate Change 2017/Shared Documents/Attachments/CC8.6a/CDP-Entity_OC_EY2016_Veri_Statement_V1-3_051117.pdf	Pages 1-2; Verification Opinion is on page 2	ISO14064-3	100
Annual process	Complete	Reasonable assurance	https://www.cdp.net/sites/2017/32/14132/Climate Change 2017/Shared Documents/Attachments/CC8.6a/CDP-Entity_OC_EY2016_Veri_Statement_V1-3_051117.pdf	Pages 1-2; Verification Opinion is on page 2	ISAE3000	100

CC8.7

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

Third party verification or assurance process in place

CC8.7a

Please provide further details of the verification/assurance undertaken for your location-based and/or market-based Scope 2 emissions, and attach the relevant statements

Location-based or market-based figure?	Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/Section reference	Relevant standard	Proportion of reported Scope 2 emissions verified (%)
Location-based	Annual process	Complete	Reasonable assurance	https://www.cdp.net/sites/2017/32/14132/Climate Change 2017/Shared Documents/Attachments/CC8.7a/CDP-Entity_OC_EY2016_Veri_Statement_V1-3_051117.pdf	Pages 1-2; Verification Opinion is on page 2. Also verified under ISAE3000.	ISO14064-3	100
Market-based	Annual process	Complete	Reasonable assurance	https://www.cdp.net/sites/2017/32/14132/Climate Change 2017/Shared Documents/Attachments/CC8.7a/CDP-Entity_OC_EY2016_Veri_Statement_V1-3_051117.pdf	Pages 1-2; Verification Opinion is on page 2. Also verified under ISAE3000.	ISO14064-3	100

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
Other: Global Energy Sources	Energy consumption amount for all energy sources are verified in compliance with ISO 14064-3. The statement attests that SCS Global Services provides reasonable assurance.
Year on year change in emissions (Scope 1 and 2)	SCS Global Services, as part of the 2016 verification, compared and validated the percent change from the prior year.
Year on year change in emissions (Scope 3)	SCS Global Services, as part of the 2016 verification, compared and validated the percent change from the prior year.

CC8.9

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

No

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
Belgium	253
Brazil	37650
Canada	169373
Chile	58
China	563123
France	79167
India	149042
Italy	50134
South Korea	44963
Mexico	140046
Netherlands	19682
Russia	41349
Spain	52
United Kingdom	2907
United States of America	1261418
Singapore	5

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

By business division
By GHG type

CC9.2a**Please break down your total gross global Scope 1 emissions by business division**

Business division	Scope 1 emissions (metric tonnes CO2e)
Corporate	10057
Foam	1124555
Insulation Systems Business	600889
Composites Solutions Business	653195
Roofing & Asphalt	170528

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

GHG type	Scope 1 emissions (metric tonnes CO2e)
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GHG type	Scope 1 emissions (metric tonnes CO2e)
CO2	1186687
CH4	567
N2O	779
HFCs	781514
Other: HCFC	589678

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)
Belgium	355	746	1719	0
Brazil	11331	11331	70639	0
Canada	32509	32509	223752	0
Chile	37	37	92	0
China	129248	129248	190131	0
France	6655	3449	162704	70797
India	96269	96269	118439	0
Italy	20023	26298	60512	0
South Korea	53371	53371	103271	0
Mexico	89738	89738	196334	0
Netherlands	9059	11023	19171	0
Russia	21936	21936	57789	0
Singapore	781	781	1771	0
Spain	382	656	1495	0
United Kingdom	2808	3282	6798	0
United States of America	924223	908119	1665151	5364

CC10.2

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

By business division

CC10.2a

Please break down your total gross global Scope 2 emissions by business division

Business division	Scope 2, location-based (metric tonnes CO2e)	Scope 2, market-based (metric tonnes CO2e)
Composites Solutions Business	623166	603578
Roofing and Asphalt	122704	118566
Corporate	98288	96001
Foam	21892	21641
Insulation Systems Business	532676	549006

Further Information

Page: **CC11. Energy**

CC11.1

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

More than 5% but less than or equal to 10%

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

5587575

CC11.3a

Please complete the table by breaking down the total "Fuel" figure entered above by fuel type

Fuels	MWh
Natural gas	5325218
Distillate fuel oil No 6	113221
Coke oven coke	76724
Propane	53689
Diesel/Gas oil	11928
Liquefied petroleum gas (LPG)	3027
Distillate fuel oil No 2	2709
Motor gasoline	776
Kerosene	284

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
Direct procurement contract with a grid-connected generator or Power Purchase Agreement (PPA), supported by energy attribute certificates	3484	0	In 2013 Owens Corning announced the developed of 2.7-megawatt solar generation project that would supply renewable electricity to the Delmar, New York, site. For 2016, this installation provided over 8 percent of the electricity required.
Direct procurement contract with a grid-connected generator or Power Purchase Agreement (PPA), supported by energy attribute certificates	1880	0	The solar array system installed at the Toledo, Ohio, world headquarters will satisfy about 25 percent of the building's energy needs. In addition, the project is a highly visible commitment to renewable energy.
Contract with suppliers or utilities, with a supplier-specific emission rate, not backed by electricity attribute certificates	70797	0.000159	Owens Corning's L'Ardoise, France facility has 100 percent of its electric power supplied by hydro-electric power.

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
2879767	2879767	0	0	0	All electricity consumed at Owens Corning is purchased; onsite generated electricity is purchased from PPA agreements.

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?

Increased

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	2.4	Decrease	Owens Corning had many emission reduction activities during 2016 that had an impact of (93,550 MT). These included energy reduction projects resulting in improved energy efficiency at plants with lower energy use per unit of product produced, increases in renewable energy, and switching certain plants and products to GHG blowing agents with lower GWP factors. Dividing the decrease between 2015 and 2016 (93,550 MT CO2e) over the 2015 Scope 1 and Scope 2 combined total of 3,859,993 gives a decrease of 2.4% in MT CO2e. $((93,550)/3,859,993)*100=2.4\%$ decrease.
Divestment			
Acquisitions			
Mergers			
Change in output	4.7	Increase	Increase in Scope 1 is primarily attributable to our production increases within our foam business. Our total GHG increase from 2015 due to a change in output is 181,683 MT CO2e. Dividing the increase between 2015 and 2016 of 181,683 MT over the 2015 Scope 1 and Scope 2 combined total of 3,859,993 gives an increase of 4.7% in MT CO2e. $((181,683)/3,859,993)*100=4.7\%$ increase.
Change in methodology			
Change in boundary			
Change in physical operating conditions			
Unidentified			
Other			

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?

Market-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
695.44	metric tonnes CO2e	5677000000	Market-based	4	Decrease	Owens Corning has had ongoing GHG and energy reduction activities, including various projects that were implemented across the composites and insulation businesses. The descriptions of the projects are provided section 3.3b. While Owens Corning's absolute Scope 1 and Scope 2 emissions increased, our sales increased by a greater degree. Without the emission reduction activities implemented, Owens Corning would show a large increase in our GHG emissions.

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
271	metric tonnes CO2e	full time equivalent (FTE) employee	14551	Market-based	2	Increase	Owens Corning had increased production and emissions without a corresponding increase in final headcount.

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
European Union ETS	Fri 01 Jan 2016 - Sat 31 Dec 2016	127542	0	146864	Facilities we own and operate
Other: Quebec Cap and Trade	Fri 01 Jan 2016 - Sat 31 Dec 2016	128781	0	131744	Facilities we own and operate

CC13.1b

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

Owens Corning implemented a global strategy to reduce emissions of greenhouse gas across our operations. This strategy is represented in our greenhouse intensity goal of a 50% reduction from 2010 to 2020. As a company, we focus on reducing the emissions from our raw materials and processing, increasing renewable energy sources, while also implementing low cost/no-cost solutions to drive reductions. Additionally in prior years we have reorganized operations by loading and upgrading the most efficient assets. Owens Corning has a long-term strategy to manage its CO2 allowances focused on compliance with regulations and then driving cost reductions while taking advantage of market opportunities in areas where trading schemes are in existence.

Facilities under EU ETS continue to improve their energy and GHG efficiency. However, allowances are decreasing year on year by a flat rate without consideration of production increase. This explains the emissions being higher than allowances. The difference is compensated by surplus allowances from previous years.

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	1948849.71	The climate change category of Purchased Goods & Services (PG&S) is interpreted as the cradle-to-supplier-gate GWP impact of the representative raw material inputs used to manufacture Owens Corning products. The data used to model these impacts are from Owens Corning's manufacturer-specific product LCA studies that have been conducted. The scopes of the product LCAs are either cradle-to-grave or cradle-to-gate; however, since the objective of this calculation only focuses on the activities upstream of manufacturing, discernment between whether a given LCA is cradle-to-grave or cradle-to-gate is not necessary. In each of these studies, GWP impact factors are developed using the impact assessment results for the upstream life-cycle stages that represent the input raw materials. The GWP impact data from the LCA studies are combined and multiplied by the 2016 annual production volume of the appropriate product manufactured by each of Owens Corning's three major businesses (ISB, CSB and R&A). These respectively refer to the insulation, composites and roofing and asphalt business segments	100.00%	
Capital goods	Relevant, calculated	172866.95	Determination of scope 3 emissions associated with capital goods was performed using an EIO-LCA based method and was calculated using the EIO-LCA on-line tool developed by Carnegie Mellon University. Primary data was collected internally on 2016 total spend for capital expenditure. This was in the form of multiple SAP datasets since Owens Corning's facilities use different versions of SAP. Each spend SAP dataset, contains enumerated assets, which have been categorized into one of five asset classes. These five categories are as follows: Miscellaneous Construction (MC); Machinery and Equipment (MAE); Office Equipment (OE); Land (L); and Transportation Equipment (TE). This categorization was followed by identification of the NAICS industry sector associated with each asset category. The acquisition value total for each category was used as the indicator of economic activity. For each of the five categories and for each of the three SAP datasets, the sum of the asset acquisition value was taken. Each of the six summed values was then multiplied by the GWP per dollar of economic activity associated with the category's respective	100.00%	http://www.eiolca.net/cgi-bin/dft/use.pl https://www.census.gov/eos/www/naics/

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
			sector. The eio-lca online tool measures economic activity in 2002 USD. As a result, the 2016 net sales figures were multiplied by a CPI deflator index to convert USD 2016 to USD 2002. An index of 0.75 was determined using the CPI deflator calculator found at http://stats.areppim.com/index.html . These values were the input values for economic activity.		
Fuel-and-energy-related activities (not included in Scope 1 or 2)	Relevant, calculated	453855.03	The calculation for Scope 3 GHG emissions for Fuel- & Energy-Related Activities (F&ERA) has been carried out by calculating impacts from both upstream and downstream activities associated with electricity generation. The upstream activities are cradle-to-generation in scope and include the activities from fuel resource extraction, transportation up to, but not including, the point of power generation. The downstream activities are generation-to-consumption in scope and include the activities of transmission and distribution. A method of differences approach was used to calculate the CO2e emissions from the upstream activities. First, the cradle-to-transmission impacts were calculated using LCIA factors from the geographic-specific "electricity, high voltage, production mix" activity datasets obtained from the "ecoinvent v3.2 cutoff cumulated lcia matrices." Second, in order to isolate the emissions for the just the upstream activities, generation-only emission rates were subtracted from the respective ecoinvent lcia factor determined in the first step. For Owens Corning U.S. facilities data for generation-only emission rates was obtained from eGRID2014_v2, and for international facilities, data was obtained from IEA. For downstream activities, the emissions calculated were those associated with T&D line losses. For facilities in the U.S., line loss factors were obtained from eGRID2014_v2, and for international facilities, line loss factors were obtained from IEA.	100.00%	1. Treyer K., Bauer C., electricity, high voltage, production mix, Allocation, cut-off by classification, ecoinvent database version 3.2.2. EPA (2017) eGRID, eGRID subregion annual CO2 equivalent total output emission rate, year 2014 data. U.S. Environmental Protection Agency, Washington, DC. 3. CO2 Emissions from Fuel Combustion (2012 Edition), IEA, Paris. 4. IEA Statistics © OECD/IEA 2014, year 2012 data
Upstream transportation and distribution	Relevant, calculated	162236.86	Primary data was collected internally from Owens Corning logistic analysts for 2016 total spend associated with the inbound transportation of all purchased materials. Spend data was categorized by the mode of transportation (i.e., passenger ground, truck, rail, and water), and the total spend for each of the four transportation mode categories was calculated. After determining the NAICS sector, which is representative of the transportation mode, the GWP intensity per unit of economic activity was determined using eiolca.net.	100.00%	
Waste generated in operations	Not relevant, explanation provided		Not applicable as listed as not relevant.		Our waste streams, which are primarily forms of glass, are inert and have negligible emissions.
Business travel	Relevant, calculated	11847.25	Includes commercial air travel and rental car emissions. Methodology: Owens Corning is using Climate Leaders protocol for calculating GHG emissions related to corporate travel.	100.00%	
		41859.49		100.00%	

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
Employee commuting	Relevant, calculated		Owens Corning uses a simplified version of the Scope 3 Protocol's average-data method to calculate employee commuting emissions. We use the U.S. EPA Greenhouse Gas Emissions from a Typical Passenger Vehicle (http://www.epa.gov/otaq/climate/documents/420f14040a.pdf) to determine an estimate of 411 grams of CO2 per mile. Starting with the Worldmapper Commuting Time By Country (http://www.worldmapper.org/display.php?selected=141) data, we multiply those times by the number of Owens Corning employees by country to estimate our employees average round-trip commuting distance in miles. The corporate average round-trip commuting distance is multiplied by the OECD average number of days worked per year (taken from http://stats.oecd.org/index.aspx?DataSetCode=ANHRS) and Owens Corning's annual employee count. Using this methodology, Owens Corning's estimated 2016 employee commuting GHG emissions of 41,859 MT CO2.		Because this is a high level estimated calculation, Owens Corning assumes that these calculated emissions for employee commuting are overstated, since we assume that all employees are in a single car commuting daily. This does not take into account telecommuting, public transportation, carpooling, business travel days that would be accounted for separately, or other methods of commuting.
Upstream leased assets	Not relevant, explanation provided		Not applicable as listed as not relevant		All our relevant leased assets have been accounted for under Scope 2 emissions. We account for both their estimated electricity usage and estimated GHG Emissions based on the square footage of space while utilizing factors from the Energy Star Portfolio Manager (1) Energy Star Portfolio Manager - Energy Star Score for Warehouses in the United States for warehouses, (2) Energy Star Portfolio Manager - Energy Use in Office Buildings for building types of office and other. The data is subsequently calculated using factors from the US EPA EGRID and the 2006 IPCC International Fuel-based Electricity Emission Factors for CO2 factors as appropriate.
Downstream transportation and distribution	Relevant, calculated	422003.04	Primary data was collected internally from Owens Corning logistic analysts for 2016 total spend associated with the outbound distribution and transportation for finished goods. Transportation spend data was allocated entirely to truck transportation as the mode of distribution for a more conservative approximation. Total transportation spend was used as the indicator of economic activity and used as the input in the EIO-LCA on-line tool.	100.00%	
Processing of sold products	Relevant, calculated	436954.82	Scope 3 emissions were calculated and determined for Owens Corning's composites business only, which primarily manufactures intermediate products. These glass fibers are, primarily, used by customers in order to make glass-fiber reinforced plastic (GFRP)	100.00%	

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
			materials. Calculation of Scope 3 emissions involved identifying the NAICS sector associated with GFRP manufacturing followed by developing a process scaling-factor based on the total economic flow of the NAICS sector for glass fiber manufacturing (i.e., 327212: "Other pressed and blown glass and glassware manufacturing") within the sector for GFRP manufacturing. The total economic activity generated when the Net Sales of Composites was used as the indicator of final demand economic activity within the 327212 industry sector was determined from the eiolca.net tool.		
Use of sold products	Not relevant, explanation provided		Not Applicable as listed as not relevant; LCA according to ISO 14040-44.		None of our products have end use energy consumption. The impact from the use of sold products is avoided emissions. Our building insulation products sold in North America during the calendar year 2016 were estimated to reduce the GHG emissions for home owners by approximately 8.8 million metric tons CO2-e a year and 530 million metric tons over the building's lifetime.
End of life treatment of sold products	Relevant, calculated	153569.13	Scope 3 emissions associated with the EoL of fiberglass insulation and XPS insulation products manufactured in 2016 were calculated. EoL emission factors were determined from cradle-to-grave EPDs, and the LCAs upon which they are based, on Owens Corning® fiberglass insulation and XPS insulation. The 3rd party verified LCAs were internally conducted for these products in 2012 and 2013, respectively. These factors were used in conjunction with 2016 production volumes for these two insulation materials to determine the scope 3 emissions when the production volume quantities are disposed as waste-to-landfill. Scope 3 EoL emissions were determined for Owens Corning insulation manufacturing operations, and, more specifically, only for fiberglass and XPS insulation.	100.00%	
Downstream leased assets	Not relevant, explanation provided		Not applicable as listed as not relevant		Owens Corning does not have any downstream leased assets
Franchises	Not relevant, explanation provided		Not applicable as listed as not relevant		Owens Corning has a small basement finishing system franchise business that is immaterial to the company.
Investments	Not relevant, explanation provided		Not applicable as listed as not relevant		Owens Corning is not a private or public financial institution. All investments in new businesses are accounted for under Scope 1 or Scope 2.
Other (upstream)					

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
Other (downstream)					

CC14.2

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

Third party verification or assurance process in place

CC14.2a

Please provide further details of the verification/assurance undertaken, and attach the relevant statements

Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/Section reference	Relevant standard	Proportion of reported Scope 3 emissions verified (%)
Annual process	Complete	Limited assurance	https://www.cdp.net/sites/2017/32/14132/Climate Change 2017/Shared Documents/Attachments/CC14.2a/CDP-Entity_OC_EY2016_Veri_Statement_V1-3_051117.pdf	1	ISO14064-3	100
Annual process	Complete	Limited assurance	https://www.cdp.net/sites/2017/32/14132/Climate Change 2017/Shared Documents/Attachments/CC14.2a/CDP-Entity_OC_EY2016_Veri_Statement_V1-3_051117.pdf	1	ISAE3000	100

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
Purchased goods & services	Change in output	11	Increase	The increase in GHG emissions for purchased goods & services is driven by an increase in production as well as a change in production composition. (In 2016, we updated our calculation methodology. Previously, the calculation methodology provided a comprehensive, high-level overview of the GHG emissions associated with purchased goods and services. It combined aggregated, static industry data with revenue data. As a

Sources of Scope 3 emissions	Reason for change	Emissions value (percentage)	Direction of change	Comment
				result, it was unable to provide the transparency needed to set climate change goals nor sufficient insight to measure our progress against climate change goals. The revised calculation methodology of our Scope 3 GHG emissions for purchased goods and services is based on our third party-verified product Life Cycle Assessments (LCAs), in addition to annual production data. Using this methodology, we can better set meaningful and actionable goals and have greater clarity to develop a strategy to meet those goals.)
Capital goods	Change in output	85	Increase	The reason for the large increase in the Scope 3 GHG emissions for the category of "Capital goods" is due to the nature of its calculation. The inventory for the Scope 3 GHG emissions category of "Capital goods," is determined using an economic-input/output LCA method, and the data input for the calculation is the acquisition value for each of the 5 asset class categories considered in the calculation. From FY2015 to FY2016, an 83% increase was observed in the acquisition value of all assets; this increase in the monetary total value is the main driver for the increase in the Scope 3 GHG emissions for "Capital goods" as observed in the calculated result.
Fuel- and energy-related activities (not included in Scopes 1 or 2)	Emissions reduction activities	4	Decrease	The decrease in emissions associated with fuel-and-energy-related activities is due to the combined effect of an overall decrease in the amount of purchased electricity as well as a decrease in T&D emissions. Additionally, the decrease in T&D emissions, in turn, is driven by a decrease in both grid emission rates as well as a decrease in line loss rates.
Upstream transportation & distribution	Change in output	23	Increase	The increase in emissions is due to the increase in annual transportation costs of input materials.
Business travel	Change in output	9	Increase	Both air travel and travel by car increased between years, causing greater emissions.
Employee commuting	Change in output	12	Increase	Employee commuting has increased largely due to an increase in headcount in countries where the average commute is a longer distance.
Downstream transportation and distribution	Change in output	9	Increase	The increase in emissions is due to the increase in distribution transportation costs.
Processing of sold products	Change in output	1	Increase	
End-of-life treatment of sold products	Change in output	5	Increase	Scope 3 emissions associated with the End-of-Life (EoL) of fiberglass insulation and XPS insulation products manufactured in 2016 were calculated. EoL emission factors were developed from cradle-to-grave LCAs on Owens Corning™ fiberglass insulation and XPS insulation. The 3rd party verified LCAs were internally conducted for these products in 2012 and 2013, respectively. These factors were used in conjunction with 2016 production volumes for the two insulation materials to determine the Scope 3 emissions when the production volume quantities are disposed as waste-to-landfill. Scope 3 EoL emissions were determined for Owens Corning insulation manufacturing operations, and, more specifically, only for fiberglass and XPS insulation. The increase in GHG emissions is due to the increase in the production volume of insulation products that have a high GWP at the end-of-life.

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 suppliers
- Yes, our customers
- Yes, other partners in the value chain

CC14.4a

Please give details of methods of engagement, your strategy for prioritizing engagements and measures of success

Owens Corning's method of engagement is based on our four part sustainability strategy.

1. Operations Sustainability – We are committed to reducing our footprint. 2020 goals for primary energy, greenhouse gas, fine particulate matter, toxic air emissions, & waste-to-landfill & water reductions were established from our 2010 baseline. These areas were considered material by our stakeholders.

2. Product & Supply Chain Sustainability – We have established goals around engaging & improving our supply chain in the area of sustainability & working to increase the transparency of our products life cycle. These goals include transparent communication of the total life cycle assessment of all core products by 2015 (which was met) & reducing the GHG emissions in its supply chain through conversions from diesel to natural gas in materials transportation. These areas were also considered material by our stakeholders.

3. Innovation & Collaboration to Deliver Energy Efficiency & Durable Material Solutions at Scale - Collaboration on developing high performance buildings is an area where we will continue to work on code advancement for energy efficiency. We partner with our customers to improve the performance of new & existing buildings, engage with non-profits on energy efficiency & climate progress across the economy, & work with our customers on energy-efficient product innovation. This aligns with increasing our handprint, product responsibility & social responsibility.

4. Safety, Health, Employee Engagement & Community Vitality – Living safely is a way of life at Owens Corning, not just at work but at home as well. Our commitment to safety is unconditional. We have found that a facility operating well from a safety standpoint, & with engaged employees, is likely to excel in quality, service & operating cost. We lead from safety & our other business metrics follow. It is important to us that we are engaged in our communities as well, through volunteering, financial support & leadership. This strategy aligns with what our stakeholders want in a socially responsible company. We prioritize engagement based on our materiality matrix and the impact on our four part strategy. Based on this strategy we have taken the following actions, which are representative of our methods of engagement:

(1) In conjunction with Product & Supply Chain Sustainability we have a Supplier Code of Conduct which has expectations for environmental performance, including GHG & Climate Change Initiatives. Each year we ask our top tier suppliers to complete a survey indicating compliance with our Code of Conduct. Representatives from our top strategic & critical suppliers gather at our Annual Supplier Day for a full-day of training, top-supplier awards & business strategy & conditions updates from senior management. A similar event is held for our transportation providers. We work with contracted upstream & downstream transportation service providers to improve fuel efficiency & reduce emissions. All service providers are asked to be USEPA's SmartWay Certified. We asked all fleet companies to engage on a fuel switch (diesel to natural gas) initiative to bring about energy efficiency & reductions of GHG & other transport emissions.

(2) Aligning with Operations Sustainability, we installed a solar array at our world headquarters. This array will satisfy about 25% of the buildings energy needs, while environmentally it offsets the equivalent GHG emitted from our workforce commute.

(3) As a commitment to our Innovation & Collaboration portion of the strategy, we work regularly with our customers & influencers to the building industry to build more efficient & lower impact homes & buildings. We started this program with NewTown Builders (now known as THRIVE) & have grown it to include other builders, such as Quail Homes. In 2016 the first annual Building Genius summit invited builders to learn, share best practices, and gain inspiration from external speakers. Public case studies are available for these initiatives at <https://www.highperformancebuildingexchange.com/>. Success in these initiatives is measured through growing engagement with builders.

Owens Corning measures success on an ongoing basis during monthly meetings of the Sustainability leadership team, during which the team reviews performance against metrics including % of suppliers completing supplier surveys, large scale GHG reduction programs, conversion of NA transportation miles to natural gas, and improved supplier segmentation. These reviews ensure Owens Corning is focused on the programs that have the largest impact that matter to our stakeholders and the world. Our goals performance can be found at <http://sustainability.owenscorning.com/journey/2020-goals/>.

CC14.4b

To give a sense of scale of this engagement, please give the number of suppliers with whom you are engaging and the proportion of your total spend that they represent

Type of engagement	Number of suppliers	% of total spend (direct and indirect)	Impact of engagement
Active engagement	1367	87%	Owens Corning suppliers are weighted and scored accordingly on impact and risk (low to high) resulting in four quadrant segmentation defined as Critical, Collaboration, Transactional, and Constraint.

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
Frank O'Brien-Bernini	Vice President & Chief Sustainability Officer	Chief Operating Officer (COO)

Further Information

CDP: [D][-,][D2]