Owens Corning - Climate Change 2018
C0. Introduction

C0.1

(C0.1) Give a general description and introduction to your organization.

Owens Corning is a global leader in engineered materials for insulation, roofing, and composites. Our market-leading businesses deliver a broad spectrum of innovative and high-quality products and services. Our products range from glass fiber used to reinforce composite materials for transportation, building and construction, marine, infrastructure, wind-energy, and other high-performance markets, to insulation and roofing for residential, commercial, and industrial applications. Global in scope and human in scale, we use our deep expertise in materials, manufacturing, and building science to develop products and systems that save energy and improve comfort in commercial and residential buildings. Through our glass reinforcements business, the company makes thousands of products lighter, stronger, and more durable. Ultimately, Owens Corning people and products make the world a better place. Owens Corning was founded in 1938 in Toledo, Ohio, and we are still based there today. The company has been on the Fortune® 500 list for 63 consecutive years.

C0.2

(C0.2) State the start and end date of the year for which you are reporting data.

	Start date	End date	Indicate if you are providing emissions data for past reporting years	Select the number of past reporting years you will be providing emissions data for
Row 1	January 1 2017	December 31 2017	Yes	3 years
Row 2	January 1 2016	December 31 2016	<Not Applicable>	<Not Applicable>
Row 3	January 1 2015	December 31 2015	<Not Applicable>	<Not Applicable>
Row 4	January 1 2014	December 31 2014	<Not Applicable>	<Not Applicable>

C0.3

(C0.3) Select the countries/regions for which you will be supplying data.

Belgium
Brazil
Canada
Chile
China
Czechia
France
India
Italy
Mexico
Netherlands
Republic of Korea
Russian Federation
Singapore
Spain
United Kingdom of Great Britain and Northern Ireland
United States of America

C0.4

(C0.4) Select the currency used for all financial information disclosed throughout your response.

USD

C0.5

(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your consolidation approach to your Scope 1 and Scope 2 greenhouse gas inventory.

Operational control

C1. Governance

C1.1

(C1.1) Is there board-level oversight of climate-related issues within your organization?

Yes

C1.1a

(C1.1a) Identify the position(s) of the individual(s) on the board with responsibility for climate-related issues.

Position of individual(s)	Please explain
Board/Executive board	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): 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. The Audit Committee was chosen to be responsible for climate-related issues due to their additional responsibilities overseeing risk for Owens Corning.
Director on board	The complete Board of Directors monitors Owens Corning's progress against sustainability. Sustainability is embedded in the company from the products we make to the actions we drive within the communities we operate. The Audit Committee of the Board of Directors also has accountability for sustainability. The Audit Committee was chosen to be responsible for climate-related issues due to their additional responsibilities overseeing risk. Per the Director's Code of Conduct: Owens Corning is committed to the principles of sustainability. As used in this Directors' Code, the term "sustainability" includes the concepts of: personal safety; environmental compliance; product stewardship; and the environmental and social impact of our global operations and the products we make and sell. Directors are expected to provide oversight, guidance and direction on sustainability issues and opportunities that have potential impact on the reputation and long-term economic viability

C1.1b

(C1.1b) Provide further details on the board's oversight of climate-related issues.

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Please explain
Scheduled – all meetings	Reviewing and guiding strategy Reviewing and guiding major plans of action Reviewing and guiding risk management policies Reviewing and guiding annual budgets Reviewing and guiding business plans Setting performance objectives Monitoring implementation and performance of objectives Overseeing major capital expenditures, acquisitions and divestitures Monitoring and overseeing progress against goals and targets for addressing climate-related issues	The complete Board of Directors monitors Owens Corning's progress against sustainability, including GHG emissions and energy usage. Sustainability is embedded in the company from the products we make to the actions we drive within the communities we operate. GHG emission and energy usage reduction are two of our 2020 sustainability goals. The board oversees our performance related to these goals, was part of the CSR strategy that set them, and approves annual financial incentive of high level employees - including those tied to sustainability goals. Major acquisitions, capital projects and innovation are all reviewed by the board. Impact on our CSR strategy is considered in each of these areas through our risk register review and product stewardship review processes. The audit committee is responsible for all risk management policies - including climate-related risks. These risk management policies include current regulations, potential regulation changes, acute and chronic physical risks, and other climate related-issues. Climate related issues are a scheduled agenda item annually at a minimum and additionally as needed.

C1.2

(C1.2) Below board-level, provide the highest-level management position(s) or committee(s) with responsibility for climate-related issues.

Name of the position(s) and/or committee(s)	Responsibility	Frequency of reporting to the board on climate-related issues
Chief Sustainability Officer (CSO)	Both assessing and managing climate-related risks and opportunities	Quarterly

C1.2a

(C1.2a) Describe where in the organizational structure this/these position(s) and/or committees lie, what their associated responsibilities are, and how climate-related issues are monitored.

We have a sustainability governance structure to discuss and make decisions on all issues related to economic, environmental and social aspects. The complete Board of Directors monitors Owens Corning's progress against sustainability and assigns tasks to senior management.

Sustainability is embedded in the company from the products we make to the actions we drive within the communities we operate. In 2007 Owens Corning appointed Frank O'Brien-Bernini as the Chief Sustainability Officer (CSO). Mr. O'Brien-Bernini reports directly to the CEO with accountability for the Corporation's compliance with environmental, safety, health, & sustainability matters. Reporting directly to the CSO within Owens Corning is a sustainability organization with approximately 40 employees. These employees are accountable for product & supply sustainability, building science, corporate toxicology, product stewardship, operations sustainability & Environmental Health & Safety.

The audit committee, the CEO, and the CSO all work together to perform the following roles:
1. Creating Sustainability vision, values

2. Creating, maintaining, and promoting the Sustainability Strategy and policies
3. Redefining targets or goals

The CSO and his organization are responsible for performance monitoring and reporting. Our environmental metrics and data are monitored using Schneider Electric's Resource Advisor system. Data is input into the system where it can be reviewed and analyzed. Owens Corning has a Enterprise Environmental and Operations Sustainability Director reporting to the CSO who works directly with the environmental leaders of each of our businesses to monitor all climate-related issues throughout the company. In addition to the business level reviews, Owens Corning's Sustainability and Reporting Analytics team monitors the company's climate-related issues from a data perspective.
Furthermore, climate-related issues are addressed through our risk management process and included in our risk registers, which are developed by the business and legal from the plant level up.

C1.3

(C1.3) Do you provide incentives for the management of climate-related issues, including the attainment of targets?
Yes

C1.3a

(C1.3a) Provide further details on the incentives provided for the management of climate-related issues.

Who is entitled to benefit from these incentives?
Chief Executive Officer (CEO)
Types of incentives
Monetary reward
Activity incentivized
Emissions reduction target
Comment
Monetary rewards for the CEO and the corporate executive team are based on progress to our 2020 energy/emission reduction goals. This is part of our executive performance objectives, which impact variable incentives for executives within the Science and Technology Organization, each business unit, as well as our corporate sustainability function. This includes individuals such as Mike Thaman, CEO and Chairman of the Board, Frank O'Brien- Bernini – VP and Chief Sustainability Officer, Luis Martens – VP of Global Operations GRS, David Rabuano - VP of Operations Insulation, Bob Marks – VP of Roofing Operations, Jose Mendez-Andino – VP R and D Insulation as it relates to our 2020 Goals to reduce Energy Intensity and GHG Intensity by 20% and 50% respectively.

Who is entitled to benefit from these incentives?
Chief Sustainability Officer (CSO)
Types of incentives
Monetary reward
Activity incentivized
Emissions reduction target
Comment
Monetary rewards for the CEO, CSO and the corporate executive team are based on progress to our 2020 energy/emission reduction goals. This is part of our executive performance objectives, which impact variable incentives for executives within the Science and Technology Organization, each business unit, as well as our corporate sustainability function. This includes individuals such as Mike Thaman, CEO and Chairman of the Board, Frank O'Brien- Bernini – VP and Chief Sustainability Officer, Luis Martens – VP of Global Operations GRS, David Rabuano - VP of Operations Insulation, Bob Marks – VP of Roofing Operations, Jose Mendez-Andino – VP R and D Insulation as it relates to our 2020 Goals to reduce Energy Intensity and GHG Intensity by 20% and 50% respectively.

Who is entitled to benefit from these incentives?
Corporate executive team
Types of incentives
Monetary reward
Activity incentivized
Emissions reduction target
Comment
Monetary rewards for the CEO, CSO and the corporate executive team are based on progress to our 2020 energy/emission reduction goals. This is part of our executive performance objectives, which impact variable incentives for executives within the Science and Technology Organization, each business unit, as well as our corporate sustainability function. This includes individuals such as Mike Thaman, CEO and Chairman of the Board, Frank O'Brien- Bernini – VP and Chief Sustainability Officer, Luis Martens – VP of Global Operations GRS, David Rabuano - VP of Operations Insulation, Bob Marks – VP of Roofing

Operations, Jose Mendez-Andino – VP R and D Insulation as it relates to our 2020 Goals to reduce Energy Intensity and GHG Intensity by 20% and 50% respectively.

C2. Risks and opportunities

C2.1

(C2.1) Describe what your organization considers to be short-, medium- and long-term horizons.

	From (years)	To (years)	Comment
Short-term	1	3	
Medium-term	3	6	
Long-term	6	100	

C2.2

(C2.2) Select the option that best describes how your organization's processes for identifying, assessing, and managing climate-related issues are integrated into your overall risk management.

Integrated into multi-disciplinary company-wide risk identification, assessment, and management processes

C2.2a

(C2.2a) Select the options that best describe your organization's frequency and time horizon for identifying and assessing climate-related risks.

	Frequency of monitoring	How far into the future are risks considered?	Comment
Row 1	Six-monthly or more frequently	>6 years	The risk committee meets semi-annually to review the emerging risks and their potential impact to the company as well as review existing risk aspects, add any new risks being identified from internal or external sources and update any risks which are no longer considered applicable to the businesses. The risk committee also reviews the mitigation actions and outputs for the annual cycle.

C2.2b

(C2.2b) Provide further details on your organization’s process(es) for identifying and assessing climate-related risks.

Owens Corning looks at all risks, including climate-related risks, through essentially the same process. At the asset level, our business units (BUs) create business specific risk registers which are used in their Strategic and 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.

Of the risks that we monitor, Owens Corning has established three levels for value impact. The lowest level are those risks where the company can absorb the financial impact, and the reputational impact is relatively non-existent. The next level is moderate financial impact, with a potential to be known by the public or to damage our reputation. The highest level is significant financial impact and or reputational damage, with the potential to be catastrophic to the organization. All three levels of risks have been determined important to monitor, but those in the moderate and significant levels are defined as having substantive financial impact.

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 and 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

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.

C2.2c

(C2.2c) Which of the following risk types are considered in your organization's climate-related risk assessments?

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	Our risk committee always reviews a minimum of 20 different key risk types, including evaluating Global Political Risk, which includes government action related to public policy or events, current regulations, and emerging regulations, and Loss of Tax Assets due to changes in regulation. An example of current regulation risk for Owens Corning is the updated Florida Building Energy Code, which allows for the construction of a less efficient home simply because it comes with solar panels. There is a risk that this regulation will reduce home builders use of energy saving construction materials such as Owens Corning insulation and foam board.
Emerging regulation	Relevant, always included	Our risk committee always reviews a minimum of 20 different key risk types, including evaluating Global Political Risk, which includes government action related to public policy or events, current regulations, and emerging regulations, and Loss of Tax Assets due to changes in regulation. One example of emerging regulation risk identified is the California 2019 Building Energy Efficiency Standards (BEES). Owens Corning promoted a coalition of the insulation industry, environmental groups, affordable housing groups, labor, and utilities to put in place barriers to trading off PV and Storage for high ROI/persistent energy efficiency in the draft 2019 BEES. We further worked with the CA-based Passive House advocates to promote this Passive House as a compliance path in the next code cycle (2022) and in CALGreen.(CA’s green code).
Technology	Relevant, always included	Our risk committee always reviews a minimum of 20 different key risk types, including evaluating technology related risk types such as IT Infrastructure, IT Risk, and Intellectual Property. However, technology risks underpin many other risk types, including Competitive threats - the risk of technological innovation by our competitors, energy costs - how do technology changes impact our energy procurement costs, Supply Chain - do technological innovations put our supply chain at risk compared to our competitors, and others. Some risks identified and reviewed include the risks of competitors developing new roofing shingles that perform better than our Duration and Weatherguard shingles in extreme climates, the development of low carbon products better than our current insulation product line, and the development of alternative materials other than fiberglass used in the manufacture of wind turbine blades.

	Relevance & inclusion	Please explain
Legal	Relevant, always included	Our risk committee always reviews a minimum of 20 different key risk types, including evaluating Competition Laws, Anti-Corruption and other Compliance, Intellectual Property, Product Liability and Fraud. There is a separate legal risk register prepared and reviewed as part of our risk management process. Legal risks related to climate change and environmental issues are always a major part of our risk evaluation and discussion. One example of this is the risk of product related litigation. Owens Corning has a rigorous product stewardship process that ensures that all products (new and existing) are safe for employees to make, safe for consumers, perform as intended, and can be disposed of responsibly with a minimal impact on climate change. As part of our 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 is used to evaluate how the new product or process will impact the Company's sustainability goals and to drive decisions in the design phase that will achieve a portfolio of more sustainable products. Summary reports from these assessments identifying trends and opportunities are published on a quarterly basis. Recent Owens Corning products that have gone through this Sustainability Tool mapping process include Sustaina® non-woven glass fiber fabric and Pure Safety® high-performance insulation.
Market	Relevant, always included	Our risk committee always reviews a minimum of 20 different key risk types, including evaluating market related risks like Trade Credit Risk, Talent risk (losing key personnel to other players in the market), Liquidity (driven partly by market factors), and also risks of changing customer preference and demand. Specific to climate change, we evaluate the risks of worsening climate change conditions causing us to lose customers and sales to competing solutions. Shifts in customer preference and demand away from Owens Corning products like Foam or fiberglass insulation to competing or new solutions could have a negative impact on our results.
Reputation	Relevant, always included	Our risk committee always reviews a minimum of 20 different key risk types, including evaluating reputational risks. A fundamental part of Owens Corning's strategy is that of our reputation as a global provider of energy saving products that are environmentally safe to use and that make the world a better place. Our published sustainability report, submissions to CDP and DJSI and other organizations are all about telling our sustainability story and ensuring that our reputation is built on our actions to save energy and combat climate change. Our philanthropic focus on housing and shelter aligns with our three goals of supporting our company's growth agenda, building a positive reputation within Owens Corning communities, and engaging our employees. Through our partnership with Habitat for Humanity, Owens Corning completed 28 home builds or renovations in 2017 in the United States, Canada, and China. Reputational risk driven by climate change is therefore an important part of our risk management process.
Acute physical	Relevant, always included	Risks of acute physical risks like adverse weather and similar natural disasters are always included in our evaluation of risks. Much effort has been spent creating mitigation plans and scenarios to ensure that customer needs are met even in the event of a plant being down due to a climate change related acute physical event. Owens Corning had an examples in the recent past where Hurricane Sandy damaged our Kearny roofing plant, and we had significant flooding in our Taloja, India, plant. The risk of disruption to customers due to a similar event, and our mitigation plans around it are always important points of consideration in our climate-related risk assessments.
Chronic physical	Relevant, always included	Chronic physical risks are included in our risk assessments, primarily in the impact of changing climate patterns on our plants. Long term temperature change and changes in water availability are issues that we evaluate and discuss. Risks related to the forecasted impact of long term changes in weather patterns are considered regularly in the area of safety. Living Safely is one of Owens Corning's six company values, which is why we are unconditionally committed to occupational health and safety. We want all our employees, their families, and community members to have full confidence in the health and safety of our global operations. The impact of heat related illnesses is one example that Owens Corning is concerned about in light of rising temperatures. We had experienced a rise in heat related illnesses in our plants over the past few years, and have taken several actions to mitigate the risk of illness, including cold drink delivery to the plant floors at regular intervals. Included in our risk assessments and corresponding financial assessments from a

	Relevance & inclusion	Please explain
		safety perspective are the costs of preventing heat related illnesses as well as the cost avoidance of preventing the illnesses.
Upstream	Relevant, always included	Raw material sourcing risks are included in Owens Corning's risk assessments. Risks to disruptions in our material supply due to climate-related disruptions (weather driven, regulatory, etc.) are included due to the impact on our production that any raw material disruption could have to our production of insulation, roofing, or composite materials. During recent hurricanes that impacted our plants in Houston and Fresno, TX, Atlanta and Savannah, GA, and Jacksonville and Lakeland, FL, Owens Corning employed upstream transportation mitigation plans devised as a result of risk planning.
Downstream	Relevant, always included	One downstream risk that is included in our climate-related risk assessments is the risk of transportation disruptions. Owens Corning uses distributors to sell our building materials products to consumers, and a disruption of transportation would put our relationship with our distributors at risk, as well as resulting in a potential loss of sales. During recent hurricanes that impacted our plants in Houston and Fresno, TX, Atlanta and Savannah, GA, and Jacksonville and Lakeland, FL, Owens Corning employed downstream transportation mitigation plans devised as a result of risk planning, including shipping from other Owens Corning plants.

C2.2d

(C2.2d) Describe your process(es) for managing climate-related risks and opportunities.

Owens Corning's risk identification and assessment process is outlined in C2.2b. The risk committee will meet with functional and business leaders throughout the organization to discuss the identified risks and manage corresponding action plans.
We have management action plans for each of our risks. For example, we have a plant in Tennessee located in a high earthquake and tornado zone. This plant is important to Owens Corning as it helps supply raw material to another business within the company as well as supply outside companies with this material. As a result, we have a plan in place that involves insurance, loss prevention, supply chain and our commercial teams to mitigate the losses in the event of a natural catastrophe. The plan includes having the appropriate amount of insurance, planning to convert other facilities to make similar product, making updates to the facility to help it withstand natural disasters and having appropriate contractual obligations with outside customers to supply a pro-rated amount of materials in the event of a disaster. This plan is reviewed and updated annually as circumstances change.
Our opportunity process, including climate related opportunities, is varied and wide. Examples of this include: Opportunities managed within the business, RandD, marketing, and our Front- End Innovation (FEI) team. FEI is a business strategy aligned corporate Innovation team designed to continuously fuel OC business pipelines with technology-based opportunities to enable growth or mitigate threats. FEI screens new emerging technologies, assessing and translating them into value for our businesses. Opportunities go through an approval process where legal, finance, supply chain, and marketing all have input before ultimate approval at the business leadership level. Any new products developed must go through our stringent product stewardship process, and each product will be evaluated for its net sustainability gains or losses compared with existing products.

Some examples of how we have followed our processes for managing climate change related risks and opportunities:
Transitional Risk - 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. 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. One specific Owens Corning example would be the banning of certain blowing agents used in our XPS foam plants in North America and Asia. If that occurred, we would be required to make certain capital investments at our plants to use alternative blowing agents. Because we believe the likelihood of this identified risk is high in the long term, we have been working on new foam blowing agent blends with lower GWP that could be used with our existing equipment, and we have also begun preparing for the eventual capital upgrades needed to run our lines with lower GWP blowing agent.
Physical Risk - Climate Related increases in natural disasters can disrupt our production with some products produced at limited numbers of locations. Historically, our roofing shingles of the same color could not be mixed if made from different plants due to slight variations in color. Our risk management process resulted in our development of regional roofing shingles that can produced

at multiple locations with consistent colors, allowing us to mix product from different plants in the event of an emergency at one of our facilities.
Transitional Opportunity – Owens Corning actively lobbies the U.S. DOE and other legislative bodies through its Governmental Affairs organization for increased energy conservation requirements. Risk and opportunities evaluation by the businesses determined that more aggressive building codes can help drive the use of Owens Corning's products, to save customers energy and reduce GHG emissions. We estimate that aside from the benefit to consumers, Owens Corning could see upwards of $200 million annually from new business.
Physical Opportunity - 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 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. Evaluation of climate change related physical risks and opportunities have driven changes and expansion in production and marketing of specific Owens Corning products, like Weatherguard shingles, which are rated against high winds and storm activity, as well as helped drive the creation of new products like our Cool Shingles with reflective properties.

C2.3

(C2.3) Have you identified any inherent climate-related risks with the potential to have a substantive financial or strategic impact on your business?

Yes

C2.3a

(C2.3a) Provide details of risks identified with the potential to have a substantive financial or strategic impact on your business.

Identifier
Risk 1
Where in the value chain does the risk driver occur?
Direct operations
Risk type
Transition risk
Primary climate-related risk driver
Policy and legal: Mandates on and regulation of existing products and services
Type of financial impact driver
Policy and legal: Increased costs and/or reduced demand for products and services resulting from fines and judgments
Company- specific description
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 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. One specific Owens Corning example would be the banning of certain blowing agents used in our XPS foam plants in North America and Asia. If that occurred, we would be required to make certain capital investments at our plants to use alternative blowing agents.
Time horizon
Long-term
Likelihood
Likely
Magnitude of impact
Medium-low
Potential financial impact
26000000
Explanation of financial impact
$5-6MM is the capital engineering estimate for converting 3 lines in China to the same BA we will use for Canada in 2021, though we may also have ways to reduce the capital spend through technology. We have an additional investment of $15-20MM to convert the remaining 4 foam lines in USA and the smaller Mexico line to the new blowing agent.
Management method
Our management action plan is to proactively expend R and 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. 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 2017, 71% of new products and 50% 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). For Foam, we have R and D teams working on new blowing agent formulations, as well as the best ways to convert our existing lines to a lower GWP formulation.

Cost of management

6000000

Comment

The management plan for foam for working on new blowing agent formulations and determining the best ways to convert our existing lines to a lower GWP formulation is budgeted at about $2,000,000 per year. Out to our sustainability goal year of 2020, this gives us an estimate of about $6,000,000.

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Physical risk

Primary climate-related risk driver

Acute: Increased severity of extreme weather events such as cyclones and floods

Type of financial impact driver

Reduced revenue from decreased production capacity (e.g., transport difficulties, supply chain interruptions)

Company- specific description

Many of Owens Corning's business activities involve substantial investments in manufacturing facilities and many products are produced at a limited number of locations. These facilities could be materially damaged by natural disasters such as floods, tornadoes, hurricanes and earthquakes or by sabotage. In 2017, Owens Corning plants in Houston and Fresno, TX, Atlanta and Savannah, GA, and Jacksonville and Lakeland, FL were impacted by hurricanes Irma and Harvey. None of the plants reported major damage or flooding, though some temporarily lost power. Lakeland suffered more extensive flooding, while Fresno had minimal flooding in the plant. 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.

Time horizon

Short-term

Likelihood

More likely than not

Magnitude of impact

Low

Potential financial impact

10000000

Explanation of financial impact

Estimated financial implication is $5 million to $10 million per incident net of insurance recovery. In most cases our property insurance deductible is $5MM. There are some cases where the deductible is higher based on the type of loss and where it happened. Due to these situations, the calculated estimated potential impact has been averaged out to approximately $10 million.

Management method

Insurance, loss prevention and business continuity programs are in place. The loss prevention program focuses on proactively preventing or mitigating 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. One specific example of how Owens Corning has managed this risk is by the development of region specific products like regional roofing shingles. Historically shingles from different plants did not always match colors exactly, so shingles from different plants couldn’t be mixed. Regional shingles have exactly the same colors no matter the producing plant, and this is 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.

Cost of management

2000000

Comment

Cost of management is up to $2 million for administration of programs and for physical loss prevention improvements. 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.

Identifier

Risk 3

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Transition risk

Primary climate-related risk driver

Policy and legal: Enhanced emissions-reporting obligations

Type of financial impact driver

Policy and legal: Increased operating costs (e.g., higher compliance costs, increased insurance premiums)

Company- specific description

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 and carbon emissions. Owens Corning operates in countries throughout the world and currently is subject to the EU Emissions Trading Scheme (ETS). Expansions to the EU ETS, or similar trading schemes being setup in other nations could impact Owens Corning by increasing our operating costs in those countries by reducing our carbon allowances. Our stock of CO2 allowances may be depleted in 2020, which would require us to purchase additional allowances after 2021. We have four composites plants in the EU - L'Ardoise, Chambery, Besana, and Apeldoorn that are impacted by the EU ETS.

Time horizon

Long-term

Likelihood

About as likely as not

Magnitude of impact

Low

Potential financial impact

8500000

Explanation of financial impact

In Europe, our existing ETS program with our Composites business has a risk for needing to purchase allowances, as it appears that our stock of CO2 allowances will be depleted in 2020. We estimate that we will see a shortage of about 50,000 MT CO2 per year from 2021 to 2025. With an estimate of 30 euros/MT, we would have a potential impact of 1.5 million euros per year over that 5-year period, or approximately $8.5 million at current exchange rates.

Management method

Our method of managing these risks includes tracking our allowances and estimating future need, as well as interaction with the Commission in charge of defining the new allocation rules through by the Glass Alliance Europe representative who is a member of the EU ETS Expert Group. In reviewing the rules under EU ETS Phase IV, we determined the Continuous Filament Glass Fiber sector qualifies to continue receiving free allowances until 2030. Our management method for our L'Ardoise, Besana, Chambery, and Apeldoorn plants is to estimate future production, emissions, and allowance needs to determine how much in allowances we will need to purchase in future years. All these elements of our management method are considered by Owens Corning to be part of the normal course of business, so our estimated cost of management is $0.

Cost of management

0

Comment

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.

C2.4

(C2.4) Have you identified any climate-related opportunities with the potential to have a substantive financial or strategic impact on your business?

Yes

C2.4a

(C2.4a) Provide details of opportunities identified with the potential to have a substantive financial or strategic impact on your business.

Identifier

Opp1

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Products and services

Primary climate-related opportunity driver

Development and/or expansion of low emission goods and services

Type of financial impact driver

Increased revenue through demand for lower emissions products and services

Company- specific description
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 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.
Time horizon
Short-term
Likelihood
More likely than not
Magnitude of impact
Medium
Potential financial impact
200000000
Explanation of financial impact
69% of Owens Corning's 2017 sales were in building materials. Changes in regulations for energy efficiency could have a material impact on demand for our energy efficient products. $200,000,000 is about 4-5% of our 2017 sales in Roofing and Insulation.
Strategy to realize opportunity
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 and experience. In 2017, we continued to partner with builders throughout the US and Canada who are building in a wide variety of climates, regions and communities. Our deep commitment to help builders turn building science into building genius was brought to life in the 2017 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-demonstration-project/
Cost to realize opportunity
1000000
Comment

Identifier
Opp2
Where in the value chain does the opportunity occur?
Direct operations
Opportunity type
Products and services
Primary climate-related opportunity driver
Development and/or expansion of low emission goods and services
Type of financial impact driver
Increased revenue through demand for lower emissions products and services
Company- specific description
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 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. Our Weatherguard shingle is specifically designed to protect against high winds and increased storm activity, meeting the industry's highest classification for impact resistance, and it along with our Duration shingle and our entire product line could likely see increased revenues. Also, Owens Corning has developed low emission products in our insulation portfolio. Owens Corning has announced three types of commercial and residential insulation, independently certified as made with renewable energy, are available for specification and purchase. These products represent the first ever to have met the requirements of SCS Global Services' certification protocol to validate electricity used to make them is 100% wind powered, which, in turn, reduces their carbon footprint. While the new offering helps Owens Corning reduce its carbon footprint – its stated goal is a 50% reduction by 2020 over its 2010 baseline – the certified insulation products, made with 100% wind energy, give commercial architects and specifiers, builders, and even homeowners the option of lower-carbon products to build greener structures. For architects, the products will help them design buildings with reduced life cycle impact and achieve the recognized goals of the Architecture 2030 Challenge and U.S. Green Building Council's LEED certification.
Time horizon
Current
Likelihood
About as likely as not

Magnitude of impact
Medium
Potential financial impact
100000000
Explanation of financial impact
Roofing accounted for 39% of Owens Corning's revenue in 2017. Our estimate of the impact that could be felt by increased storm activity is about 4% of that revenue. This is based in part on knowledge of the impact of increased storm activity in previous years.
Strategy to realize opportunity
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 2017, Owens Corning has been developing regional shingles that dramatically improve our ability to get 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.
Cost to realize opportunity
0
Comment
Cost to realize opportunity is $0 incremental management costs. Increased freight costs are easily passed through in price when serving storm ravaged areas.

Identifier
Opp3
Where in the value chain does the opportunity occur?
Direct operations
Opportunity type
Products and services
Primary climate-related opportunity driver
Shift in consumer preferences
Type of financial impact driver
Better competitive position to reflect shifting consumer preferences, resulting in increased revenues
Company- specific description
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 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.
Time horizon
Current
Likelihood
More likely than not
Magnitude of impact
Medium
Potential financial impact
50000000
Explanation of financial impact
Owens Corning's estimate of $50,000,000 potential impact is driven by a number of factors, including market intelligence, historical revenue gains from new products and from improved sales of existing products, and from financial modeling. The estimate represents potential gains in revenue from increased sales due our strong reputation as a sustainable company with energy efficient products.
Strategy to realize opportunity
Owens Corning recognizes the importance of sustainability and 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 and sales force actively and broadly promote our company's stand for sustainability and trains professionals on how to achieve maximum environmental benefits using our products. The company is a significant user of recycled content, and we strive to reduce the energy usage and GHG emissions from producing our products while tracking avoided emissions from product usage. In 2017 we 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, and the global economy. The project will develop practices and tools companies can use to quantify, assess, communicate, and enhance their positive impacts on society and 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, and environmental impact should be larger than our negative impact.

Cost to realize opportunity

1000000

Comment

C2.5

(C2.5) Describe where and how the identified risks and opportunities have impacted your business.

	Impact	Description
Products and services	Impacted	In response to the identified risk of potential for increased regulation on energy efficiency and emissions standards, Owens Corning has in recent years made dramatic improvements to its product lines in all businesses, including the Cool roof shingle, the Pure Safety® product in our insulation business, and Sustaina® in our Composites business. 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 product to earn the asthma and allergy friendly™ Certification from the Asthma and Allergy Foundation of America (AAFA). Finally, in Composites, the company's new Sustaina® non-woven glass fiber fabric uses a bio-based binder system with high tensile strength performance and does not contain formaldehyde. These innovations have had a moderate impact on our revenues as we deliver new market leading products.
Supply chain and/or value chain	Impacted for some suppliers, facilities, or product lines	To enhance sustainability across the supply chain and minimize the impact of storms and natural disasters on supply chains, we believe transportation of materials and engagement with the supplier can be done more efficiently if the supplier is nearby. In addition, an important area where our supply chain related risks have impacted our business is in the area of regional shingles. To mitigate the impact of natural disasters we have worked with our suppliers to create regional shingles that promote easier mixing of product made at different plants. These regional shingles are important to mitigate the impact of damage to a plant. Historically a particular color shingle made at different plants were slightly different and could not be mixed. With the regional shingle, 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. This has had a significant impact on our roofing business, as we can now mix product from different plants, greatly expanding our distribution flexibility, even in non-storm-related situations.
Adaptation and mitigation activities	Impacted for some suppliers, facilities, or product lines	Owens Corning has developed and implemented many adaptation and mitigation activities for our identified risks and opportunities. Approximately $2 million has been invested for administration of programs and for physical loss prevention improvements to mitigate risks of natural disasters disrupting our production capacity. In addition we have spent $5 million to mitigate the risks of air pollution limits being strengthened, including the use of our Sustainability Mapping Tool in the Product Stewardship process. The risk review process has had a major impact on our adaptation and mitigation activities, since a majority of those activities have been created specifically to alleviate identified risks. After the cases of flooding in the Kearny and Taloja plants, we ended up raising up critical electrical systems from the ground after rebuilding part of those facilities. For our facilities. we now look at the flood history and evaluate whether we need to elevate critical electrical systems in those facilities as well to minimize flood risks.

	Impact	Description
Investment in R&D	Impacted	Owens Corning has invested in energy efficient and environmentally friendly products such as Cool Roof Collection™ shingles, WindStrand® high performance glass fiber roving, and others that have proven successful in the marketplace. Currently Owens Corning is investing substantially in other R and D in response to the many climate related risks and opportunities that we have defined. The risk management process has had a moderate magnitude of impact on how funds are invested in R and D, as the risk management process often leads to mitigation needs and identified business opportunities. For example, the investment in R and D for WindStrand® was driven in part by climate change related risk and opportunity evaluations. WindStrand® is a high-efficiency fabric for wind blades to make wind energy more cost effective. High-efficiency fabric is an innovative material that allows wind blade manufacturers to use 30% fewer layers of material in the molds for the blades – while getting the same quality and performance as standard fabrics. That, in turn, represents a 50% savings in the labor and production time for the blades. By enabling longer, stronger, and lighter wind blades, our high-efficiency fabric solution lowers the cost of wind energy, thus contributing to the worldwide advancement of this alternative source of energy production.
Operations	Impacted	Identified climate related risks and opportunities have had a significant impact for Owens Corning. In 2015 we 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, impacting emissions and renewable energy in 2017. Additionally, in 2017 OC continued to look for opportunities to expand our renewable portfolio with several reviews of onsite and offsite programs.
Other, please specify	Please select	

C2.6

(C2.6) Describe where and how the identified risks and opportunities have factored into your financial planning process.

	Relevance	Description
Revenues	Impacted	Owens Corning has incorporated the identified risks and opportunities into our financial planning process. Our new product developments are factored into our forecasting, as previous climate related products like EcoTouch and Pure Safety were when they were being developed. Currently Low Carbon Products, which were introduced in 2017 and made up 13% of 2017 insulation revenues, have also been included in future revenue projections at a forecasted rate of growth. These risks and opportunities have a moderate impact on revenues in the financial planning process.
Operating costs	Impacted	Owens Corning incorporates the impact of the identified risks into its operating costs for financial planning models based on a number of factors including the likelihood, timeframe, and magnitude of the financial impact of the risk or opportunity. For example, in the event of reduced production capacity due to climate-related increased in storm activity and severity, Owens Corning would potentially see increased Operating Costs with substantial magnitude of impact in the affected regions. The increase would be due to cleanup costs, as well as alternate transportation costs, increased maintenance, and likely increased production costs as the repaired line is brought back up to production. This estimated impact would be included in the financial planning process in various scenarios and analyses. When Hurricane Sandy damaged our Kearny roofing plant, we had a good actual example to use to adjust our planning estimates for future potential severe weather events and their impact on operating costs.
Capital expenditures / capital allocation	Impacted for some suppliers, facilities, or product lines	Capital expenditures and allocations are frequently impacted by identified risks and opportunities. Examples include the capital expenditures needed to make the Pure Safety® product, driven by our recognition of the reputational opportunity that Owens Corning has due to climate change. Owens Corning's Pure Safety® high-performance insulation provides up to 65% less dust and is mold and mildew resistant. It is the world’s first building product to earn the asthma and allergy friendly™ Certification from the Asthma and Allergy Foundation of America (AAFA). Similarly, we included in the

	Relevance	Description
		planning process a few years ago the new equipment required to use Foam blowing agent with a lower GWP, as the need for blowing agent changes was identified in our risk and opportunities analyses. Our response to identified climate related risks and opportunities like these has had a substantial impact on our financial planning of capital allocation.
Acquisitions and divestments	Impacted for some suppliers, facilities, or product lines	Identified risks and opportunities have had a moderate impact on our financial planning for acquisitions and divestments. Over the last several years acquisitions have been an important part of our growth strategy. We look for acquisition opportunities with businesses that meet specific criteria: they must provide stable and attractive margins and strong synergies, address our target growth areas, and meet our strategic objectives. We evaluate our acquisition candidates through multiple lenses, including sustainability, and we ask a critical question: Will this business be better with us as its owner? As sustainability guides our operations, we want to be confident that we can improve the environmental, health, and safety (EHS) performance, employee experience, customer experience, and community impact of the companies that join us. Can we bring a new perspective on safety and health? Can we improve energy efficiency and lower waste in operations? Owens Corning has purchased several companies in the last 3 years. The acquired businesses successfully expand the capabilities and global reach of our three business segments (Composities, Insulation, and Roofing). Improving EHS performance and enhancing the employee experience are critical elements in our acquisition integration process. The identified climate change related opportunities, including more aggressive building codes, increased building materials demand due to potentially increased storm activity and severity, and improved demand for existing products due to our reputation for sustainable products were all factors in our acquisitions to expand our product line. These opportunities continue to be involved in our financial planning process as we continue to evaluate and analyze additional acquisition targets.
Access to capital	Not yet impacted	Owens Corning's access to capital in our financial planning process may be impacted by the risks and opportunities we have identified. Our financial modeling incorporates the impact of risks and opportunities based on timeframe, likelihood, and magnitude of impact. Our finance organization during planning will look at different scenarios based on the likelihood of potential risks or opportunities occurring. For Owens Corning specifically, that means for example that impacts on our production facilities and capacity from increased severity of storms could negatively impact our access to capital for subsequent periods, perhaps substantially depending on the level of production capacity impact. Substantial damage to our facilities requiring capital investment beyond insurance recovery, coupled with production issues could impact our debt level and degree of leverage. As discussed in Owens Corning’s 2017 10-K, other consequences from this include our ability to obtain additional debt or equity financing for working capital, capital expenditures, debt service requirements, acquisitions and general corporate or other purposes may be limited. This and the potential impacts from our other risks and opportunities are factored into the financial planning process and results for future years, however to date Owens Corning’s access to capital has not yet been impacted. Owens Corning makes multi-year capital investments to be consistent with our strategy to remain investment grade.
Assets	Impacted	Identified risks and opportunities have had a moderate impact on our financial planning for assets, primarily through our acquisitions. Owens Corning has purchased several companies in the last 3 years, including InterWrap, Pittsburgh Corning, and Paroc. With these acquisitions, Owens Corning reported $8.63 billion in total assets in 2017. These companies were seen as important to expand our portfolio of energy saving products. The identified opportunities regarding more aggressive building codes, increased building materials demand due to changes in weather patterns and storm activity, and improved demand for existing products due to our reputation for sustainable products were all factors in our acquisitions to expand our product line. These opportunities continue to be involved in our financial planning process as we continue to evaluate and analyze additional acquisition targets. In the past few years, we have had changes to our forecasted assets in our financial planning process due to our acquisition strategy. Identified risks and opportunities have had a moderate impact on our financial planning for assets and liabilities due to the expectation of the acquisitions.

	Relevance	Description
Liabilities	Impacted	Identified risks and opportunities have had a moderate impact on our financial planning for liabilities, primarily through our acquisitions. Owens Corning has purchased several companies in the last 3 years., including InterWrap, Pittsburgh Corning, and Paroc. These companies were seen as important to expand our portfolio of energy saving products. The identified opportunities regarding more aggressive building codes, increased building materials demand due to changes in weather patterns and storm activity, and improved demand for existing products due to our reputation for sustainable products were all factors in our acquisitions to expand our product line. These opportunities continue to be involved in our financial planning process as we continue to evaluate and analyze additional acquisition targets. In the past few years, we have had changes to our forecasted liabilities in our financial planning process due to our acquisition strategy. Identified risks and opportunities have had a moderate impact on our financial planning for assets and liabilities due to the expectation of the acquisitions.
Other	Please select	

C3. Business Strategy

C3.1

(C3.1) Are climate-related issues integrated into your business strategy?

Yes

C3.1a

(C3.1a) Does your organization use climate-related scenario analysis to inform your business strategy?

Yes, qualitative and quantitative

C3.1c

(C3.1c) Explain how climate-related issues are integrated into your business objectives and strategy.

Owens Corning's business strategy has been influenced by climate change risks and opportunities that have been identified and managed by our risk organization as well as within our distinct business units. All risk assessment results and outputs are reviewed by the executive committee (including the CEO). Feedback received is incorporated in the action register and 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 and business groups. The internal processes identifying our corporate footprint and handprint also influence the decisions made by our leaders. Owens Corning has a 2020 goal to reduce GHG emissions intensity by 50% and primary energy intensity by 20% from our 2010 base year. An example of how the business strategy has been influenced by climate change is our inclusion of energy into our risk register. Owens Corning has an active team including internal and external resources who evaluate both boutique onsite renewable programs and large offsite installations. There are several aspects of climate change that have influenced our business strategy. The climate change influence on increasing frequency and 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 and greater durability.
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 and our 2020 Energy and GHG Emission reduction goals has led to many new product and process developments, for example, the formaldehyde free EcoTouch® insulation & Sustaina® veil products, the sustainability R&D mapping tool, reduced energy intensity and related GHG emissions and 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.

In 2017, Owens Corning made the business decision to launch the first insulation products to be certified as made with 100% wind-powered electricity and reduced embodied carbon, in accordance with SCS Global Services' certification protocol. The SCS certification and these new certified products were made possible by the power purchase agreements Owens Corning signed in 2015, which enabled new wind capacity in Texas and Oklahoma. Both wind farms came online in late 2016 and have the potential to generate 1.1 million megawatt hours of electricity per year. The aspects of reduced carbon and increased use of renewable energy lead to the business decisions for both the wind energy PPAs and the low carbon embodied product lines.

The reality of increased storm activity due to climate change resulted in our development and launch of shingles with greater wind and hail resistance. The importance of reducing GHG also led Owens Corning to perform a preliminary analysis on supply chain GHG including raw materials. In 2017 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.

C3.1d

(C3.1d) Provide details of your organization's use of climate-related scenario analysis.

Climate-related scenarios	Details
Other, please specify (Sectoral Decarbonization Approach)	Owens Corning used the Sectoral Decarbonization Approach Tool from the Science Based Targets Initiative to evaluate if our existing 2020 goal was science based. The tool enables us to evaluate a time horizon from our 2010 base year out to 2050, but specifically allows us to verify what our 2020 absolute emissions should be to qualify as science based. As we will be formulating our next set of goals in the near future, the tool also allows us to evaluate other potential target and baseline years. The inputs used were our 2010 scope 1 and scope 2 emissions, our base year, our target year, and our type of industry. The numbers used for our base year were for 100% of our operations. Our emissions level in 2017 was 3,523,515, well below the 2020 target emissions calculated by the SDA tool. This has informed our business objectives and strategy by confirming that it is meeting and exceeding the Science Based Target goal. Knowing we are on the right path will help us in setting our next set of goals, and in getting them approved by the Science Based Targets Initiative. Based on this alignment between SBT and our 2020 goals, Owens Corning has invested in developing low carbon products. In 2017, Owens Corning launched the first insulation products to be certified as made with 100% wind-powered electricity and reduced embodied carbon, in accordance with SCS Global Services' certification protocol. Also in support of SBT SDA tool analysis, Owens Corning continues to make investments in our renewable portfolio. In 2017, within the United States, approximately 56% of our electricity was sourced through renewable sources of wind (54%), hydro (1%), and solar (1%). This percentage includes renewable energy sourced from the grid as well as that sourced from our PPAs. Of the 56%, Owens Corning is proud to state that 52% is directly attributable to our renewable energy programs with a breakdown of 51% from wind and 1% from solar. Our 2017 onsite and offsite renewable programs included: • Our L'Ardoise, France, facility has sourced 100% renewable electricity through the Compagnie Nationale du Rhone's (CNR) Caderousse hydroelectric project that harnesses energy from the Rhone River. • In Toledo, Ohio, a solar array provided approximately 20% of the power for our world headquarters. • The 2.7-megawatt solar panels installed at our Delmar, New York, insulation plant provided approximately 7% of the required electricity. • Our Tessenderlo, Belgium, location has sourced approximately 10% of its electricity from wind turbines on and offsite. • The Kearny, New Jersey, Roofing plant has sourced around 14% of the required electricity from roof solar panels. • Our Fairburn, Georgia, plant is now home to a 1-megawatt solar project that is expected to result in an estimated 1,054 metric tons of CO2 reduction in its first year of operation. • Owens Corning PPAs for 250 megawatts of renewable electricity – 125 megawatts of wind energy in Texas, and another 125 megawatts in Oklahoma. We also continue to look for opportunities to expand our renewable portfolio, with several reviews of onsite and offsite programs in 2017.

C4. Targets and performance

C4.1

(C4.1) Did you have an emissions target that was active in the reporting year?

Intensity target

C4.1b

(C4.1b) Provide details of your emissions intensity target(s) and progress made against those target(s).

Target reference number

Int 4

Scope

Scope 1 +2 (market-based)

% emissions in Scope

100

% reduction from baseline year

50

Metric

Metric tons CO2e per metric ton of product

Base year
2010
Start year
2011
Normalized baseline year emissions covered by target (metric tons CO2e)
4827594
Target year
2020
Is this a science-based target?
Yes, we consider this a science-based target, but this target has not been approved as science-based by the Science Based Targets initiative
% achieved (emissions)
96
Target status
Underway
Please explain
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 2017, we are reporting a 48 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 2017, SCS Greenhouse Gas Verification program has conducted a verification of Owens Corning's end of year 2017 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 2017 to 31 December 2017 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 2017 to 31 December 2017 were materially misstated.
% change anticipated in absolute Scope 1+2 emissions
-27
% change anticipated in absolute Scope 3 emissions
0

C4.2

(C4.2) Provide details of other key climate-related targets not already reported in question C4.1/a/b.

C4.3

(C4.3) Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.
Yes

C4.3a

(C4.3a) Identify the total number of projects at each stage of development, and for those in the implementation stages, the estimated CO2e savings.

	Number of projects	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	93	10715
To be implemented*	5	406
Implementation commenced*	15	8199
Implemented*	51	14492
Not to be implemented	36	11924

C4.3b

(C4.3b) Provide details on the initiatives implemented in the reporting year in the table below.

Activity type
Energy efficiency: Building services
Description of activity
Lighting
Estimated annual CO2e savings (metric tonnes CO2e)
2107
Scope
Scope 2 (market-based)
Voluntary/Mandatory
Voluntary
Annual monetary savings (unit currency – as specified in CC0.4)
276151
Investment required (unit currency – as specified in CC0.4)
640062
Payback period
1-3 years
Estimated lifetime of the initiative
16-20 years
Comment
Nine individual lighting projects focused on improving energy efficiency of lighting in various manufacturing plants across the U.S., Canada, and Europe

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Activity type
Energy efficiency: Building services
Description of activity
HVAC
Estimated annual CO2e savings (metric tonnes CO2e)
271
Scope
Scope 2 (market-based)
Voluntary/Mandatory
Voluntary
Annual monetary savings (unit currency – as specified in CC0.4)
39383
Investment required (unit currency – as specified in CC0.4)
73575
Payback period
1-3 years
Estimated lifetime of the initiative
11-15 years
Comment
Two HVAC projects focused on improving the energy efficiency and reliability of HVAC systems in plants in Canada and Brazil

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Activity type
Energy efficiency: Processes
Description of activity
Compressed air
Estimated annual CO2e savings (metric tonnes CO2e)
1162
Scope
Scope 1
Scope 2 (market-based)
Voluntary/Mandatory
Voluntary
Annual monetary savings (unit currency – as specified in CC0.4)
141457
Investment required (unit currency – as specified in CC0.4)
250179
Payback period
1-3 years
Estimated lifetime of the initiative

11-15 years
Comment
Six compressed air projects focused on improving the energy efficiency of compressed air systems in plants in Canada, China, and Brazil

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Activity type
Energy efficiency: Building services
Description of activity
Motors and drives
Estimated annual CO2e savings (metric tonnes CO2e)
5610
Scope
Scope 1
Scope 2 (market-based)
Voluntary/Mandatory
Voluntary
Annual monetary savings (unit currency – as specified in CC0.4)
573971
Investment required (unit currency – as specified in CC0.4)
840958
Payback period
1-3 years
Estimated lifetime of the initiative
11-15 years
Comment
12 energy efficiency projects of various types across the U.S., China, Brazil, and Europe, including pump upgrades, motor upgrades, compressor upgrades, and energy monitoring system improvements

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Activity type
Energy efficiency: Processes
Description of activity
Process optimization
Estimated annual CO2e savings (metric tonnes CO2e)
1146
Scope
Scope 1
Scope 2 (market-based)
Voluntary/Mandatory
Voluntary
Annual monetary savings (unit currency – as specified in CC0.4)
177240
Investment required (unit currency – as specified in CC0.4)
167211
Payback period
<1 year
Estimated lifetime of the initiative
16-20 years
Comment
11 projects across Canada, India, China, and Europe, impacting our processes, resulting in energy efficiency and operational improvements, including new metering systems, right-sizing systems, and system automation and optimization

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Activity type
Energy efficiency: Processes
Description of activity
Combined heat and power
Estimated annual CO2e savings (metric tonnes CO2e)
4196
Scope
Scope 1
Scope 2 (market-based)
Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in CC0.4)
318769
Investment required (unit currency – as specified in CC0.4)
665047
Payback period
1-3 years
Estimated lifetime of the initiative
11-15 years
Comment
11 process heat and heat recovery projects focused on improving the energy efficiency of process heat systems in plants in the U.S., Canada, China, Mexico, South Korea, India, and France

C4.3c

(C4.3c) 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. Approximately 30% 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 several annual Global sustainability awards that are available to all employees. Our awards include 1. Sustainability Innovation – awarded for projects that have enabled Owens Corning to accelerate meeting or surpassing its 2020 sustainability goals. 2. Environmental Excellence Award - This award is designed to recognize sustained excellence in environmental stewardship and areas of regulatory or public interest. 3. Environmental Outreach - This 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. 4. Environmental Impact Improvement - This award is given to a site having implemented new environmental processes or technology delivering significant impact reduction and/or compliance assurance with new or challenging environmental requirements. 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

Method	Comment
	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 and the home builders association) to push through a stop-gap fix until the new 2019 energy code can be developed and put in place

C4.5

(C4.5) 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

C4.5a

(C4.5a) 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

Group of products

Description of product/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

Are these low-carbon product(s) or do they enable avoided emissions?

Avoided emissions

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Other, please specify (Insulation reduces energy and emissions)

% revenue from low carbon product(s) in the reporting year

0

Comment

These products help customers avoid emissions, as Insulation by its nature reduces energy use along with corresponding emissions.

Level of aggregation

Group of products

Description of product/Group of products

In 2017, Owens Corning launched the first insulation products to be certified as made with 100% wind-powered electricity and reduced embodied carbon, in accordance with SCS Global Services' certification protocol. The SCS certification and these new certified products were made possible by the power purchase agreements Owens Corning signed in 2015, which enabled new wind capacity in Texas and Oklahoma. Both wind farms came online in late 2016 and have the potential to generate 1.1 million megawatt hours of electricity per year. The first three types of commercial and residential insulation independently certified as made with wind-powered electricity are: • EcoTouch® Insulation – 35% embodied carbon reduction • Thermafiber® RainBarrier® Continuous Insulation – 20% embodied carbon reduction • Unbonded Loosefill Insulation – 55% embodied carbon reduction These certified insulation products give commercial architects and specifiers, builders, and even homeowners the option of lower-carbon products to build greener structures. Plus, they help architects design buildings with reduced life cycle impacts, which in turn helps them reach the recognized goals of the Architecture 2030 Challenge and U.S. Green Building Council's LEED® certification.

Are these low-carbon product(s) or do they enable avoided emissions?

Low-carbon product

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Other, please specify (SCS Global Services certification)

% revenue from low carbon product(s) in the reporting year

13
Comment
The SCS Global Services Standard can be found here:
https://www.scsglobalservices.com/files/program_documents/scs_gui_reducedcarbonfootprint_021318.pdf

C5. Emissions methodology

C5.1

(C5.1) Provide your base year and base year emissions (Scopes 1 and 2).
Scope 1
Base year start
January 1 2010
Base year end
December 31 2010
Base year emissions (metric tons CO2e)
3256201
Comment
Scope 2 (location-based)
Base year start
January 1 2010
Base year end
December 31 2010
Base year emissions (metric tons CO2e)
1559100
Comment
Scope 2 (market-based)
Base year start
January 1 2010
Base year end
December 31 2010
Base year emissions (metric tons CO2e)
1559100
Comment

C5.2

(C5.2) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions.
The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

C6. Emissions data

C6.1

(C6.1) What were your organization's gross global Scope 1 emissions in metric tons CO2e?
Row 1
Gross global Scope 1 emissions (metric tons CO2e)
2498946
End-year of reporting period
<Not Applicable>
Comment
Row 2
Gross global Scope 1 emissions (metric tons CO2e)
2584031
End-year of reporting period
2016
Comment
Row 3
Gross global Scope 1 emissions (metric tons CO2e)
2554728
End-year of reporting period
2015
Comment

Row 4
Gross global Scope 1 emissions (metric tons CO2e)
2637294
End-year of reporting period
2014
Comment
C6.2

(C6.2) Describe your organization's approach to reporting Scope 2 emissions.
Row 1
Scope 2, location-based
We are reporting a Scope 2, location-based figure
Scope 2, market-based
We are reporting a Scope 2, market-based figure
Comment
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.
C6.3

(C6.3) What were your organization's gross global Scope 2 emissions in metric tons CO2e?
Row 1
Scope 2, location-based
1384510
Scope 2, market-based (if applicable)
1024570
End-year of reporting period
<Not Applicable>
Comment
Owens Corning's GHG emissions were verified by SCS Global Services in 2017.
Row 2
Scope 2, location-based
Scope 2, market-based (if applicable)
End-year of reporting period
Comment
Row 3
Scope 2, location-based
Scope 2, market-based (if applicable)
End-year of reporting period
Comment
Row 4
Scope 2, location-based
Scope 2, market-based (if applicable)
End-year of reporting period
Comment
C6.4

(C6.4) 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
C6.5

(C6.5) Account for your organization's Scope 3 emissions, disclosing and explaining any exclusions.
Purchased goods and services
Evaluation status
Relevant, calculated
Metric tonnes CO2e
2102813.63
Emissions calculation methodology
The climate change category of Purchased Goods and Services (PG and 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 2017 annual production volume of the appropriate product manufactured by each of Owens Corning's three major businesses (Insulation, Composites, and Roofing.)

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Explanation

Capital goods

Evaluation status

Relevant, calculated

Metric tonnes CO2e

112406.74

Emissions calculation methodology

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 2017 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 sector. The eio-lca online tool measures economic activity in 2002 USD. As a result, the 2017 net sales figures were multiplied by a CPI deflator index to convert USD 2017 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.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Explanation

http://www.eiolca.net/cgibin/ dft/use.pl https://www.census.gov/eos/www/naics/

Fuel-and-energy-related activities (not included in Scope 1 or 2)

Evaluation status

Relevant, calculated

Metric tonnes CO2e

393518.93

Emissions calculation methodology

The calculation for Scope 3 GHG emissions for Fuel and Energy- Related Activities (FERA) has been carried out by calculating impacts from both upstream and downstream activities associated with electricity generation; these are termed "Scope 3u" and "Scope 3d TD," respectively. "Scope 3u" accounts for upstream activities, which are cradle-to-generation in scope; these include the activities from fuel resource extraction and transportation up to, but not including, the point of power generation. "Scope 3d TD" accounts for downstream activities, which are generation-to-consumption in scope; these include the activities of transmission and distribution, which are downstream of electricity generation. For U.S. facilities, data for these TD line losses were calculated using U.S. EPA's eGRID. For non-U.S. facilities, TD factors were calculated using IEA datasets. 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 (for U.S. facilities, NERC region-specific) "electricity, high voltage, production mix" activity datasets obtained from the "ecoinvent v3.4 cutoff cumulated LCIA matricies."1 Second, in order to isolate the emissions for 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 eGRID20162, and for international facilities, data was obtained from IEA3. For downstream activities, the emissions calculated were those associated with TD line losses. For facilities in the U.S., line loss factors were calculated using eGRID2016, and for international facilities, line loss factors were obtained from IEA3 datasets. For certain facilities, emission factors developed for the 2016 reporting year were used to account for variances in the level of regional data aggregation between the ecoinvent v3.41 and IEA3 datasets. This method was applied to facilities located in Canada, China and India. For these countries, ecoinvent 3.4 only contained factors for subnational regions whereas the IEA dataset only contained country specific factors. Prior year factors were also used for facilities located in Belgium and France.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Explanation

1. Treyer K., Bauer C., electricity, high voltage, production mix, Allocation, cut-off by classification, ecoinvent database version 3.4 2. EPA (2018) eGRID, eGRID NERC region annual CO2 equivalent total output emission rate, year 2016 data. U.S. Environmental Protection Agency, Washington, DC. 3. CO2 Emissions from Fuel Combustion (2017 ed.), IEA, Paris. 4. Treyer K., Bauer C., electricity, high voltage, production mix, Allocation, cut-off by classification, ecoinvent database version 3.2 5. EPA

(2017) eGRID, eGRID NERC region annual CO2 equivalent total output emission rate, year 2014 data. U.S. Environmental Protection Agency, Washington, DC. 6. CO2 Emissions from Fuel Combustion (2012 Edition), IEA, Paris. 7. IEA Statistics © OECD/IEA 2014

Upstream transportation and distribution

Evaluation status

Relevant, calculated

Metric tonnes CO2e

187354.72

Emissions calculation methodology

Primary data was collected internally from Owens Corning logistic analysts for 2017 total spend associated with the inbound transportation of all purchased materials. Spend data was categorized by the mode of transportation (i.e., truck, water, and passenger ground), and the total spend for each of the three 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

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Explanation

Waste generated in operations

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

Emissions calculation methodology

Not applicable as listed as not relevant.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

Explanation

Our waste streams, which are primarily forms of glass, are inert and have negligible emissions.

Business travel

Evaluation status

Relevant, calculated

Metric tonnes CO2e

12743.82

Emissions calculation methodology

Includes commercial air travel and rental car emissions. Methodology: Owens Corning is using Climate Leaders protocol for calculating GHG emissions related to corporate travel.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Explanation

Employee commuting

Evaluation status

Relevant, calculated

Metric tonnes CO2e

44807.52

Emissions calculation methodology

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 2017 employee commuting GHG emissions of 44,808 MT CO2.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Explanation

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

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

Emissions calculation methodology
Not applicable as listed as not relevant
Percentage of emissions calculated using data obtained from suppliers or value chain partners
Explanation
All our relevant leased assets have been accounted for under Scope 2 emissions. 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
Evaluation status
Relevant, calculated
Metric tonnes CO2e
475328.73
Emissions calculation methodology
Primary data was collected internally from Owens Corning logistic analysts for 2017 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.
Percentage of emissions calculated using data obtained from suppliers or value chain partners
100
Explanation
Processing of sold products
Evaluation status
Relevant, calculated
Metric tonnes CO2e
450684.27
Emissions calculation methodology
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) 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, in USD 2002, was used as the indicator of final demand economic activity within the 327212 industry sector was determined from the eiolca.net tool. The input value and selections used in the tool as well as a subset of the results can be found in the image below.
Percentage of emissions calculated using data obtained from suppliers or value chain partners
100
Explanation
Use of sold products
Evaluation status
Not relevant, explanation provided
Metric tonnes CO2e
Emissions calculation methodology
Not Applicable as listed as not relevant; LCA according to ISO 14040-44.
Percentage of emissions calculated using data obtained from suppliers or value chain partners
Explanation
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 2017 were estimated to reduce the GHG emissions for home owners by approximately 9.6 million metric tons CO2-e a year and 577 million metric tons over the building's lifetime.
End of life treatment of sold products
Evaluation status
Relevant, calculated
Metric tonnes CO2e
159589.08
Emissions calculation methodology
Scope 3 emissions associated with the EoL of fiberglass insulation and XPS insulation products manufactured in 2017 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 2017 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.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Explanation

Downstream leased assets

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

Emissions calculation methodology

Not applicable as listed as not relevant

Percentage of emissions calculated using data obtained from suppliers or value chain partners

Explanation

Owens Corning does not have any downstream leased assets

Franchises

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

Emissions calculation methodology

Not applicable as listed as not relevant

Percentage of emissions calculated using data obtained from suppliers or value chain partners

Explanation

Owens Corning has a small basement finishing system franchise business that is immaterial to the company.

Investments

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

Emissions calculation methodology

Not applicable as listed as not relevant

Percentage of emissions calculated using data obtained from suppliers or value chain partners

Explanation

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)

Evaluation status

Metric tonnes CO2e

Emissions calculation methodology

Percentage of emissions calculated using data obtained from suppliers or value chain partners

Explanation

Other (downstream)

Evaluation status

Metric tonnes CO2e

Emissions calculation methodology

Percentage of emissions calculated using data obtained from suppliers or value chain partners

Explanation

C6.7

(C6.7) Are carbon dioxide emissions from biologically sequestered carbon relevant to your organization?

No

C6.10

(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO2e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.

Intensity figure

551.93

Metric numerator (Gross global combined Scope 1 and 2 emissions)

3523515

Metric denominator

unit total revenue

In millions of dollars. Taken from the 2017 10-K.

Metric denominator: Unit total

6384

Scope 2 figure used

Market-based

% change from previous year

22

Direction of change

Decreased

Reason for change

Owens Corning has had ongoing GHG and energy reduction activities, including various projects that were implemented across the composites and insulation businesses. The reduction is mainly attributable to avoided emissions from our low carbon products. The avoided emissions under the certification of low carbon products have avoided 416,452 MT CO2e from our consumed electricity in 2017. The avoided emissions are associated with RECs from electricity generated through our wind PPAs. The RECs are applied to facilities that manufacture these low carbon products. All products in this category are included within the announcement of 100% Wind- Powered Electricity and Reduced Embodied Carbon issued publicly by Owens Corning in 2018.

C7. Emissions breakdowns

C7.1

(C7.1) Does your organization have greenhouse gas emissions other than carbon dioxide?

Yes

C7.1a

(C7.1a) Break down your total gross global Scope 1 emissions by greenhouse gas type and provide the source of each used greenhouse warming potential (GWP).

Greenhouse gas	Scope 1 emissions (metric tons of CO2e)	GWP Reference
CO2	1295599	IPCC Fifth Assessment Report (AR5 – 100 year)
CH4	186	IPCC Fifth Assessment Report (AR5 – 100 year)
N2O	224	IPCC Fifth Assessment Report (AR5 – 100 year)
HFCs	951915	IPCC Fifth Assessment Report (AR5 – 100 year)
Other, please specify (HCFC)	251022	IPCC Fifth Assessment Report (AR5 – 100 year)

C7.2

(C7.2) Break down your total gross global Scope 1 emissions by country/region.

Country/Region	Scope 1 emissions (metric tons CO2e)
Belgium	23070.75
Brazil	29377.74
Canada	181968.86
Chile	109.78
China	336662.2
Czechia	7476.62
France	80047.84
India	45281.7
Italy	48197.01
Mexico	141999.6
Netherlands	19499.45
Russian Federation	36766.55
Singapore	23.94

Country/Region	Scope 1 emissions (metric tons CO2e)
Republic of Korea	44321.01
Spain	50.18
United Kingdom of Great Britain and Northern Ireland	2860.13
United States of America	1501232.62

C7.3

(C7.3) Indicate which gross global Scope 1 emissions breakdowns you are able to provide.

By business division

C7.3a

(C7.3a) Break down your total gross global Scope 1 emissions by business division.

Business division	Scope 1 emissions (metric ton CO2e)
Corporate	9170.44
Composite Solutions Business	661487.61
Foam	1205951.67
Insulation Systems Business	442846.63
Roofing	179489.62

C7.5

(C7.5) Break down your total gross global Scope 2 emissions by country/region.

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons 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	20044.68	16133.39	88125.57	0
Brazil	11098.92	11098.92	70698.08	0
Canada	32539.29	32539.29	213982.13	0
Chile	63.52	63.52	144.37	0
China	131854.98	131854.98	199855.94	0
Czechia	15708.3	18609.85	30022.66	0
France	7636.44	3597.48	163852.6	67951.61
India	89365.58	89365.58	115253.14	0
Italy	20870.22	26369.4	60676.5	0
Mexico	91308.99	91308.99	198035.38	0
Netherlands	11498.56	13468.51	23424.72	0
Russian Federation	22644.12	22644.12	57189.3	0
Singapore	844.2	844.2	1932.89	0
South Korea	55503.39	55503.39	105079.02	0
Spain	437.33	651.92	1485.86	0

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low-carbon electricity, heat, steam or cooling accounted in market-based approach (MWh)
United Kingdom of Great Britain and Northern Ireland	2327.49	3202.16	6631.92	0
United States of America	870763.8	507313.82	1790770.87	861714.84

C7.6

(C7.6) Indicate which gross global Scope 2 emissions breakdowns you are able to provide.

By business division

C7.6a

(C7.6a) Break down your total gross global Scope 2 emissions by business division.

Business division	Scope 2, location-based emissions (metric tons CO2e)	Scope 2, market-based emissions (metric tons CO2e)
Composite Solutions Business	592425.42	552092.99
Roofing	122766	55647.1
Corporate	91761.88	89882.16
Foam	23843.42	20807.19
Insulation Systems Business	553713.08	306140.08

C7.9

(C7.9) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?

Decreased

C7.9a

(C7.9a) 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.

	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	403894	Decreased	10	In 2017, approximately 39% of our electricity was sourced through renewable sources, such as wind, hydro, solar, and geothermal, across our portfolio globally; this metric is defined as the renewable energy sourced from the grid as well as that sourced from our power purchase agreements (PPAs), including onsite generation. In support of our efforts to reduce our GHG emissions, Owens Corning has expanded its renewable energy portfolio. Through our power purchase agreements (PPA), Owens Corning retired 856,669 RECs for a total of 403,894 CO2e in 2017. Dividing the decrease between 2016 and 2017 (403,894 MT CO2e) over the 2016 Scope 1 and Scope 2 combined total of 4,027,570 gives a decrease of 10.0% in MT CO2e. ((403,894)/4,027,570)*100=10.0% decrease.

	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
Other emissions reduction activities	14492	Decreased	0.36	Owens Corning had many emission reduction activities during 2017 that had an impact of (14,492 MT). These included energy reduction projects resulting in improved energy efficiency at plants. Dividing the decrease between 2016 and 2017 (14,492 MT CO2e) over the 2016 Scope 1 and Scope 2 combined total of 4,027,570 gives a decrease of 0.36% in MT CO2e. ((14,492)/4,027,570)*100=0.36% decrease.
Divestment	0	No change	0	
Acquisitions	0	No change	0	
Mergers	0	No change	0	
Change in output	85668.56	Decreased	2.13	Our total GHG decrease from 2016 due to a change in output is 85,668.56 MT CO2e. Dividing the increase between 2016 and 2017 of 88,668.56 MT over the 2016 Scope 1 and Scope 2 combined total of 4,027,570 gives an decrease of 2.13% in MT CO2e. ((88,668.56)/4,027,570)*100=2.13% decrease.
Change in methodology	0	No change	0	
Change in boundary	0	No change	0	
Change in physical operating conditions	0	No change	0	
Unidentified	0	No change	0	
Other		<Not Applicable>		

C7.9b

(C7.9b) Are your emissions performance calculations in C7.9 and C7.9a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?

Market-based

C8. Energy

C8.1

(C8.1) What percentage of your total operational spend in the reporting year was on energy?

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

C8.2

(C8.2) Select which energy-related activities your organization has undertaken.

	Indicate whether your organization undertakes this energy-related activity
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	No
Consumption of purchased or acquired steam	No
Consumption of purchased or acquired cooling	No
Generation of electricity, heat, steam, or cooling	No

C8.2a

(C8.2a) Report your organization's energy consumption totals (excluding feedstocks) in MWh.

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total MWh
Consumption of fuel (excluding feedstock)	HHV (higher heating value)	0	6063103.97	6063103.97
Consumption of purchased or acquired electricity	<Not Applicable>	1225073.82	1902087.12	3127160.94
Consumption of purchased or acquired heat	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired steam	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Total energy consumption	<Not Applicable>	1225073.82	7965191.09	9190264.91

C8.2b

(C8.2b) Select the applications of your organization's consumption of fuel.

	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of electricity	Yes
Consumption of fuel for the generation of steam	No
Consumption of fuel for the generation of cooling	No
Consumption of fuel for co-generation or tri-generation	No

C8.2c

(C8.2c) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel type.

Fuels (excluding feedstocks)
Natural Gas
Heating value
HHV (higher heating value)
Total fuel MWh consumed by the organization
5861841.75
MWh fuel consumed for the self-generation of electricity
0
MWh fuel consumed for self-generation of heat
0
MWh fuel consumed for self-generation of steam
<Not Applicable>
MWh fuel consumed for self-generation of cooling
<Not Applicable>
MWh fuel consumed for self- cogeneration or self-trigeneration
<Not Applicable>

Fuels (excluding feedstocks)
Fuel Oil Number 6
Heating value
HHV (higher heating value)
Total fuel MWh consumed by the organization
110851.5
MWh fuel consumed for the self-generation of electricity

0
MWh fuel consumed for self-generation of heat
0
MWh fuel consumed for self-generation of steam
<Not Applicable>
MWh fuel consumed for self-generation of cooling
<Not Applicable>
MWh fuel consumed for self- cogeneration or self-trigeneration
<Not Applicable>

Fuels (excluding feedstocks)
Propane Liquid
Heating value
HHV (higher heating value)
Total fuel MWh consumed by the organization
58150.48
MWh fuel consumed for the self-generation of electricity
0
MWh fuel consumed for self-generation of heat
0
MWh fuel consumed for self-generation of steam
<Not Applicable>
MWh fuel consumed for self-generation of cooling
<Not Applicable>
MWh fuel consumed for self- cogeneration or self-trigeneration
<Not Applicable>

Fuels (excluding feedstocks)
Jet Gasoline
Heating value
HHV (higher heating value)
Total fuel MWh consumed by the organization
14094.49
MWh fuel consumed for the self-generation of electricity
0
MWh fuel consumed for self-generation of heat
0
MWh fuel consumed for self-generation of steam
<Not Applicable>
MWh fuel consumed for self-generation of cooling
<Not Applicable>
MWh fuel consumed for self- cogeneration or self-trigeneration
<Not Applicable>

Fuels (excluding feedstocks)
Diesel
Heating value
HHV (higher heating value)
Total fuel MWh consumed by the organization
8833.45
MWh fuel consumed for the self-generation of electricity
0
MWh fuel consumed for self-generation of heat
0
MWh fuel consumed for self-generation of steam
<Not Applicable>
MWh fuel consumed for self-generation of cooling
<Not Applicable>
MWh fuel consumed for self- cogeneration or self-trigeneration
<Not Applicable>

Fuels (excluding feedstocks)

Liquefied Petroleum Gas (LPG)
Heating value
HHV (higher heating value)
Total fuel MWh consumed by the organization
4694.96
MWh fuel consumed for the self-generation of electricity
0
MWh fuel consumed for self-generation of heat
0
MWh fuel consumed for self-generation of steam
<Not Applicable>
MWh fuel consumed for self-generation of cooling
<Not Applicable>
MWh fuel consumed for self- cogeneration or self-trigeneration
<Not Applicable>

Fuels (excluding feedstocks)
Fuel Oil Number 2
Heating value
HHV (higher heating value)
Total fuel MWh consumed by the organization
2312.93
MWh fuel consumed for the self-generation of electricity
0
MWh fuel consumed for self-generation of heat
0
MWh fuel consumed for self-generation of steam
<Not Applicable>
MWh fuel consumed for self-generation of cooling
<Not Applicable>
MWh fuel consumed for self- cogeneration or self-trigeneration
<Not Applicable>

Fuels (excluding feedstocks)
Petrol
Heating value
HHV (higher heating value)
Total fuel MWh consumed by the organization
2066.75
MWh fuel consumed for the self-generation of electricity
0
MWh fuel consumed for self-generation of heat
0
MWh fuel consumed for self-generation of steam
<Not Applicable>
MWh fuel consumed for self-generation of cooling
<Not Applicable>
MWh fuel consumed for self- cogeneration or self-trigeneration
<Not Applicable>

Fuels (excluding feedstocks)
Kerosene
Heating value
HHV (higher heating value)
Total fuel MWh consumed by the organization
257.66
MWh fuel consumed for the self-generation of electricity
0
MWh fuel consumed for self-generation of heat
0
MWh fuel consumed for self-generation of steam
<Not Applicable>

MWh fuel consumed for self-generation of cooling
<Not Applicable>
MWh fuel consumed for self- cogeneration or self-trigeneration
<Not Applicable>

C8.2d

(C8.2d) List the average emission factors of the fuels reported in C8.2c.
Acetylene
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Agricultural Waste
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Alternative Kiln Fuel (Wastes)
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Animal Fat
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Animal/Bone Meal
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Anthracite Coal
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>

Asphalt
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Aviation Gasoline
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Bagasse
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Bamboo
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Basic Oxygen Furnace Gas (LD Gas)
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Biodiesel
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Biodiesel Tallow
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment

<Not Applicable>
Biodiesel Waste Cooking Oil
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Bioethanol
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Biogas
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Biogasoline
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Biomass Municipal Waste
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Biomethane
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Bitumen
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>

Comment
<Not Applicable>
Bituminous Coal
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Black Liquor
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Blast Furnace Gas
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Brown Coal Briquettes (BKB)
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Burning Oil
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Butane
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Butylene
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source

<Not Applicable>
Comment
<Not Applicable>
Charcoal
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Coal
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Coal Tar
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Coke
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Coke Oven Gas
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Coking Coal
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Compressed Natural Gas (CNG)
Emission factor
<Not Applicable>
Unit
<Not Applicable>

Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Condensate
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Crude Oil
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Crude Oil Extra Heavy
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Crude Oil Heavy
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Crude Oil Light
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Diesel
Emission factor
73.96
Unit
kg CO2 per million Btu
Emission factor source
US EPA MRR: Final Rule (40 CFR 98) - Industrial Sector 2013
Comment
Distillate Oil
Emission factor
<Not Applicable>
Unit
<Not Applicable>

Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Dried Sewage Sludge
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Ethane
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Ethylene
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Fuel Gas
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Fuel Oil Number 1
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Fuel Oil Number 2
Emission factor
73.96
Unit
kg CO2 per million Btu
Emission factor source
US EPA MRR: Final Rule (40 CFR 98) - Industrial Sector 2013
Comment
Fuel Oil Number 4
Emission factor
<Not Applicable>
Unit
<Not Applicable>

Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Fuel Oil Number 5
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Fuel Oil Number 6
Emission factor
75.1
Unit
kg CO2 per million Btu
Emission factor source
US EPA MRR: Final Rule (40 CFR 98) - Industrial Sector 2013
Comment
Gas Coke
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Gas Oil
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Gas Works Gas
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
GCI Coal
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
General Municipal Waste
Emission factor
<Not Applicable>
Unit
<Not Applicable>

Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Grass
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Hardwood
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Heavy Gas Oil
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Hydrogen
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Industrial Wastes
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Isobutane
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Isobutylene
Emission factor
<Not Applicable>
Unit

<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Jet Gasoline
Emission factor
9.75
Unit
kg CO2 per gallon
Emission factor source
The Climate Registry: 2016 Gen. Reporting Protocol - USA Industrial
Comment
Jet Kerosene
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Kerosene
Emission factor
75.2
Unit
kg CO2 per million Btu
Emission factor source
US EPA MRR: Final Rule (40 CFR 98) - Industrial Sector 2013
Comment
Landfill Gas
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Light Distillate
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Lignite Coal
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Liquefied Natural Gas (LNG)
Emission factor
<Not Applicable>
Unit
<Not Applicable>

Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Liquefied Petroleum Gas (LPG)
Emission factor
61.71
Unit
kg CO2 per million Btu
Emission factor source
US EPA MRR: Final Rule (40 CFR 98) - Industrial Sector 2013
Comment
Liquid Biofuel
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Lubricants
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Marine Fuel Oil
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Marine Gas Oil
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Metallurgical Coal
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Methane
Emission factor
<Not Applicable>
Unit
<Not Applicable>

Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Motor Gasoline
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Naphtha
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Natural Gas
Emission factor
53.06
Unit
kg CO2 per million Btu
Emission factor source
US EPA MRR: Final Rule (40 CFR 98) - Industrial Sector 2013
Comment
Natural Gas Liquids (NGL)
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Natural Gasoline
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Non-Biomass Municipal Waste
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Non-Biomass Waste
Emission factor
<Not Applicable>
Unit
<Not Applicable>

Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Oil Sands
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Oil Shale
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Orimulsion
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Other Petroleum Gas
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Paraffin Waxes
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Patent Fuel
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
PCI Coal
Emission factor
<Not Applicable>
Unit

<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Peat
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Pentanes Plus
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Petrochemical Feedstocks
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Petrol
Emission factor
70.22
Unit
lb CO2 per million Btu
Emission factor source
US EPA MRR: Final Rule (40 CFR 98) - Industrial Sector 2013
Comment
Petroleum Coke
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Petroleum Products
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Pitch
Emission factor
<Not Applicable>
Unit

<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Plastics
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Primary Solid Biomass
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Propane Gas
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Propane Liquid
Emission factor
62.87
Unit
kg CO2 per million Btu
Emission factor source
US EPA MRR: Final Rule (40 CFR 98) - Industrial Sector 2013
Comment
Propylene
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Refinery Feedstocks
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Refinery Gas
Emission factor
<Not Applicable>
Unit

<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Refinery Oil
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Residual Fuel Oil
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Road Oil
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
SBP
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Shale Oil
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Sludge Gas
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Softwood
Emission factor
<Not Applicable>

Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Solid Biomass Waste
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Special Naphtha
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Still Gas
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Straw
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Subbituminous Coal
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Sulphite Lyes
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Tar
Emission factor

<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Tar Sands
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Thermal Coal
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Thermal Coal Commercial
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Thermal Coal Domestic
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Thermal Coal Industrial
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Tires
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Town Gas

Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Unfinished Oils
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Vegetable Oil
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Waste Oils
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Waste Paper and Card
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Waste Plastics
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Waste Tires
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>

White Spirit
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Wood
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Wood Chips
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Wood Logs
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Wood Pellets
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Wood Waste
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment
<Not Applicable>
Other
Emission factor
<Not Applicable>
Unit
<Not Applicable>
Emission factor source
<Not Applicable>
Comment

<Not Applicable>

C8.2f

(C8.2f) Provide details on the electricity, heat, steam and/or cooling amounts that were accounted for at a low-carbon emission factor in the market-based Scope 2 figure reported in C6.3.

Basis for applying a low-carbon emission factor

Power Purchase Agreement (PPA) with energy attribute certificates

Low-carbon technology type

Solar PV

MWh consumed associated with low-carbon electricity, heat, steam or cooling

3325

Emission factor (in units of metric tons CO2e per MWh)

0

Comment

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 2017, this installation provided over 7 percent of the electricity required.

Basis for applying a low-carbon emission factor

Power Purchase Agreement (PPA) with energy attribute certificates

Low-carbon technology type

Solar PV

MWh consumed associated with low-carbon electricity, heat, steam or cooling

1721

Emission factor (in units of metric tons CO2e per MWh)

0

Comment

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.

Basis for applying a low-carbon emission factor

Contract with suppliers or utilities (e.g. green tariff), not supported by energy attribute certificates

Low-carbon technology type

Hydropower

MWh consumed associated with low-carbon electricity, heat, steam or cooling

67952

Emission factor (in units of metric tons CO2e per MWh)

0.000159

Comment

Owens Corning's L'Ardoise, France facility has 100 percent of its electric power supplied by hydro-electric power.

Basis for applying a low-carbon emission factor

Power Purchase Agreement (PPA) with energy attribute certificates

Low-carbon technology type

Wind

MWh consumed associated with low-carbon electricity, heat, steam or cooling

856669

Emission factor (in units of metric tons CO2e per MWh)

0

Comment

Owens Corning has PPAs for 250 megawatts of renewable electricity - 125 megawatts of wind energy in Texas, and another 125 megawatts in Oklahoma. Through our power purchase agreements (PPA), Owens Corning retired 856,669 RECs for a total of 403,894 CO2e in 2017.

Basis for applying a low-carbon emission factor

Grid mix of renewable electricity

Low-carbon technology type

Solar PV
Wind
Hydropower
Nuclear
Biomass (including biogas)

MWh consumed associated with low-carbon electricity, heat, steam or cooling

295407
Emission factor (in units of metric tons CO2e per MWh)
Comment

C9. Additional metrics

C9.1

(C9.1) Provide any additional climate-related metrics relevant to your business.

C10. Verification

C10.1

(C10.1) Indicate the verification/assurance status that applies to your reported emissions.

	Verification/assurance status
Scope 1	Third-party verification or assurance process in place
Scope 2 (location-based or market-based)	Third-party verification or assurance process in place
Scope 3	Third-party verification or assurance process in place

C10.1a

(C10.1a) Provide further details of the verification/assurance undertaken for your Scope 1 and/or Scope 2 emissions and attach the relevant statements.

Scope
Scope 1
Verification or assurance cycle in place
Annual process
Status in the current reporting year
Complete
Type of verification or assurance
High assurance
Attach the statement
OwensCorning2017SustainabilityReport.pdf
Page/ section reference
p. 230-232
Relevant standard
A1000AS
Proportion of reported emissions verified (%)
100

Scope
Scope 2 location-based
Verification or assurance cycle in place
Annual process
Status in the current reporting year
Complete
Type of verification or assurance
High assurance
Attach the statement
OwensCorning2017SustainabilityReport.pdf
Page/ section reference
p. 230-232
Relevant standard
ISAE3000
Proportion of reported emissions verified (%)
100

Scope
Scope 2 market-based
Verification or assurance cycle in place
Annual process

Status in the current reporting year
Complete
Type of verification or assurance
High assurance
Attach the statement
OwensCorning2017SustainabilityReport.pdf
Page/ section reference
p. 230-232
Relevant standard
ISAE3000
Proportion of reported emissions verified (%)
100

Scope
Scope 1
Verification or assurance cycle in place
Annual process
Status in the current reporting year
Complete
Type of verification or assurance
High assurance
Attach the statement
OwensCorning2017SustainabilityReport.pdf
Page/ section reference
p. 230-232
Relevant standard
ISAE3000
Proportion of reported emissions verified (%)
100

Scope
Scope 1
Verification or assurance cycle in place
Annual process
Status in the current reporting year
Complete
Type of verification or assurance
High assurance
Attach the statement
OwensCorning2017SustainabilityReport.pdf
Page/ section reference
p. 230-232
Relevant standard
ISO14064-3
Proportion of reported emissions verified (%)
100

Scope
Scope 2 location-based
Verification or assurance cycle in place
Annual process
Status in the current reporting year
Complete
Type of verification or assurance
High assurance
Attach the statement
OwensCorning2017SustainabilityReport.pdf
Page/ section reference
p. 230-232
Relevant standard
ISO14064-3
Proportion of reported emissions verified (%)

100

Scope
Scope 2 location-based
Verification or assurance cycle in place
Annual process
Status in the current reporting year
Complete
Type of verification or assurance
High assurance
Attach the statement
OwensCorning2017SustainabilityReport.pdf
Page/ section reference
p. 230-232
Relevant standard
A1000AS
Proportion of reported emissions verified (%)
100

Scope
Scope 2 market-based
Verification or assurance cycle in place
Annual process
Status in the current reporting year
Complete
Type of verification or assurance
High assurance
Attach the statement
OwensCorning2017SustainabilityReport.pdf
Page/ section reference
p. 230-232
Relevant standard
A1000AS
Proportion of reported emissions verified (%)
100

Scope
Scope 2 market-based
Verification or assurance cycle in place
Annual process
Status in the current reporting year
Complete
Type of verification or assurance
High assurance
Attach the statement
OwensCorning2017SustainabilityReport.pdf
Page/ section reference
p. 230-232
Relevant standard
ISO14064-3
Proportion of reported emissions verified (%)
100

C10.1b

(C10.1b) Provide further details of the verification/assurance undertaken for your Scope 3 emissions and attach the relevant statements.
Scope
Scope 3- all relevant categories
Verification or assurance cycle in place
Annual process
Status in the current reporting year

Complete
Attach the statement
OwensCorning2017SustainabilityReport.pdf
OC_Scope3-CDP_081418_V2.pdf
Page/section reference
p. 230-232 of 2017 Sustainability Report
Relevant standard
AA1000AS

Scope
Scope 3- all relevant categories
Verification or assurance cycle in place
Annual process
Status in the current reporting year
Complete
Attach the statement
OwensCorning2017SustainabilityReport.pdf
Page/section reference
p. 230-232
Relevant standard
ISAE3000

Scope
Scope 3- all relevant categories
Verification or assurance cycle in place
Annual process
Status in the current reporting year
Complete
Attach the statement
OwensCorning2017SustainabilityReport.pdf
Page/section reference
p. 230-232
Relevant standard
ISO14064-3

C10.2

(C10.2) Do you verify any climate-related information reported in your CDP disclosure other than the emissions figures reported in C6.1, C6.3, and C6.5?
Yes
C10.2a

(C10.2a) Which data points within your CDP disclosure have been verified, and which verification standards were used?

Disclosure module verification relates to	Data verified	Verification standard	Please explain
C8. Energy	Other, please specify (Global Energy Sources)	ISAE 3000, AA1000	Energy consumption amount for all energy sources are verified in compliance with ISAE 3000. The statement attests that SCS Global Services provides a high level of assurance.
C6. Emissions data	Year on year change in emissions (Scope 1 and 2)	ISAE 3000, AA1000, ISO 14064-3	The scope of SCS' work included Owens Corning's global operations. A Type 2 Assurance Engagement was performed to evaluate Owens Corning against the AA1000 Principles to a moderate level. In addition, SCS provided assurance on the plausibility of specific performance data. For scope 1 and 2 greenhouse gas emissions, a high level of assurance was conducted. Specific performance data were assessed utilizing internationally recognized standards including: ♣ ISAE 3000 (Revised), Assurance Engagements Other than Audits or Reviews of Historical Financial Information ♣ World Resources Institute's Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised

Disclosure module verification relates to	Data verified	Verification standard	Please explain
			Edition), March 2004 along with Scope 2 and Scope 3 Guidance ♣ ISO 14064-3:2006 Specification with guidance for the validation and verification of GHG assertions.
C6. Emissions data	Year on year change in emissions (Scope 3)	ISAE 3000, AA1000, ISO 14064-3	The scope of SCS' work included Owens Corning's global operations. A Type 2 Assurance Engagement was performed to evaluate Owens Corning against the AA1000 Principles to a moderate level. In addition, SCS provided assurance on the plausibility of specific performance data. A moderate level of assurance was performed for scope 3 greenhouse gas emissions. Specific performance data were assessed utilizing internationally recognized standards including: ♣ ISAE 3000 (Revised), Assurance Engagements Other than Audits or Reviews of Historical Financial Information ♣ World Resources Institute's Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition), March 2004 along with Scope 2 and Scope 3 Guidance ♣ ISO 14064-3:2006 Specification with guidance for the validation and verification of GHG assertions
C8. Energy	Renewable energy products	AA1000, ISAE 3000	The scope of SCS' work included Owens Corning's global operations. A Type 2 Assurance Engagement was performed to evaluate Owens Corning against the AA1000 Principles to a moderate level. In addition, SCS provided assurance on the plausibility of specific performance data. For scope 1 and 2 greenhouse gas emissions, a high level of assurance was conducted. Specific performance data were assessed utilizing internationally recognized standards including: ♣ ISAE 3000 (Revised), Assurance Engagements Other than Audits or Reviews of Historical Financial Information ♣ World Resources Institute's Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition), March 2004 along with Scope 2 and Scope 3 Guidance ♣ ISO 14064-3:2006 Specification with guidance for the validation and verification of GHG assertions.
C4. Targets and performance	Financial or other base year data points used to set a science-based target	AA1000, ISAE 3000	The scope of SCS' work included Owens Corning's global operations. A Type 2 Assurance Engagement was performed to evaluate Owens Corning against the AA1000 Principles to a moderate level. In addition, SCS provided assurance on the plausibility of specific performance data. For scope 1 and 2 greenhouse gas emissions, a high level of assurance was conducted. Specific performance data were assessed utilizing internationally recognized standards including: ♣ ISAE 3000 (Revised), Assurance Engagements Other than Audits or Reviews of Historical Financial Information ♣ World Resources Institute's Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition), March 2004 along with Scope 2 and Scope 3 Guidance ♣ ISO 14064-3:2006 Specification with guidance for the validation and verification of GHG assertions.

C11. Carbon pricing

C11.1

(C11.1) Are any of your operations or activities regulated by a carbon pricing system (i.e. ETS, Cap & Trade or Carbon Tax)?

Yes

C11.1a

(C11.1a) Select the carbon pricing regulation(s) which impacts your operations.
EU ETS
Québec CaT
C11.1b

(C11.1b) Complete the following table for each of the emissions trading systems in which you participate.
Alberta SGER
% of Scope 1 emissions covered by the ETS
<Not Applicable>
Period start date
<Not Applicable>
Period end date
<Not Applicable>
Allowances allocated
<Not Applicable>
Allowances purchased
<Not Applicable>
Verified emissions in metric tons CO2e
<Not Applicable>
Details of ownership
<Not Applicable>
Comment
<Not Applicable>
Australia ERF Safeguard Mechanism
% of Scope 1 emissions covered by the ETS
<Not Applicable>
Period start date
<Not Applicable>
Period end date
<Not Applicable>
Allowances allocated
<Not Applicable>
Allowances purchased
<Not Applicable>
Verified emissions in metric tons CO2e
<Not Applicable>
Details of ownership
<Not Applicable>
Comment
<Not Applicable>
BC GGIRCA
% of Scope 1 emissions covered by the ETS
<Not Applicable>
Period start date
<Not Applicable>
Period end date
<Not Applicable>
Allowances allocated
<Not Applicable>
Allowances purchased
<Not Applicable>
Verified emissions in metric tons CO2e
<Not Applicable>
Details of ownership
<Not Applicable>
Comment
<Not Applicable>
Beijing pilot ETS
% of Scope 1 emissions covered by the ETS
<Not Applicable>
Period start date

<Not Applicable>
Period end date
<Not Applicable>
Allowances allocated
<Not Applicable>
Allowances purchased
<Not Applicable>
Verified emissions in metric tons CO2e
<Not Applicable>
Details of ownership
<Not Applicable>
Comment
<Not Applicable>
California CaT
% of Scope 1 emissions covered by the ETS
<Not Applicable>
Period start date
<Not Applicable>
Period end date
<Not Applicable>
Allowances allocated
<Not Applicable>
Allowances purchased
<Not Applicable>
Verified emissions in metric tons CO2e
<Not Applicable>
Details of ownership
<Not Applicable>
Comment
<Not Applicable>
China national ETS
% of Scope 1 emissions covered by the ETS
<Not Applicable>
Period start date
<Not Applicable>
Period end date
<Not Applicable>
Allowances allocated
<Not Applicable>
Allowances purchased
<Not Applicable>
Verified emissions in metric tons CO2e
<Not Applicable>
Details of ownership
<Not Applicable>
Comment
<Not Applicable>
Chongqing pilot ETS
% of Scope 1 emissions covered by the ETS
<Not Applicable>
Period start date
<Not Applicable>
Period end date
<Not Applicable>
Allowances allocated
<Not Applicable>
Allowances purchased
<Not Applicable>
Verified emissions in metric tons CO2e
<Not Applicable>
Details of ownership
<Not Applicable>

Comment
<Not Applicable>
EU ETS
% of Scope 1 emissions covered by the ETS
5.9
Period start date
January 1 2017
Period end date
December 31 2017
Allowances allocated
125129
Allowances purchased
0
Verified emissions in metric tons CO2e
147108
Details of ownership
Facilities we own and operate
Comment
Fujian pilot ETS
% of Scope 1 emissions covered by the ETS
<Not Applicable>
Period start date
<Not Applicable>
Period end date
<Not Applicable>
Allowances allocated
<Not Applicable>
Allowances purchased
<Not Applicable>
Verified emissions in metric tons CO2e
<Not Applicable>
Details of ownership
<Not Applicable>
Comment
<Not Applicable>
Guangdong pilot ETS
% of Scope 1 emissions covered by the ETS
<Not Applicable>
Period start date
<Not Applicable>
Period end date
<Not Applicable>
Allowances allocated
<Not Applicable>
Allowances purchased
<Not Applicable>
Verified emissions in metric tons CO2e
<Not Applicable>
Details of ownership
<Not Applicable>
Comment
<Not Applicable>
Hubei pilot ETS
% of Scope 1 emissions covered by the ETS
<Not Applicable>
Period start date
<Not Applicable>
Period end date
<Not Applicable>
Allowances allocated
<Not Applicable>
Allowances purchased

<Not Applicable>
Verified emissions in metric tons CO2e
<Not Applicable>
Details of ownership
<Not Applicable>
Comment
<Not Applicable>
Kazakhstan ETS
% of Scope 1 emissions covered by the ETS
<Not Applicable>
Period start date
<Not Applicable>
Period end date
<Not Applicable>
Allowances allocated
<Not Applicable>
Allowances purchased
<Not Applicable>
Verified emissions in metric tons CO2e
<Not Applicable>
Details of ownership
<Not Applicable>
Comment
<Not Applicable>
Korea ETS
% of Scope 1 emissions covered by the ETS
<Not Applicable>
Period start date
<Not Applicable>
Period end date
<Not Applicable>
Allowances allocated
<Not Applicable>
Allowances purchased
<Not Applicable>
Verified emissions in metric tons CO2e
<Not Applicable>
Details of ownership
<Not Applicable>
Comment
<Not Applicable>
Massachusetts state ETS
% of Scope 1 emissions covered by the ETS
<Not Applicable>
Period start date
<Not Applicable>
Period end date
<Not Applicable>
Allowances allocated
<Not Applicable>
Allowances purchased
<Not Applicable>
Verified emissions in metric tons CO2e
<Not Applicable>
Details of ownership
<Not Applicable>
Comment
<Not Applicable>
New Zealand ETS
% of Scope 1 emissions covered by the ETS
<Not Applicable>
Period start date

<Not Applicable>
Period end date
<Not Applicable>
Allowances allocated
<Not Applicable>
Allowances purchased
<Not Applicable>
Verified emissions in metric tons CO2e
<Not Applicable>
Details of ownership
<Not Applicable>
Comment
<Not Applicable>
Ontario CaT
% of Scope 1 emissions covered by the ETS
<Not Applicable>
Period start date
<Not Applicable>
Period end date
<Not Applicable>
Allowances allocated
<Not Applicable>
Allowances purchased
<Not Applicable>
Verified emissions in metric tons CO2e
<Not Applicable>
Details of ownership
<Not Applicable>
Comment
<Not Applicable>
Québec CaT
% of Scope 1 emissions covered by the ETS
5.5
Period start date
January 1 2017
Period end date
December 31 2017
Allowances allocated
160725
Allowances purchased
0
Verified emissions in metric tons CO2e
137233
Details of ownership
Facilities we own and operate
Comment
RGGI
% of Scope 1 emissions covered by the ETS
<Not Applicable>
Period start date
<Not Applicable>
Period end date
<Not Applicable>
Allowances allocated
<Not Applicable>
Allowances purchased
<Not Applicable>
Verified emissions in metric tons CO2e
<Not Applicable>
Details of ownership
<Not Applicable>
Comment

<Not Applicable>
Saitama ETS
% of Scope 1 emissions covered by the ETS
<Not Applicable>
Period start date
<Not Applicable>
Period end date
<Not Applicable>
Allowances allocated
<Not Applicable>
Allowances purchased
<Not Applicable>
Verified emissions in metric tons CO2e
<Not Applicable>
Details of ownership
<Not Applicable>
Comment
<Not Applicable>
Shanghai pilot ETS
% of Scope 1 emissions covered by the ETS
<Not Applicable>
Period start date
<Not Applicable>
Period end date
<Not Applicable>
Allowances allocated
<Not Applicable>
Allowances purchased
<Not Applicable>
Verified emissions in metric tons CO2e
<Not Applicable>
Details of ownership
<Not Applicable>
Comment
<Not Applicable>
Shenzhen pilot ETS
% of Scope 1 emissions covered by the ETS
<Not Applicable>
Period start date
<Not Applicable>
Period end date
<Not Applicable>
Allowances allocated
<Not Applicable>
Allowances purchased
<Not Applicable>
Verified emissions in metric tons CO2e
<Not Applicable>
Details of ownership
<Not Applicable>
Comment
<Not Applicable>
Switzerland ETS
% of Scope 1 emissions covered by the ETS
<Not Applicable>
Period start date
<Not Applicable>
Period end date
<Not Applicable>
Allowances allocated
<Not Applicable>
Allowances purchased

<Not Applicable>
Verified emissions in metric tons CO2e
<Not Applicable>
Details of ownership
<Not Applicable>
Comment
<Not Applicable>
Tianjin pilot ETS
% of Scope 1 emissions covered by the ETS
<Not Applicable>
Period start date
<Not Applicable>
Period end date
<Not Applicable>
Allowances allocated
<Not Applicable>
Allowances purchased
<Not Applicable>
Verified emissions in metric tons CO2e
<Not Applicable>
Details of ownership
<Not Applicable>
Comment
<Not Applicable>
Tokyo CaT
% of Scope 1 emissions covered by the ETS
<Not Applicable>
Period start date
<Not Applicable>
Period end date
<Not Applicable>
Allowances allocated
<Not Applicable>
Allowances purchased
<Not Applicable>
Verified emissions in metric tons CO2e
<Not Applicable>
Details of ownership
<Not Applicable>
Comment
<Not Applicable>
Washington CAR
% of Scope 1 emissions covered by the ETS
<Not Applicable>
Period start date
<Not Applicable>
Period end date
<Not Applicable>
Allowances allocated
<Not Applicable>
Allowances purchased
<Not Applicable>
Verified emissions in metric tons CO2e
<Not Applicable>
Details of ownership
<Not Applicable>
Comment
<Not Applicable>
Other ETS, please specify
% of Scope 1 emissions covered by the ETS
<Not Applicable>
Period start date

<Not Applicable>
Period end date
<Not Applicable>
Allowances allocated
<Not Applicable>
Allowances purchased
<Not Applicable>
Verified emissions in metric tons CO2e
<Not Applicable>
Details of ownership
<Not Applicable>
Comment
<Not Applicable>
Other ETS, please specify
% of Scope 1 emissions covered by the ETS
<Not Applicable>
Period start date
<Not Applicable>
Period end date
<Not Applicable>
Allowances allocated
<Not Applicable>
Allowances purchased
<Not Applicable>
Verified emissions in metric tons CO2e
<Not Applicable>
Details of ownership
<Not Applicable>
Comment
<Not Applicable>
Other ETS, please specify
% of Scope 1 emissions covered by the ETS
<Not Applicable>
Period start date
<Not Applicable>
Period end date
<Not Applicable>
Allowances allocated
<Not Applicable>
Allowances purchased
<Not Applicable>
Verified emissions in metric tons CO2e
<Not Applicable>
Details of ownership
<Not Applicable>
Comment
<Not Applicable>
Other ETS, please specify
% of Scope 1 emissions covered by the ETS
<Not Applicable>
Period start date
<Not Applicable>
Period end date
<Not Applicable>
Allowances allocated
<Not Applicable>
Allowances purchased
<Not Applicable>
Verified emissions in metric tons CO2e
<Not Applicable>
Details of ownership
<Not Applicable>

Comment
<Not Applicable>
Other ETS, please specify
% of Scope 1 emissions covered by the ETS
<Not Applicable>
Period start date
<Not Applicable>
Period end date
<Not Applicable>
Allowances allocated
<Not Applicable>
Allowances purchased
<Not Applicable>
Verified emissions in metric tons CO2e
<Not Applicable>
Details of ownership
<Not Applicable>
Comment
<Not Applicable>
Other ETS, please specify
% of Scope 1 emissions covered by the ETS
<Not Applicable>
Period start date
<Not Applicable>
Period end date
<Not Applicable>
Allowances allocated
<Not Applicable>
Allowances purchased
<Not Applicable>
Verified emissions in metric tons CO2e
<Not Applicable>
Details of ownership
<Not Applicable>
Comment
<Not Applicable>
C11.1d

(C11.1d) What is your strategy for complying with the systems 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. The EU ETS is a tool that we can use to ensure that we reduce our GHG emissions and reduce our costs related to the trading scheme. 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.
C11.2

(C11.2) Has your organization originated or purchased any project-based carbon credits within the reporting period?
No
C11.3

(C11.3) Does your organization use an internal price on carbon?
Yes
C11.3a

(C11.3a) Provide details of how your organization uses an internal price on carbon.
Objective for implementing an internal carbon price

Navigate GHG regulations
Stakeholder expectations
Change internal behavior
Drive energy efficiency
Drive low-carbon investment
Stress test investments
Identify and seize low-carbon opportunities
Supplier engagement

GHG Scope

Scope 1
Scope 2
Scope 3

Application

Includes all 2017 Scope 1 and Scope 2 (Market-based) Emissions as well as 2017 Scope 3 Emissions for business travel only for a total of 3,536,259 MT CO2e. Price of $60 (internal analytics used from $10/metric ton to a high of $60/metric ton) We consider Scope 1, 2 and 3 emissions, and have both internal 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

Actual price(s) used (Currency /metric ton)

60

Variance of price(s) used

Price of $60 (internal analytics used on the low end at $10/metric ton and a high of $60/metric ton)

Type of internal carbon price

Internal fee

Impact & implication

We consider Scope 1, 2 and 3 emissions, and have both internal 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 a high of $60/metric ton. One example of how we have used the internal price on carbon is to estimate a cost savings associated with reaching our 2020 50% intensity reduction goal for GHG emissions. We can take the estimated difference in metric tons CO2e from 2017 year-end and the end of our 2020 goals and then multiply that by $60/metric ton to get the high-end estimate of the cost savings from emissions reduction. This range of emissions reduction costs (using cost per ton of $10/metric ton to $60/metric ton) can be used for planning purposes to evaluate options to reach our 2020 goals. We have also been able to quantify our current risk in the event of a carbon tax, how dramatically we have reduced that since our peak GHG emissions year of 2007, and also value our future forecasted reductions of emissions.

C12. Engagement

C12.1

(C12.1) Do you engage with your value chain on climate-related issues?

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

C12.1a

(C12.1a) Provide details of your climate-related supplier engagement strategy.

Type of engagement

Engagement & incentivization (changing supplier behavior)

Details of engagement

Climate change performance is featured in supplier awards scheme

% of suppliers by number

100

% total procurement spend (direct and indirect)

100

% Scope 3 emissions as reported in C6.5

73

Rationale for the coverage of your engagement

As part of Owens Corning's annual Supplier Awards, a Sustainability Award is given. Sustainability performance is a factor in the determination of the overall Supplier of the Year award. All suppliers are eligible for the award.

Impact of engagement, including measures of success

The impact of the engagement is to understand Owens Corning's sustainability strategy and what our suppliers can do to help us meet it. The measure of success is the number of suppliers nominated for the Owens Corning Sustainability Award, as well as the impact of their contribution to our improved sustainability performance. Helping us to achieve our targets can only be done by our suppliers improving their own sustainability performance, so this is a win/win situation for our value chain. Companies are nominated for the award by our commodity leaders based on their knowledge of our supplier's sustainability performance and initiatives. The Award ceremony on Supplier Day is a opportunity to share Owens Corning's sustainability goals and initiatives, and also share the best practices from our suppliers who win the award. As more suppliers recognize the benefit to them to become more engaged with sustainability, it helps us as the inputs to our products are better, eventually reflected in our LCAs. One example of how this improved engagement from the sustainability award process has been successful for us is a customer who approached Owens Corning about their efforts to increase their recycled content, which in turn increased the amount of recycled content in our own products.

Comment

Type of engagement

Engagement & incentivization (changing supplier behavior)

Details of engagement

Run an engagement campaign to educate suppliers about climate change

% of suppliers by number

0.1

% total procurement spend (direct and indirect)

7.2

% Scope 3 emissions as reported in C6.5

5.3

Rationale for the coverage of your engagement

Owens Corning welcomed 9 of our key suppliers to attend our annual Sustainability Summit, which educates all attendees about the impacts of climate change and the importance of our suppliers going on the sustainability journey with us.

Impact of engagement, including measures of success

After discussion with our Sourcing personnel during and after the Summit, the impact was a much clearer understanding by our suppliers of why Owens Corning values sustainability to the degree that we do, why we are asking for more sustainability data and improvements from them, and why it is important to our success and our suppliers' success. Success has been measured by our supply chain partners' willingness to collaborate on sustainability data sharing and sustainability improvement.

Comment

Type of engagement

Compliance & onboarding

Details of engagement

Included climate change in supplier selection / management mechanism
Code of conduct featuring climate change KPIs
Climate change is integrated into supplier evaluation processes

% of suppliers by number

100

% total procurement spend (direct and indirect)

100

% Scope 3 emissions as reported in C6.5

73

Rationale for the coverage of your engagement

We believe all suppliers should have sustainability goals as part of their performance objectives, and measure progress against those goals. Supply chain transparency helps us evaluate impact, foresee risks, and identify opportunities to improve environmental, social, and economic performance. Where we find gaps, Owens Corning is committed to driving measurable improvements in supplier focus, prioritization, engagement, performance, and risk mitigation through world-class sourcing practices. All suppliers are covered by our Code of Conduct. In addition, all suppliers are evaluated by the same process, which includes climate change related criteria. Our supplier code of conduct outlines the various expectations we have of our suppliers, including key principles we expect our suppliers to embrace, and acts prospectively as a reference for us in our sourcing selection processes. The supplier code of conduct states that suppliers are expected to • Provide adequate management systems for EHS and product stewardship programs; • Provide products that are safe and environmentally sound during use and disposal; • Have programs to reduce the environmental impact of their products, such as reduction of discharges into natural surroundings and other sources of pollution; and • Establish goals and monitor the reduction of their environmental footprint.

Impact of engagement, including measures of success
Supply chain transparency helps us evaluate impact, foresee risks, and identify opportunities to improve environmental, social, and economic performance. Where we find gaps, Owens Corning is committed to driving measurable improvements in supplier focus, prioritization, engagement, performance, and risk mitigation through world-class sourcing practices. Owens Corning is committed to carrying out our 2020 supply chain sustainability goal, including setting clear expectations for sustainability progress by our suppliers. Owens Corning has sustainability risk indicators that coincide with aspects of our supplier code of conduct. Based on these indicators and performance indicators described in our segmentation process, we adopted a risk assessment framework that maps environmental, social, and governance risks for the segmented supplier base. We conduct an annual supplier survey mapped to the ESG risk categories. This survey is kept open throughout the year to allow any new suppliers to contribute. Based on responses, we assess all participating suppliers holistically. The analytics drawn from our survey results help identify risks, best practices, and opportunities across our supply base. In 2017, we advanced our understanding of the analytics and standardized the way we create, communicate, and execute strategies between key suppliers and our commodity leaders. Furthermore, we train all Owens Corning commodity leaders globally to ensure a consistent process across the company. Our organization utilizes an industry standard format for corrective actions that includes a short-term action and containment plan, root cause analysis, identification and verification of long-term corrective actions, implementation of long-term corrective action, and final verification and sign-off by stakeholders.
Comment

C12.1b

(C12.1b) Give details of your climate-related engagement strategy with your customers.
Type of engagement
Education/information sharing
Details of engagement
Share information about your products and relevant certification schemes (i.e. Energy STAR)
Size of engagement
30
% Scope 3 emissions as reported in C6.5
0
Please explain the rationale for selecting this group of customers and scope of engagement
In 2017 Owens Corning manufactured the world’s first products certified as made with 100% wind-powered electricity and reduced embodied carbon: EcoTouch® Insulation, Thermafiber® RainBarrier® continuous insulation, and unbonded loosefill insulation. Owens Corning engaged its insulation customers on its low carbon products through direct communication by the sales force, by press releases, with an updated website, and through speaking and presenting at conferences such at Greenbuild, AIA, AEC, the Net Zero conference, and others.
Impact of engagement, including measures of success
In 2017, Owens Corning launched the first insulation products to be certified as made with 100% wind-powered electricity and reduced embodied carbon, in accordance with SCS Global Services’ certification protocol. The SCS certification and these new certified products were made possible by the power purchase agreements Owens Corning signed in 2015, which enabled new wind capacity in Texas and Oklahoma. Both wind farms came online in late 2016 and have the potential to generate 1.1 million megawatt hours of electricity per year. The first three types of commercial and residential insulation independently certified as made with wind-powered electricity are: • EcoTouch® Insulation – 35% embodied carbon reduction • Thermafiber® RainBarrier® Continuous Insulation – 20% embodied carbon reduction • Unbonded Loosefill Insulation – 55% embodied carbon reduction These certified insulation products give commercial architects and specifiers, builders, and even homeowners the option of lower-carbon products to build greener structures. Plus, they help architects design buildings with reduced life cycle impacts, which in turn helps them reach the recognized goals of the Architecture 2030 Challenge and U.S. Green Building Council’s LEED® certification. We measure success by how well we have educated the marketplace, including architects, builders, etc. To make homes more energy efficient and have lower embodied carbon, we influence building codes and try to showcase more incentives for people to pay attention to low carbon products. We want to create pull through in the market place for these types of products. Owens Corning's products, like low embodied carbon insulation, help make the world a better place. The ultimate measure of success is increased sales of our low carbon products.

C12.1c

(C12.1c) Give details of your climate-related engagement strategy with other partners in the value chain.

In addition to suppliers and customers, we consider it critical to execute a climate engagement strategy including architects and builders. A key element that drives product sustainability for Owens Corning is our building science work. Building science is about ensuring that buildings and homes are built to be comfortable, energy efficient, high performing, durable, sustainable, and affordable. Our building science team applies scientific knowledge and experience to analyze and control the physical phenomena that affect building structures. We view homes and other buildings as systems, looking beyond standard improvements, such as adding internal insulation, while also considering location and climate. Our predictive capabilities – when applied, for example, to

building materials, the building envelope, heating, ventilation, and air conditioning systems – enable architects, builders, contractors, and homeowners to optimize building performance, understand or prevent building failures, and ensure year-round comfort.
Our work in this area includes several broad strategies:
1. Developing innovative building products and systems to improve energy efficiency and building comfort;
2. Partnering and collaborating with builders, contractors, architects, and homeowners to adopt better building products and systems, based on building science;
3. Supporting building code compliance and advocating for code improvements; and
4. Sharing our building science expertise across the building industry through education

We actively partner with builders, contractors, architects, and homeowners to improve building performance and comfort. Our building science team works closely with them to support projects from blueprint through the construction phase. Together, we address climate challenges and achieve performance goals as measured in part by the Home Energy Rating System (HERS) Index.
One of our primary goals is to support the design and construction of an increased number of net-zero energy (NZE) ready buildings. An NZE building is a building with zero annual net energy consumption, meaning that the total amount of energy the building produces equals the amount of energy it consumes. An NZE-ready building is designed to be ultra-energy efficient, so it only lacks the energy production, such as roof solar panels, to be net-zero energy. In 2015, we set a goal to increase the number of Owens Corning-supported NZE-ready buildings year-over-year, compared to a 2015 baseline of 35. Through strategic partnerships with several homebuilders, we made significant progress in 2017 towards achieving this goal.
Our building science strategies have directly influenced and supported the construction of more than 375 NZE-ready homes in 2017, building upon the 40 reported in 2016 and the baseline of 35 in 2015.
A pathway to achieving NZE is the Owens Corning ComfortBuilt® Home, a building performance program that helps builders profitably design, construct, and market better-built homes using Owens Corning solutions.
The program established a target of HERS50 for participating builders, intended to be a stretch above the building code and in sight of NZE. This program helps builders advance on the path to creating more sustainable homes and more profitable businesses while differentiating themselves.
Owens Corning offers building science information such as modeling, techniques for air sealing, and continuous insulation as well as marketing assistance to help realize the goal that everyone can win with higher-performing homes. More than 140 ComfortBuilt® Homes were constructed in 2017.
In some instances, we use our building science expertise to advocate for building code improvements that make compliance easier and help to achieve better energy performance. Our work in Chile is a great example. To keep homes warm in Chile, many residents burn large amounts of wood, which has resulted in severe environmental pollution across the country, especially in regions in South Chile where winters are very cold. Through research, benchmarking with international standards, and fieldwork discussions with builders and homeowners, our building science team found that additional improvements in insulation and air sealing would help keep homes warmer – allowing residents to cut down on wood burning and, therefore, reduce environmental pollution. We worked closely with Chilean organizations to support increases in requirements related to external and internal insulation. A revised version of the code, with the proposed changes, is under consideration by the Housing and Urban Development Ministry in Chile. If implemented as proposed, envelope requirements will significantly reduce heat transmission values in all regions of the country by increasing insulation requirements and air sealing.

C12.3

(C12.3) Do you engage in activities that could either directly or indirectly influence public policy on climate-related issues through any of the following?

Direct engagement with policy makers
Trade associations
Funding research organizations

C12.3a

(C12.3a) 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 Compliance and Enforcement: Local engagement with State Energy and Building Professionals to facilitate consistent compliance or enforce energy codes.	After legislation and regulations are in place, the challenge is to pivot to education and training so as to drive compliance. Owens Corning has worked with Building Official Assns, SPEER, Home Energy Raters, and local governments trying to get consistent and uniform compliance with the energy codes. Owens Corning provides

Focus of legislation	Corporate position	Details of engagement	Proposed legislative solution
			education and training for home builders, trade contractors, and resource poor building depts and inspectors on the proper application of the energy code.
Energy efficiency	Support	Local and State Energy Codes, Gaining adoption of 2015 energy codes: Local engagement with State Energy and Building Professionals to either adopt or enforce energy codes; Engagement and 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.
Other, please specify (Indoor Environmental Quality)	Support	Starting with schools and especially classrooms/learning environments, we are working to get acoustics and noise control requirements adopted. Poor acoustics disproportionally impacts people with learning disabilities, head injuries, and senior citizens. We have this adopted in various State agency rules and working to put this into the 2021 Intl Building Code (IBC). Further, we are exploring voluntary guidelines for restaurants, and mandatory provisions for courtrooms, jury deliberation rooms, and medical care facilities, including those impacted by HIPPA. Owens Corning organized and facilitates an ad hoc Working Group on Acoustics in Classrooms and other occupancies.	We engage with the following: The federal US Access Board with accountability for the American's with Disabilities Act (ADA) Accessibility Guidelines; the US Dept of Justice (which implements the ADA)l the US Dept of Education which issues rules and guidelines for schools and children with disabilities; State depts of Education and state building code authorities to put in place the ANSI/ICC A117.1 Accessibility Standards which includes provisions for classrooms and learning environments.
Clean energy generation	Support	Owens Corning supported legislative efforts to fix Ohio's wind setback law, restricting wind turbines on commercial wind farms form being constructed within 1,300 feet from the closest property line.	Legislation that was being considered in the Ohio Statehouse would amend the setback to 120 percent of a turbine's height.
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.
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.

Focus of legislation	Corporate position	Details of engagement	Proposed legislative solution
Energy efficiency	Support	CA 2019 Bldg Energy Efficiency Standards (BEES) – worked with the various investor owned utilities (IOUs) to present our rationale for improvements to the 2019 BEES to ensure homes and building efficiency was maximized and not orphaned and traded-off against intermittent and not 24/7 generation (PV). Further worked with the CA Energy Commission (CEC) to ensure that low-load homes and buildings were given their justified weigh in the calculus that determines what is cost effective. Promoted a shift to a carbon model for the next code cycle (2022) rather then simply a peak-load driven set of criteria. Also engaged the CPUC, CARB, NRDC and other environmental groups to ensure that the scales were not emotionally tilted excessively towards generation and storage until persistent and 24/7 base building load reductions were more firmly enshrined in the code.	Owens Corning promoted a coalition of the insulation industry, environmental groups, affordable housing groups, labor, and utilities to put in place barriers to trading off PV and Storage for high ROI/persistent energy efficiency in the draft 2019 BEES. We further worked with the CA-based Passive House advocates to promote this Passive House as a compliance path in the next code cycle (2022) and in CALGreen.(CA's green code). Further. We weigh in with the CPUC on new and existing home incentives for EE, and work through NGOs to impact CA's Integrated Energy Policy Report – the state's roadmap for hitting climate, carbon, and energy goals.
Energy efficiency	Support	CA Local Govt Solar Mandates/Ordinances – worked with the CEC and other affected parties to create a model ordinance addressing local govt mandates to adopt solar in new construction to ensure that this did not allow builders to reduce the levels of energy efficiency in new homes as a means to meet the State energy code. Intervened with local govts to ensure that the protections for baseline energy efficiency and a strong building envelope are included and maintained in their local ordinance.	CA Energy Commission "model local govt ordinance" impacted, and local govt ordinances adopted are impacted to protect energy efficiency from being traded off against solar/PV AND storage/battery.
Energy efficiency	Support	State Code Adoptions in FL, GA, NC, VA, OR: Worked through trade associations, NGOs, and directly to impact the energy codes being drafted in these states and other. In GA, NC and VA home builder efforts to hold on to the current codes was very strong and they have the political clout to impact outcomes.	Progress on State energy codes in these States was thwarted by the home building industry, particularly in GA and NC and partially in VA. In FL we prevented a back-slide but in OR we made progress and countered the builders.
Energy efficiency	Support	State Housing Finance Agencies and Qualified Allocation Plans (QAPs) for Affordable Housing and Low Income Housing Tax Credit (LIHTC): This sector is the most ripe for acceptance of above code requirements, green, and sustainability features. Working with the Nat'l Assn of State Energy Officials, Natl Council of State Legislators, lending institutions/backs in this space, and various housing affordability orgs we have moved over 30 States to include Passive House as a "sweetener" or option for private developers bidding on these State/local Govt projects. OC has formed and adhoc Working Group on Passive House in LIHTC/Affordable Housing to mainstream efforts. Further, OC has pushed to add other attributes or measures to the sweetener list that developers can choose from. Where we can we bake these into the mandatory, rather than voluntary options. These include products with	Various State regulatory and legislative vehicles are used to drive this depending on the opportunity. We always partner with local State-based affordable housing groups, environmental/climate groups, and green building advocates. The primary vehicle used in the States Affordable Housing QAP. Further we monitor federal activities impacting this space but the real impacts have and remain in the States.

Focus of legislation	Corporate position	Details of engagement	Proposed legislative solution
		EPDs, offset manufacturing with certified renewable energy, Asthma and Allergy Friendly and other certifications and attributes. Owens Corning organized and facilitates an ad hoc group promoting Passive House in policy, regulation, codes, and voluntary programs.	

C12.3b

(C12.3b) Are you on the board of any trade associations or do you provide funding beyond membership?
Yes

C12.3c

(C12.3c) Enter the details of those trade associations that are likely to take a position on climate change legislation.

Trade association
NAIMA

Is your position on climate change consistent with theirs?
Consistent

Please explain the trade association's position
NAIMA works closely with worldwide manufacturers of fiber glass, rock wool and slag wool insulation products and 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 and academia around the globe about the role insulation plays in energy efficient construction, the reduction of greenhouse gas emissions and mitigating climate change.

How have you, or are you attempting to, influence the position?
We are active on the board and committees to further these goals

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Trade association
RESNET

Is your position on climate change consistent with theirs?
Consistent

Please explain the trade association's position
In April 1995, the National Association of State Energy Officials and Energy Rated Homes of America founded the Residential Energy Services Network (RESNET) to develop a national market for home energy rating systems and 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 and 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, and certification of "White Tags" for private financial investors.The RESNET website is a one-stop solution where homeowners can learn about the energy audit and rating processes, and search the RESNET directory to find certified energy auditors and raters and qualified contractors and 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 and RESNET-qualified professionals agree to abide by the RESNET Code of Conduct.

How have you, or are you attempting to, influence the position?
We are active on the board and committees to further these goals

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Trade association

ASHRAE

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

ASHRAE, founded in 1894, is a global society advancing human well-being through sustainable technology for the built environment. The Society and its members focus on building systems, energy efficiency, indoor air quality and sustainability within the industry. Through research, standards writing, publishing and continuing education, ASHRAE shapes tomorrow's built environment today. ASHRAE/AIRAH JOINT RESOLUTION ON CLIMATE CHANGE acknowledges the reality of climate change and its human causes.

How have you, or are you attempting to, influence the position?

Previously members of the board and currently an active supporter.

Trade association

The Energy and Environmental Building Alliance (EEBA)

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

The Energy and Environmental Building Alliance (EEBA) is one of the oldest and most respected residential building education organizations in the USA. Our history of providing insight, collaboration and education to builders and designers seeking to construct resource efficient, durable, healthy homes spans over 30 years. EEBA offers a comprehensive portfolio of building science education services and resources to support the end to end needs of residential building professionals, as well as those advancing building science education for the leaders and workforce of tomorrow.

How have you, or are you attempting to, influence the position?

We are active on the board and committees to further these goals

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C12.3d

(C12.3d) Do you publicly disclose a list of all research organizations that you fund?

No

C12.3f

(C12.3f) 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.

C12.4

(C12.4) 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

In mainstream reports

Status

Complete

Attach the document

2017 10K.pdf

Content elements

Governance
Strategy
Risks & opportunities
Emission targets

Publication

In voluntary sustainability report

Status

Complete
Attach the document
Owens_Corning_2017SustainabilityReport_compressed.pdf
Content elements
Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics

C14. Signoff

C-FI

(C-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.
C14.1

(C14.1) Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category
Row 1	Chief Executive Officer	Chief Executive Officer (CEO)