Welcome to your CDP Climate Change Questionnaire 2020

C0. Introduction

C0.1

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

Owens Corning is a global building and industrial materials leader that manufactures and delivers a broad range of high-quality insulation, roofing, and fiberglass composite materials. Our insulation products conserve energy and improve acoustics, fire resistance, and air quality in the spaces where people live, work, and play. Our roofing products and systems enhance curb appeal of people's homes and protect homes and commercial buildings alike. Our fiberglass composites make thousands of products lighter, stronger, and more durable. In short, the company provides innovative products and solutions that deliver a material difference to its customers and, ultimately, make the world a better place.

Owens Corning is comprised of three integrated businesses – Insulation, Roofing, and Composites – that leverage commercial strength, material science innovation, manufacturing technologies, and a global footprint and scale, as well as safety and sustainability expertise across the enterprise. We aim to capitalize on our market-leading positions and innovative technologies to deliver substantial free cash flow and sustainable shareholder value. The business is global in scope, with operations in 33 countries, and human in scale, with over 19,000 employees and long-standing, local relationships with its customers and communities. Based in Toledo, Ohio, Owens Corning posted 2019 sales of $7.2 billion. It has been a Fortune 500® company for 66 consecutive years.

For more information, please visit https://www.owenscorning.com/

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
Reporting year	January 1, 2019	December 31, 2019	Yes	3 years

C0.3

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

Belgium

Brazil
Canada
Chile
China
Czechia
Finland
France
India
Italy
Lithuania
Mexico
Netherlands
Poland
Republic of Korea
Russian Federation
Singapore
Spain
Sweden
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 chosen approach for consolidating your GHG 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) (do not include any names) of the individual(s) on the board with responsibility for climate-related issues.

Position of individual(s)	Please explain
Board-level committee	The complete Board of Directors monitors Owens Corning's progress against sustainability and climate change, 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 where 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 for reviewing 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 Directors' 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. Owens Corning's commitments and progress in environmental and social sustainability are fundamental to our business. Our CEO and Board of Directors have oversight of our progress toward our climate and sustainability goals. Our Board reviews our Sustainability program at least annually, and receives periodic updates on relevant environmental impacts, health and safety metrics and activities, and all our long-term sustainability goals. Our Board and Committees also have risk oversight related to impacts from Environment, Health and Safety, including climate change, and the mitigation plans the company has in place. As an example of the board's involvement in our sustainability and climate-related processes, the board endorsed

	and provided guidance on all of the goals when developing and setting our 2030 Sustainability Goals in 2019.

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 emissions reduction, energy efficiency of our operations, and sourcing 100% renewable electricity are three of our 2030 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) Provide the highest management-level 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 (do not include the names of individuals).

We have a sustainability governance structure that supports discussion and decision-making 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.
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 for reviewing 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.

Per the Directors' 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.
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 a Chief Sustainability Officer (CSO). The CSO role was created to have a designated member of management who would be directly accountable for driving the company's sustainability goals and values. Our CSO 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 an 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?

	Provide incentives for the management of climate-related issues	Comment
Row 1	Yes	

C1.3a

(C1.3a) Provide further details on the incentives provided for the management of climate-related issues (do not include the names of individuals).

Entitled to incentive	Type of incentive	Activity inventivized	Comment
Chief Executive Officer (CEO)	Monetary reward	Emissions reduction target	Monetary rewards for the CEO and the corporate executive team are based on progress to our 2020 energy/emission reduction goals, as well as our latest set of 2030 goals, which include a science-based target to cut absolute Scope 1 and 2 emissions by 50%, Scope 3 emissions by 30%, and to source 100% renewable electricity. This is part of our executive performance objectives, which affect 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 our CEO & Chairman of the Board, our Chief Sustainability Officer, the Presidents of each of our three main businesses of Insulation, Composites, and Roofing & Asphalt, as well as other executives such as the VP of Roofing & Asphalt Operations, the VP of Advanced Manufacturing, the VP of Composites

			Science & Technology, and the VP of Insulation and Roofing Science & Technology.
Chief Sustainability Officer (CSO)	Monetary reward	Emissions reduction target	Monetary rewards for the CEO and the corporate executive team are based on progress to our 2020 energy/emission reduction goals, as well as our latest set of 2030 goals, which include a science-based target to cut absolute Scope 1 and 2 emissions by 50%, Scope 3 emissions by 30%, and to source 100% renewable electricity. This is part of our executive performance objectives, which affect 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 our CEO & Chairman of the Board, our Chief Sustainability Officer, the Presidents of each of our three main businesses of Insulation, Composites, and Roofing & Asphalt, as well as other executives such as the VP of Roofing & Asphalt Operations, the VP of Advanced Manufacturing, the VP of Composites Science & Technology, and the VP of Insulation and Roofing Science & Technology.
Corporate executive team	Monetary reward	Emissions reduction target	Monetary rewards for the CEO and the corporate executive team are based on progress to our 2020 energy/emission reduction goals, as well as our latest set of 2030 goals, which include a science-based target to cut absolute Scope 1 and 2 emissions by 50%, Scope 3 emissions by 30%, and to source 100% renewable electricity. This is part of our executive performance objectives, which affect 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 our CEO & Chairman of the Board, our Chief Sustainability Officer, the Presidents of each of our three main businesses of Insulation, Composites, and Roofing & Asphalt, as well as other executives such as the VP of Roofing & Asphalt Operations, the VP of Advanced Manufacturing, the VP of Composites Science & Technology, and the VP of Insulation and Roofing Science & Technology.

C2. Risks and opportunities

C2.1

(C2.1) Does your organization have a process for identifying, assessing, and responding to climate-related risks and opportunities?

Yes

C2.1a

(C2.1a) How does your organization define short-, medium- and long-term time horizons?

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

C2.1b

(C2.1b) How does your organization define substantive financial or strategic impact on your business?

Substantive impacts are assessed and monitored through Owens Corning's risk management process. 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. Each risk is assessed by subject matter experts who consider relevant indicators in determining impact. These indicators vary depending on the aspects that are relevant for each risk. Potential quantifiable indicators that could factor into an individual risk's impact classification include potential impact on revenue, potential number of sites disrupted, applicable fines, litigation outcome, medical treatment cost and others.

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.

C2.2

(C2.2) Describe your process(es) for identifying, assessing and responding to climate-related risks and opportunities.

Value chain stage(s) covered

Direct operations
Upstream
Downstream

Risk management process

Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment

More than once a year

Time horizon(s) covered

Short-term
Medium-term
Long-term

Description of process

Owens Corning's risk committee meets with functional and business leaders throughout the organization to discuss identified risks and manage corresponding action plans. Risks are considered by the committee for all ranges of time horizon, and in all aspects of the value chain. 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 each risk. Risk are retained (risk exposure is accepted without further mitigation), reduced/transferred (risk exposure is reduced, transferred, or consequences are reduced) or avoided (risk exposure eliminated entirely, e.g., through ceasing a business)

The risk committee considers significant risk to the corporation. They have a process where 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 in green indicate that level of exposure is acceptable, 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 – 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 the Board of Directors.

We have a variety of processes for identifying and managing opportunities, including climate-related ones, within the business, marketing, R&D, and across the company. As an example, tech scouting is a business strategy aligned with our corporate Innovation team, and it is designed to continuously fuel OC business pipelines with technology-based opportunities that enable growth or mitigate threats. Our TechScouting team is integrated with each business unit, systematically finding and assessing business opportunities that match our needs and strategy, and effectively sourcing the most suitable technologies and partners. Any new products developed must go through our stringent product stewardship process, and each product is evaluated for its net sustainability gains or losses. Recycling, in the context of the circular economy, will be a key focus of the TechScouting team.

Some case studies of how we have followed our processes for managing climate-related risks and opportunities:

Case: Transitional Risk - Broad and gradual tightening of limits on emissions by federal and state governments could impact Owens Corning by disrupting 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 completed development and certification of new foam blowing agent blends with lower GWP that could be used with our existing equipment, and we have also begun capital upgrades needed to run our lines with these lower GWP blowing agent blends. As a result, we are now prepared to manage this risk, and are already doing so in some cases, with the upcoming 2021 release of Foamular NGX® for Canada and certain US states.

Case: Physical Risk - We have a plant in Tennessee located in a high earthquake and tornado zone. This plant is important as it helps supply raw material to another business within the company as well as outside companies. We therefore needed to find a way to manage the physical risk to this plant. To do so, we developed a management plan 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. As a result, this plant is managing physical risks posed to it, which helps us operate more effectively.

Case: 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 $35 million annually from new business attributable to code changes.

Case: Physical Opportunity - Demand for products in our roofing business is generally driven by residential repair, remodeling activity, and 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 roofing products due to storm related roof damage. Evaluation of climate-related physical risks and opportunities have driven changes and expansion in production and marketing of specific Owens Corning products, like WeatherGuard® and Duration FLEX® shingles, which are rated against high winds and storm activity, as well as helped drive the creation of new products like our Cool Roof Collection™ Shingles with reflective properties.

Value chain stage(s) covered

Upstream
Downstream

Risk management process

Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment

More than once a year

Time horizon(s) covered

Short-term
Medium-term
Long-term

Description of process

One common risk factor between Upstream and Downstream as it relates to climate is the risk of transportation disruptions. As with all other forms of risk, transportation risks are managed by the Risk Committee.

The risk committee will meet with functional and business leaders throughout the organization to discuss the identified risks and manage corresponding action plans. Risks are considered by the committee for all ranges of time horizon, and in all aspects of the value chain. 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. 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.

Upstream in our value chain, 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. Downstream, the risk of transportation disruptions is also included in our climate-related risk assessments. 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 upstream transportation mitigation plans devised as a result of risk planning, as well as downstream transportation mitigation plans devised as a result of risk planning, including shipping from other Owens Corning plants.

Value chain stage(s) covered

Direct operations
Downstream

Risk management process

A specific climate-related risk management process

Frequency of assessment

More than once a year

Time horizon(s) covered

Short-term
Medium-term
Long-term

Description of process

In addition to asset, business-unit, and enterprise-level risks managed by the Risk Committee, there are also efforts for identifying risks & opportunities with respect to climate change that are coordinated through the Sustainability organization by ongoing 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

One specific process used to assess downstream risk is our Product Stewardship process. 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 the environment, including climate change. Owens Corning's stewardship program is a collaborative effort among many individuals, each of whom bring their own expertise across a range of subject matter. Our product stewardship leader is responsible for managing the process and reports directly to our chief sustainability officer. The leader ensures that our product stewardship review board — consisting of global members with expertise in EHS, medical, toxicology, sustainability, sourcing, reliability engineering, technical subjects, and analytical testing — is balanced with the needed expertise. The review board meets weekly to review projects for new and significantly modified existing products.

In 2019, we chartered a new product sustainability portfolio management team. This team works to integrate product sustainability with our overall project review board, to measure the impact of proposed projects on our progress toward our 2030 sustainability goals. In addition, we have a product stewardship advisory council, which consists of senior business and functional leaders who are responsible for linking product stewardship to the Owens Corning enterprise. The council meets throughout the year to provide insights into key EHS and performance issues, review product stewardship guidelines, discuss product stewardship review board activities, and the communicate to the company. This entire product stewardship organization provides counsel, guidance, and direction to ensure compliance with the Owens Corning product stewardship policy and Owens Corning standards.

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, Pure Safety® high-performance insulation, PinkBar™ Fiberglas Rebar, and Duration® Series Shingles.

C2.2a

(C2.2a) Which 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. Some current climate-related regulations are the EPA Significant New Alternatives Policy (SNAP) regulations, and their state-level equivalents, which include phasing out certain blowing agent blends, and have led to new lower-GWP blends being developed for Owens Corning's foam products. This regulation is particularly relevant in states where there is no 'opt-out' clause in favor of federal standards, like Colorado, where the state's standards are more stringent than federal levels. We first responded to the challenge to develop greener blowing agent blends from the EPA in 2015, and devoted significant resources (R&D, manufacturing and capital) to inventing a low-GWP Extruded Polystyrene (XPS) solution, which we now have. While other companies who did not move with the same resolve are trying to get the EPA to reverse regulations, our proactive management enables us to support policies that are good for the planet.
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 regulatory and executive risk is attacks on energy codes, claimed by the home building industry as having a negative impact on housing affordability. Opposition to IECC codes, such as the upcoming IECC 2021, has since spread to spark backlash against IECC 2018 and earlier versions where present in existing codes. The home building industry's data and economic analyses show that the major drivers on increased costs are substantially tied to zoning regulations, impact and related development fees, the cost and time to secure approvals, access to capital and financing. Further, the builder's data rarely features the profit margins or the cost of materials and finishes that builders voluntarily choose to use in homes – and which are not driven by codes. When regressive policies are used as an excuse to halt the adoption of the energy code, or to weaken the energy code, the long-term negative impact on the

		climate of an energy inefficient home lasts for up to 70 years or more.
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 (e.g., the risk of technological innovation by our competitors, energy costs),technology changes that impact our energy procurement costs or technological innovations that 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®, Duration Storm®, Duration FLEX®, 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.
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, Pure Safety® high-performance insulation, PinkBar™ Fiberglas Rebar, and Duration® Series Shingles.
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. For example, we have a current three-year partnership with Habitat for Humanity International, which supports neighborhood revitalization in Owens Corning communities across the U.S. and internationally. We donate building materials, provide financial support through the Owens Corning Foundation, and leverage employee volunteerism to provide safe and energy efficient housing for those in need in our communities. Our work with this organization has resulted in building, insulating, or roofing homes in partnership with more than 2,000 families around the world. In 2019, Owens Corning's collaboration with Habitat for Humanity International helped them complete 28 home builds or renovations in the U.S., Canada, Singapore, 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 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. We regularly consider the safety risks related to the forecasted impact of long-term changes in weather patterns. For

		example, we are concerned about the impact of heat-related illnesses in light of rising temperatures. We have 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. We include the costs of preventing heat-related illnesses, as well as the costs avoided through prevention, in our risk assessments and corresponding financial assessments. Living Safely is one of Owens Corning's core company values, and we are unconditionally committed to occupational health and safety.

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 & Primary climate-related risk driver

Acute physical

Increased severity and frequency of extreme weather events such as cyclones and floods

Primary potential financial impact

Increased insurance claims liability

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. We have experienced flooding at plants in New Jersey, Texas, and India. Owens Corning could incur uninsured losses and liabilities, as well as disruptions in production capacity. In addition, natural disasters pose a significant threat to the safety of our employees, contractors, and customers. We engage with our third-party loss prevention engineering firm to equip our locations to have minimal losses and best survive weather-related incidents. As

climate change occurs, these risks could become more likely and also make insuring these risks less feasible. For example, at one Owens Corning facility the company experienced a catastrophic flood resulting from a named storm approximately 10 years ago. Continuing to purchase flood insurance for this facility has become more challenging and recently the insurance capacity available for purchase was reduced. Combined with a potential increase in likelihood of this risk due to the impact of climate change, this situation is even more important to mitigate appropriately. Other natural disasters could also impact OC locations in a similar manner.

Time horizon

Long-term

Likelihood

Unlikely

Magnitude of impact

Low

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

300,000,000

Potential financial impact figure – maximum (currency)

500,000,000

Explanation of financial impact figure

Based on the nature of our businesses the unmitigated financial risk would occur when multiple sites are impacted by one event, thus impacting the ability to rely on our network of facilities. Many of Owens Corning's products are produced at a limited number of locations, and an extreme weather event could lead to disruption. The estimated exposure assumes no more than three facilities are impacted concurrently by the same natural catastrophe. The assumption of three facilities for this value was selected because our locations are diverse enough within their geographic regions that any extreme weather event would be unlikely to impact any more than a maximum of three sites. It is estimated this unmitigated impact for up to three sites would be $300 million - $500 million USD.

Cost of response to risk

10,000,000

Description of response and explanation of cost calculation

Owens Corning mitigates this risk through the purchase of insurance, loss prevention engineering, strategic location evaluation among other process such as strategic sourcing and supply chain planning. The cost calculation of $10,000,000 references the

approximate cost to insure the company against natural disasters such as floods, tornadoes, hurricanes and earthquakes, as well as considerations of other average costs to manage or mitigate the risk incurred annually, such as engineering efforts designed to mitigate risks from natural disasters including elevating critical electronic systems above the ground level. One case of this mitigation plan in action can be seen when an Owens Corning facility experienced a catastrophic flood resulting from a named storm approximately 10 years ago. The impact of this storm meant the company had to rebuild much of the site's systems to bring it back online. The company was faced with the task of building back in a resilient way that mitigates risk, and did so through some of the aspects discussed above, such as purchasing insurance, and rebuilding the electrical systems to be elevated to be more resilient against potential future floods. As a result, this site was able to come back online and is now more resilient, having responded to the physical risk with appropriate mitigation measures.

Comment

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Market

Increased cost of raw materials

Primary potential financial impact

Increased indirect (operating) costs

Company-specific description

Owens Corning is at risk of significant impact to our reported financial results as a result of volatile energy costs or supply disruptions. We operate in environments where the flow of energy supply has regulations that can impact our performance (e.g. - China). In order to mitigate, we have a commodities risk management committee that oversees financial risk related to our energy supply pricing. We deploy location specific energy sourcing strategies and have an ongoing review of energy markets. We monitor and assess energy storage and distributed energy generation technology advancements. As part of a larger total productive maintenance initiative, we ensure energy transmission reliability for key manufacturing processes. One example of this is battery storage at one of our insulation plants to mitigate volatile energy costs.

Time horizon

Short-term

Likelihood

About as likely as not

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

5,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

The financial impact figure is $5 million because insurance coverage would cover any losses above this amount. Having a disruption in our energy supply, or a volatile pricing market, can have a wide range of financial impacts. For example, if a plant experiences a short downtime of energy, it could (in rare cases) cause our equipment to seize and lead to financial losses in the $15 million range (although insurance would limit the loss to $5 million). We could also have changes in pricing that could be anywhere from a small loss to significant depending on our hedging of that commodity and ability to pass through cost.

Cost of response to risk

1,000,000

Description of response and explanation of cost calculation

Owens Corning is at risk of significant impact to our reported financial results as a result of volatile energy costs or supply disruptions. We operate in environments where the flow of energy supply has regulations that can impact our performance. In order to mitigate, we have a commodities risk management committee that oversees financial risk related to our energy supply pricing. We deploy location specific energy sourcing strategies and have an ongoing review of energy markets. We monitor and assess energy storage and distributed energy generation technology advancements. As part of a larger total productive maintenance initiative, we ensure energy transmission reliability for key manufacturing processes. One example of maintaining transmission reliability was working in partnership with a local utility after interruptions caused by animal contact with switch gear – specifically snakes. As a result, the utility invested in infrastructure to harden the local substation from animal contact. In conjunction with the plant, the utility upgraded the switching capabilities from the substation to the plant. Cost of management is up to $1 million for administration of monitoring programs, energy market reviews, etc., and for physical loss prevention improvements. As part of a larger total productive maintenance initiative, we ensure energy transmission reliability for key manufacturing processes.

Comment

Identifier

Risk 3

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Current regulation

Enhanced emissions-reporting obligations

Primary potential financial impact

Increased indirect (operating) costs

Company-specific description

Many of Owens Corning's products are made with 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), and other similar schemes. 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.

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. In most cases the, difference is compensated by surplus allowances from previous years. With the further reductions in allowances through Phase 4 of the EU ETS, we forecast that our allowances will be depleted after 2020, which will require us to purchase credits. We had twelve plants in 2019 that are impacted by the EU ETS: Composites plants L'Ardoise, Chambery, Besana, and Apeldoorn, and Insulation plants Tessenderlo, Klasterec, Hallekis, Hassleholm, Skovde, Parainen, Vilnius, and Trzemeszno. Both composite glass and insulation production create GHG and other air emissions.

Time horizon

Long-term

Likelihood

Virtually certain

Magnitude of impact

Medium-low

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

17,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

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. In most cases the, difference is compensated by surplus allowances from previous years. With the further reductions in allowances through Phase 4 of the EU ETS, we forecast that our allowances will be depleted after 2020, which will require us to purchase credits. We estimate that we will see a shortage of about 50,000 MT CO2 per year from 2021 to 2030. With an estimate of 30 euros/MT, we would have a potential impact of 1.5 million euros per year over that 10-year period, or approximately $17 million at current exchange rates.

Cost of response to risk

3,459,251

Description of response and explanation of cost calculation

Owens Corning forecasts that our allowances in the EU ETS will be depleted after 2020, which will require us to purchase credits. It is therefore important that we determine and track our current allowances, and estimate our future allowance needs. Our course of action in managing these risks involves several steps including:

1. Interaction with the Commission in charge of defining the new allocation rules. 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, though that is not the case for other products.
2. Using estimates for future production for our plants, we are able to calculate estimated associated emissions, and then calculate how much in allowances we will need to purchase in future years.

A primary way we have been managing this risk is by emission reduction projects. In 2019, we implemented 43 projects, generating energy savings of over 50,000 MWh and reducing more than 32,000 MT of GHG emissions per year. Generally, we invest in energy/GHG reduction projects costing ~$3.5MM/year. In 2019 this continued to be true: we invested $933k in lighting, $598k in compressed air, $926k in motors and drives, $658k in process optimizations, and $342k in waste heat recovery, for a total of $3.459MM invested in efficiency and GHG reduction projects across the company.

One case study of a change implemented to manage emission-limiting risk in the EU ETS can be seen in a furnace rebuild undertaken in 2019 in our Trzemeszno, Poland location, in which a fuel-fired furnace was transitioned to an Electric Arc Furnace (EAF).

As the EU ETS expands, Owens Corning's European locations must continue to improve efficiency for energy and GHG. As part of our response to this risk, at our Trzemeszno location, our 2018 acquisition Paroc finished construction of a new energy-efficient production line. We expect to reduce our CO2 emissions by 75-80% with this line compared to a traditional coke-fired furnace line. As a result, the new line's EAF will reduce carbon intensity by roughly 10% for all Paroc Insulation in Europe. The new EAF is the third stone wool electric furnace for Owens Corning in Europe and the second on the Owens Corning site in Poland. As we plan for the growth of the EU ETS in the long-term, we are managing this risk with financial planning and operations changes like the electrification of furnaces.

Comment

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

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

More aggressive building codes and regulations regarding energy efficiency and climate 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, remodeling activity and by new residential construction.

Case Study - Owens Corning Mineral Wool products opportunities:
In response to the Grenfell Tower fire in the UK in 2017, and similar fires in Europe and the Middle East, attention has turned to the codes and standards that apply to the fire performance of products and wall systems, in those regions and in the US as well. New York City is considering revising its code to limit the use of combustible materials in exterior assemblies of commercial buildings, especially tall structures. Combined with strong energy codes calling for exterior insulating sheathing, this new building and fire code requirement is likely to drive the market towards non-combustible mineral wool insulation board, like Owens Corning Thermafiber® products. It should be noted that alternatives like extruded polystyrene (XPS) can have a much high global warming potential and are higher in embodied carbon than mineral wool board insulation. Thus, while fire and life safety were the driving forces in updating the NYC code, it would have a positive impact on climate as mineral wool board gets more market penetration . We expect that other large cities and even States will adopt similar measures.
We see a similar scenario arising in California for single-family homes. To meet the zero-energy code, builders often choose continuous insulation on the exterior of walls, and combined with the urban wildland interface code, we expect to see the use of combustible expanded polystyrene (EPS) diminish in favor of non-combustible insulative sheathings such as Owens Corning Thermafiber® mineral wool. The market penetration of non-combustible mineral wool insulation may be faster in tall commercial buildings.
Specific to our mineral wool products, there are presently two identified example opportunities related to stricter codes: the growth attributable to non-combustibility, and the development of codes that call for increased R-value per inch, which would grow the potential comparative market for mineral wool.

Time horizon

Long-term

Likelihood

More likely than not

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

30,000,000

Potential financial impact figure – maximum (currency)

35,000,000

Explanation of financial impact figure

This figure contains multiple aspects within it. Significant aspects are based on management estimates of the total market opportunity for non-combustible continuous insulation, if non-combustible continuous insulation were to become mandatory through codes. The value of this change could be between $20-23 million based on market share estimates. Another significant aspect within this range is the growth in our insulation business that could occur should codes mandate using a higher R-value per inch, which could be in the range of $10-12 million. We estimate the combined opportunity value attributable to code changes to therefore be between $30-35 million.

Cost to realize opportunity

2,930,000

Strategy to realize opportunity and explanation of cost calculation

Owens Corning actively engages with NGOs, State and federal agencies and legislative bodies through its Governmental Affairs organization for increased climate, energy conservation, and fire and life safety requirements. In 2019, we continued to partner with builders throughout the US and Canada who are building in a wide variety of climates, regions and communities.

One example of this is our work with the Canadian government's Natural Resources Canada (NRCan). Owens Corning received funding from NRCAN and the Canadian Government to support energy technology innovation to help reduce energy consumption and incorporate renewable technologies 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 help demonstrate the feasibility of net zero-ready construction using affordable current technologies in a large-scale setting to help develop the next generation of Canadian homes: Net Zero Energy Homes. http://www.zeroenergy.ca

The cost of $2.93 million to realize this opportunity represents the amount spent in 2019 lobbying the various legislative bodies, and in exploring and forming partnerships with organizations like NRCan and various trade associations who also participate in advocacy. Lobbying and interest representation was about $430,000 in 2019, and spending with trade associations and tax-exempt groups was around $2.5 million, for a total of $2.93 million spent to realize advocacy efforts.

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 of new products or services through R&D and innovation

Primary potential financial impact

Increased revenues resulting from increased demand for 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. All of our architectural laminate shingles are designed to protect against high winds seen in these conditions. Our TruDefinition® Duration FLEX®, TruDefinition® Duration STORM® and TruDefinition® WeatherGuard® HP shingles also meet the industry's highest classification for impact resistance, and are preferred products in many hail-prone regions. With elevated storm activity, our entire shingle product line could see increased revenues.

Time horizon

Long-term

Likelihood

About as likely as not

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

0

Potential financial impact figure – maximum (currency)

60,000,000

Explanation of financial impact figure

The unpredictability of the storm season has continued to be a significant factor in the volatility of the roofing market. Storm activity accounts for less than 10% of Owens Corning's revenue. Specific to hurricanes, external sources suggest that destructive storms will increase in frequency and/or severity due to climate change. The IPCC projects "an 80% increase in the frequency of Saffir-Simpson category 4 and 5 Atlantic hurricanes over the next 80 years," and NOAA projects "Tropical cyclone intensities globally will likely increase on average (by 1 to 10% according to model projections for a 2 degree Celsius global warming). This change would imply an even larger percentage increase in the destructive potential per storm, assuming no reduction in storm size." Going by these sources, this range of values represents up to a 10% increase in storm activity in the long term. For every 5% increase in storm activity we estimate the impact to revenue to be approximately $30 million: thus the top estimated value in this range is $60 million for a 10% increase.

Cost to realize opportunity

0

Strategy to realize opportunity and explanation of cost calculation

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. The way we are enabling this opportunity can be seen in the following example case: After hurricane Katrina led to surge ordering of replacement shingles to repair the huge number of damaged roofs, Owens Corning determined that to effectively respond to surge ordering, shingles from different plants within the same region needed their coloring to be completely interchangeable, so if shingles from two or more different plants end up on the same roof, they will match color as intended. This led the company to develop "regional shingles", which dramatically improve our ability to get shingles to weather impacted areas from multiple plants. 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. With state-of-the-art technology and stringent testing requirements, Owens Corning Roofing is able to provide regional shingles that allow more efficient service during storm surge demand, more flexibility for multiple locations, and easy inventory management. We developed and rolled out the regional shingle approach for our roofing locations, and as a result, our regional shingle gives us the flexibility to have a competitive advantage in storm reaction time, as shingle demand can be met from multiple sites, should severe weather lead to a surge in demand.

Cost to realize opportunity is $0 incremental management costs. Increased freight costs are able to be passed through in price when serving storm-ravaged areas. Furthermore, increased storm activity is a passive change in market conditions and has no associated cost to realize.

Comment

Identifier

Opp3

Where in the value chain does the opportunity occur?

Downstream

Opportunity type

Products and services

Primary climate-related opportunity driver

Shift in consumer preferences

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

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. 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. Examples of products which could see increased demand from climate-conscious customers include:

1. The products produced with a “Made with 100% Wind-Powered Electricity and Reduced Embodied Carbon” Certification. We currently have eleven products that have received a third-party wind electricity certification. These certified insulation products alert commercial architects, specifiers, builders, and homeowners to lower-carbon product options as they seek to build greener structures. They also help architects design buildings with reduced life cycle impacts, in keeping with the recognized goals of the Architecture 2030 Challenge and U.S. Green Building Council’s LEED® certification.
2. Expanding our offering of “cool roof” shingles. Using a highly reflective granule technology that reflects the sun’s rays, Owens Corning’s Cool Roof Collection™ shingles help reduce energy use by keeping roofs cooler throughout the year and reducing air conditioning energy levels. Some of our Cool Roof Collection™ shingles meet ENERGY STAR® requirements for solar reflectance. In 2019, we introduced eight new shingle colors with a minimum solar reflectance index of 20.
3. Developing WindStrand®, an innovative material that allows wind blade manufacturers to use 30% fewer layers of material in the molds for the blades while delivering the same quality and performance as standard fabrics. That, in turn, represents a 50% savings in labor and production time for the blades.
4. Expanding the reach of our Pure Safety® high-performance insulation, a high-density product with indoor Asthma Allergy Free certification, which we are the only building material to have. Incrementally there is a reduction of dust in the material and with it being a high-density product it fully fills a cavity, providing true R-value and acoustical

benefits.

Time horizon

Short-term

Likelihood

More likely than not

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

50,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

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. In 2019 we reported $7.2 billion in revenues, and products that can help our customers save energy and avoid emissions accounted for 64% of our revenue in 2019. Specific to Pure Safety® high-performance insulation, we based financial estimates on current jobs customers had that they considered to be opportunities for Pure Safety in the future. Code changes in California to R21 in retrofit also were factored into the discussion - we expect to see those conversions beginning Q3 given the current working conditions. We are also conducting a test-and-learn, which is focused on a handful of customers in the west that have expressed an interest in an expanded product offering. We will evaluate offering the new R-value to further customers later this year, which will lead to additional potential revenue, and will also conduct a feasibility analysis related to this offering.

Cost to realize opportunity

1,000,000

Strategy to realize opportunity and explanation of cost calculation

Owens Corning recognizes the importance of sustainability and has embedded building science professionals into the business. We understand the impacts of our products and 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 train 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.

Owens Corning Building Science engineers the complex, interconnected systems that make buildings and homes comfortable, energy efficient, high performing, durable, sustainable, and affordable – that is our material difference. Product Innovation, developing products like EcoTouch® “Made with 100% Wind-Powered Electricity and Reduced Embodied Carbon” products, and Cool Roof Collection Shingles that reduce energy and emissions, puts us in a position to take advantage of this opportunity.

The cost of $1,000,000 to realize this opportunity is calculated by adding the costs related to our building science advocacy efforts, product innovation team, and the time our sustainability organization spends training professionals and promoting our company’s stand, which are proportions of our overall company Science and Technology spending. In 2019 we reported $87 million of Science and Technology-related expense, which is comprised of many elements, including salaries, building and equipment costs, utilities, administrative expenses, materials and supplies associated with the improvement and development of the company’s products and manufacturing processes.

Comment

C3. Business Strategy

C3.1

(C3.1) Have climate-related risks and opportunities influenced your organization’s strategy and/or financial planning?

Yes

C3.1a

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

Yes, qualitative and quantitative

C3.1b

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

Climate-related scenarios and models applied	Details
Other, please specify SBT Absolute Emissions Contraction Method	Owens Corning set aggressive 2030 GHG emissions goals using the Absolute Emissions Contraction Method from the Science Based Targets Initiative. We track emissions for the entire company based on this methodology. Our approved targets are to reduce absolute Scope 1 and 2 GHG emissions 50% from 2018 levels by 2030; and to reduce absolute scope 3 GHG emissions 30% within the same timeframe. Owens Corning ran the model for 100% of our Scope 1 & 2 emissions, using both the 1.5°C scenario and 2.0°C scenario. The Scope 1 & 2 target was determined to be in line with 1.5°C trajectory. The absolute contraction approach creates absolute targets – we considered changes to the scenarios where we created corresponding intensity or weighted-average intensity targets. After performing analyses for 100% of our organization with these potential intensity targets, we reviewed with the SBTI and elected to establish absolute targets. We are establishing additional 2030 targets and creating initiatives to enable us to meet these aggressive targets. Among these goals and initiatives are plans to increase renewable energy as a portion of our portfolio and to sharply reduce emissions from our Foam products due to blowing agents. Both are business strategy changes, one in energy procurement and the other operationally for our Foam business. For example, the renewable energy goal will require Owens Corning to do additional large renewable energy projects outside North America. We are already reviewing potential projects domestically and internationally. Additionally, Owens Corning will continue to expand its portfolio of low-carbon products certified as being made with wind energy. The scenario analyses have been shared with our executive committee, including the CEO. The results will be monitored by the sustainability analytics and reporting team and will be shared with business leaders up to the CEO and Board of Directors. Targets and our progress against them will be shared publicly in our annual sustainability report. Owens Corning chose 2030 as our target year for our third set of 10-year goals. We evaluated 2017 and 2018 as potential base years, but chose 2018 because it more accurately reflects the nature of our business today after further acquisition integration. In 2019, one case study of how this scenario analysis and its outcome - the Science-Based Target for Scopes 1 and 2 in line with the 1.5 degree scenario – has influenced our strategy and had an impact on our company can be seen in the furnace rebuild completed in 2019 in our Trzemeszno Poland location. Having set this goal to fit the scenario analysis, we needed to enact additional emissions-reducing projects. In Trzemeszno, we rebuilt

	our furnace, which was previously a standard fuel-based furnace, to now be an Electric Arc Furnace (EAF). As a result, we expect to reduce our CO2 emission by 75-80% with this line compared to a traditional coke-fired furnace line. Moreover, the new line's EAF will reduce carbon intensity by roughly 10% for all Paroc (a 2018 Owens Corning acquisition) Insulation in Europe, helping the company make progress towards our Science-Based Target scenario goal.
Other, please specify SBTI Sectoral Decarbonization Approach Tool	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 formulated our next set of goals after completing this analysis, the tool also allowed 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 2019 was 3,699,293, 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. In 2019, We had eleven products that have received third-party wind electricity certification. Also in support of SBT SDA tool analysis, Owens Corning continues to make investments in our renewable portfolio, with several reviews of onsite and offsite programs in 2019, in support of our 2030 goal of sourcing 100% renewable electricity.

C3.1d

(C3.1d) Describe where and how climate-related risks and opportunities have influenced your strategy.

	Have climate-related risks and opportunities	Description of influence

	influenced your strategy in this area?	
Products and services	Yes	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 Cool Roof Collection™ shingles, and Sustaina® in our Composites business, which is a non-woven glass fiber fabric that uses a bio-based binder system with high tensile strength performance and does not contain formaldehyde.. For Cool Roof shingles, some of our cool roof solutions meet ENERGY STAR® requirements for solar reflectance. In 2019, we introduced eight new shingle colors with a minimum solar reflectance index of 20. The new colors provide options for darker colors and higher solar reflectance with the potential for cooling cost savings. We have also developed completely new products to comply with climate-related regulation and reduce emissions from blowing agents, such as Foamular NGX, a new foam product which uses a blowing agent with significantly lower global warming potential, and reduces Scope 1 emissions in production. The product also addresses a short-term climate transition risk, as a Canadian regulation phasing out certain blowing agents is going into effect in 2021, and this product helps the company to stay ahead of this regulation as well. These innovations have had a moderate impact on our revenues as we deliver new market leading products in the near term, and products like these, that can help our customers save energy and avoid emissions, accounted for 64% of our revenue in 2019
Supply chain and/or value chain	Yes	We believe transportation of materials and engagement with a supplier can be done more efficiently if the supplier is nearby, which enhances sustainability across the supply chain and minimizes the impact of storms and natural disasters. An important area where supply chain-related risks have impacted our business is regional shingle production. Historically, shingles of a particular color made at different plants were slightly different and could not be mixed on a roof. To mitigate the impact of natural disasters, we have worked with our suppliers to create regional

		shingles so that we can produce consistent colors across many of our roofing plants. This improves our ability to meet demand if a disaster disrupts production at one plant. Regional shingles have 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. This process allows for us to be advantageously prepared in the immediate term to respond to severe weather disruptions as a result of the regional shingles. Another way in which climate-related risks and opportunities influence our strategy in the value chain can be seen in the recent development of our 2030 long-term sustainability goals. A Sustainability Materiality Assessment yielded responsible sourcing as a material topic, along with combating climate change: these two areas combine to inform a 2030 goal to reduce Scope 3 emissions from our supply chain 30% by 2030 against a 2018 base year.
Investment in R&D	Yes	Owens Corning has invested in energy-efficient, 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 further R&D in response to the many climate-related risks and opportunities that we have defined. The risk management process has had a moderate impact on how funds are invested in R&D, as the risk management process often leads to mitigation needs and identified business opportunities. For example, the investment in R&D for WindStrand® was driven in part by climate change-related risk and opportunity evaluations. WindStrand® is a high-efficiency fabric for wind blades designed 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 delivering the same quality and performance as standard fabrics. That, in turn, represents a 50% savings in labor and production time for the blades. By enabling longer, stronger, 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.

		Another significant example of climate-related R&D with near term implications is the development of the newly announced Foamular NGX®, a foam insulation with a significantly lower GWP, developed to comply with expected and actual blowing agent regulation, such as a phaseout in Canada that will go into effect in 2021 and in several US states that have enacted similar regulations to Canada. USEPA has proposed a broader regulation that all US States may eventually adopt – Foamular NGX® will comply with both regulations when promulgated. Foamular NGX® is positioned to be immediately available in Canada and all US states affected by the anticipated regulation, managing the transition risk.
Operations	Yes	Identified climate related risks and opportunities have had a significant impact for Owens Corning. In 2015 we made major investments in renewable energy. We installed a solar array at our corporate headquarters, satisfying about 20% of the building's energy needs and offsetting the equivalent amount of GHG emitted from the building's commuters. In 2015, Owens Corning signed power purchase agreements for renewable electricity totaling 250 megawatts. In Q4 of 2016, two wind farms came online and are now providing renewable energy into the grid, impacting emissions and renewable energy in 2019. Owens Corning continues to look for opportunities to expand our renewable portfolio, reviewing several on-site and off-site programs. In addition to growing our renewable electricity portfolio, in support of our goal of sourcing 100% renewable electricity by 2030, we are also changing our operations strategy in response to climate risks and opportunities through the electrification of assets. A recent example can be seen with Paroc, who we acquired in 2018. Paroc finished construction of a new energy-efficient line in Trzemeszno, Poland, in 2019 and the upgrade of the production technology supports our growth strategy for Central and Western Europe and further expands our current operational capabilities. We expect to reduce our CO2 emission by 75-80% with this line compared to a traditional coke-fired furnace line. Moreover, the new line's Electric Arc Furnace (EAF) will reduce carbon intensity by roughly 10% for all Paroc Insulation in Europe. The new EAF is the third stone wool electric furnace for Owens Corning in Europe

		and the second on the Owens Corning site in Poland. As we plan for the further development of the EU ETS in the long-term (see risk 3 in 2.3a), we are proactively managing this risk with financial planning and operations changes like the electrification of the Trzemeszno furnace.

C3.1e

(C3.1e) Describe where and how climate-related risks and opportunities have influenced your financial planning.

	Financial planning elements that have been influenced	Description of influence
Row 1	Revenues Direct costs Indirect costs Capital expenditures Acquisitions and divestments Assets Liabilities	Revenues: Owens Corning has incorporated climate risks and opportunities into our financial planning process. Our new product developments are factored into our forecasting, as previous climate related products, like ECOTOUCH® PINK® Insulation, were when they were being developed. Currently Low Carbon Products, which were introduced in 2017 and made up 25% of 2019 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. We also monitor products that avoid emissions in the value chain, such as fiberglass products, ENERGY STAR shingles, and several composites products. These products accounted for 64% of revenues in 2019. Potential impacts of climate risks and opportunities on revenues are discussed further in section C2, and include identified long-term opportunities like the growth in non-flammable insulation products in the long-term due to stricter code adoption in North America. Direct Costs: Owens Corning incorporates the impact of the identified risks into its direct 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 increases in storm activity and severity, Owens Corning would potentially see increased (Direct) 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, increased sourcing costs due to supply chain strain, 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 example to use to adjust our planning estimates for future potential severe weather events and their impact on operating costs. Indirect Costs: Indirect costs like insurance have been influenced by climate-related risks, such as extreme weather events and their increased likelihood. A recent example is that at one Owens Corning facility the company experienced a catastrophic flood approximately 10 years ago. In the years since the flood, continuing to purchase flood insurance for this facility has become more challenging and recently the insurance capacity available for purchase was reduced. This indirect cost not only became more difficult to purchase, the available protection capacity was altered entirely due to the increased likelihood of climate-related weather events like flooding. This example influences indirect cost financial planning in any OC site with similar natural disaster risk. Capital Expenditures: Capital Expenditures are influenced by climate risks and opportunities. One example is a regulatory transition risk regarding our blowing agent blend, which is expected to be phased out as a component of climate/environmental regulation. We included in the planning process a few years ago the new equipment required to use a Foam blowing agent with a lower GWP, as the need for blowing agent changes was identified in our risk and opportunities analyses. The first such product with lower GWP blowing agent was announced in mid-2020, Foamular NGX®, which will be available in Canada and in certain US States having regulations in effect beginning January 2021 to coincide with these regulations. Our response to identified climate related risks and opportunities like these has had a substantial impact on our financial planning of capital allocation. Acquisitions & Divestments: Identified climate 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 (Composites, 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 for the medium and long term. Assets & Liabilities: Climate risks and opportunities have had a moderate impact on our financial planning for assets and liabilities, primarily through our acquisitions. Owens Corning has purchased several companies in the last 3-4 years, including InterWrap, Pittsburgh Corning, and Paroc. With these acquisitions, Owens Corning reported $10.006 billion in total assets in 2019. These companies were seen as important to expand our portfolio of energy-saving products, an opportunity we discuss in 2.4a, and consider in the Long-Term horizon. 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.

C3.1f

(C3.1f) Provide any additional information on how climate-related risks and opportunities have influenced your strategy and financial planning (optional).

C4. Targets and performance

C4.1

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

Both absolute and intensity targets

C4.1a

(C4.1a) Provide details of your absolute emissions target(s) and progress made against those targets.

Target reference number

Abs 1

Year target was set

2019

Target coverage

Company-wide

Scope(s) (or Scope 3 category)

Scope 1+2 (market-based)

Base year

2018

Covered emissions in base year (metric tons CO2e)

3,824,027

Covered emissions in base year as % of total base year emissions in selected Scope(s) (or Scope 3 category)

100

Target year

2030

Targeted reduction from base year (%)

50

Covered emissions in target year (metric tons CO2e) [auto-calculated]

1,912,013.5

Covered emissions in reporting year (metric tons CO2e)

3,699,293

% of target achieved [auto-calculated]

6.5236987082

Target status in reporting year

Underway

Is this a science-based target?

Yes, this target has been approved as science-based by the Science-Based Targets initiative

Please explain (including target coverage)

Owens Corning used the Absolute Emissions Contraction Method from the Science Based Target Initiative to set aggressive 2030 GHG emissions goals. Our approved targets are a commitment to reduce absolute Scope 1 and 2 GHG emissions 50% by 2030 from a 2018 base year and to reduce absolute Scope 3 GHG emissions 30% within the same timeframe. The Scope 1 &2 target was determined by the Science Based Target Initiative to be in line with 1.5°C trajectory, and the Scope 3 target was determined to be in line with the 2°C trajectory.

During 2019, SCS Global Services' Greenhouse Gas Verification program conducted a verification of Owens Corning's end-of-year 2019 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 14064-3:2006 Specification with guidance for the validation and verification of greenhouse gas assertions. The statement also attests that SCS Global Services performed a Type 2 Assurance Engagement to evaluate Owens Corning against the AA1000 Principles to a moderate level. For Scope 1 and 2 greenhouse gas emissions and energy use from 1 January 2019 to 31 December 2019, a high level of assurance was conducted. SCS's review of the management systems, data and calculations regarding Owens Corning's reporting of 2019 Scope 3 greenhouse gas emissions, water use, waste, air pollution, social performance indicators and 2019 progress towards 2020 sustainability goals were assured at a moderate-level and no material errors or misstatements identified in the final draft chapters of the report. Owens Corning's reported 2019 Scope 1 and 2 GHG emissions and energy use was assured at a high-level and can be considered reliable. In addition, Owens Corning's Report was found to conform to GRI Standards.

Target reference number

Abs 2

Year target was set

2019

Target coverage

Company-wide

Scope(s) (or Scope 3 category)

Scope 3 (upstream & downstream)

Base year

2018

Covered emissions in base year (metric tons CO2e)

3,892,181

Covered emissions in base year as % of total base year emissions in selected Scope(s) (or Scope 3 category)

100

Target year

2030

Targeted reduction from base year (%)

30

Covered emissions in target year (metric tons CO2e) [auto-calculated]

2,724,526.7

Covered emissions in reporting year (metric tons CO2e)

3,784,557

% of target achieved [auto-calculated]

9.2171116057

Target status in reporting year

Underway

Is this a science-based target?

Yes, this target has been approved as science-based by the Science-Based Targets initiative

Please explain (including target coverage)

Owens Corning used the Absolute Emissions Contraction Method from the Science Based Target Initiative to set aggressive 2030 GHG emissions goals. Our approved targets are a commitment to reduce absolute Scope 1 and 2 GHG emissions 50% by 2030 from a 2018 base year and to reduce absolute Scope 3 GHG emissions 30% within the same timeframe. The Scope 1 &2 target was determined by the Science Based Target Initiative to be in line with 1.5°C trajectory, and the Scope 3 target was determined to be in line with the 2°C trajectory.

During 2019, SCS Global Services' Greenhouse Gas Verification program conducted a verification of Owens Corning's end-of-year 2019 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 14064-3:2006 Specification with guidance for the validation and verification of greenhouse gas assertions. The statement also attests that SCS Global Services performed a Type 2 Assurance Engagement to evaluate Owens Corning against the AA1000 Principles to a moderate level. For Scope 1 and 2 greenhouse gas emissions and energy use from 1 January 2019 to 31 December 2019, a high level of assurance was conducted. SCS's review of the management systems, data and calculations regarding Owens Corning's reporting of 2019 Scope 3 greenhouse gas emissions, water use, waste, air pollution, social performance indicators and 2019 progress towards 2020 sustainability goals were assured at a moderate-level and no

material errors or misstatements identified in the final draft chapters of the report. Owens Corning's reported 2019 Scope 1 and 2 GHG emissions and energy use was assured at a high-level and can be considered reliable. In addition, Owens Corning's Report was found to conform to GRI Standards.

C4.1b

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

Target reference number

Int 4

Year target was set

2011

Target coverage

Company-wide

Scope(s) (or Scope 3 category)

Scope 1+2 (market-based)

Intensity metric

Metric tons CO2e per metric ton of product

Base year

2010

Intensity figure in base year (metric tons CO2e per unit of activity)

2.1487

% of total base year emissions in selected Scope(s) (or Scope 3 category) covered by this intensity figure

100

Target year

2020

Targeted reduction from base year (%)

50

Intensity figure in target year (metric tons CO2e per unit of activity) [auto-calculated]

1.07435

% change anticipated in absolute Scope 1+2 emissions

30

% change anticipated in absolute Scope 3 emissions

0

Intensity figure in reporting year (metric tons CO2e per unit of activity)

1.103

% of target achieved [auto-calculated]

97.3332712803

Target status in reporting year

Underway

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

Please explain (including target coverage)

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 2019, we are reporting a 49 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 2019, SCS Global Services' Greenhouse Gas Verification program conducted a verification of Owens Corning's end-of-year 2019 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 14064-3:2006 Specification with guidance for the validation and verification of greenhouse gas assertions. The statement also attests that SCS Global Services performed a Type 2 Assurance Engagement to evaluate Owens Corning against the AA1000 Principles to a moderate level. For Scope 1 and 2 greenhouse gas emissions and energy use from 1 January 2019 to 31 December 2019, a high level of assurance was conducted. SCS's review of the management systems, data and calculations regarding Owens Corning's reporting of 2019 Scope 3 greenhouse gas emissions, water use, waste, air pollution, social performance indicators and 2019 progress towards 2020 sustainability goals were assured at a moderate-level and no material errors or misstatements identified in the final draft chapters of the report. Owens Corning's reported 2019 Scope 1 and 2 GHG emissions and energy use was assured at a high-level and can be considered reliable. In addition, Owens Corning's Report was found to conform to GRI Standards.

C4.2

(C4.2) Did you have any other climate-related targets that were active in the reporting year?

Target(s) to increase low-carbon energy consumption or production

C4.2a

(C4.2a) Provide details of your target(s) to increase low-carbon energy consumption or production.

Target reference number
Low 1

Year target was set
2019

Target coverage
Company-wide

Target type: absolute or intensity
Absolute

Target type: energy carrier
Electricity

Target type: activity
Consumption

Target type: energy source
Renewable energy source(s) only

Metric (target numerator if reporting an intensity target)

Target denominator (intensity targets only)

Base year
2018

Figure or percentage in base year
52

Target year
2030

Figure or percentage in target year
100

Figure or percentage in reporting year
49

% of target achieved [auto-calculated]

-6.25

Target status in reporting year

New

Is this target part of an emissions target?

Our goal to source 100% renewable electricity by 2030 is a major part of our strategy to achieve our Science-Based Target of reducing our absolute scope 1 and 2 emissions by 50% in 2030, against a 2018 base year.

Is this target part of an overarching initiative?

Science-based targets initiative

Please explain (including target coverage)

For our 2030 energy goal, we are moving away from the primary energy weighted-average intensity measure we've used in the past. Switching to 100% renewable electricity, coupled with energy intensity improvements, is critical to achieving our science-based target of a 50% absolute reduction in our greenhouse gas emissions (Scope 1 and Scope 2) by 2030. We are focusing on changing the kind of energy we are using, as a key lever in reducing our use of non-renewable energy, in addition to our work to use less energy overall.

Some of our existing glass melters are powered by natural gas or coke, and investment in technology to convert to electric power is a complementary component of our renewable energy strategy. Our goal to source 100% renewable electricity by 2030 is a step toward achieving our aspiration of using 100% renewable energy.

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 initiatives at each stage of development, and for those in the implementation stages, the estimated CO2e savings.

	Number of initiatives	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	175	
To be implemented*	23	8,030.68
Implementation commenced*	4	290.5

Implemented*	43	32,036
Not to be implemented	3	

C4.3b

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

Initiative category & Initiative type

Energy efficiency in buildings
Lighting

Estimated annual CO2e savings (metric tonnes CO2e)

17,243

Scope(s)

Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

481,310

Investment required (unit currency – as specified in C0.4)

933,572

Payback period

1-3 years

Estimated lifetime of the initiative

11-15 years

Comment

Eleven individual lighting projects focused on improving energy efficiency of lighting in various manufacturing plants across the Americas and Europe

Initiative category & Initiative type

Energy efficiency in production processes
Compressed air

Estimated annual CO2e savings (metric tonnes CO2e)

3,072

Scope(s)

Scope 1

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
234,158

Investment required (unit currency – as specified in C0.4)
598,041

Payback period
1-3 years

Estimated lifetime of the initiative
16-20 years

Comment
Five Compressed Air projects focused on improving the energy efficiency of compressed air systems in plants in the US, Canada, France, and Brazil

---

Initiative category & Initiative type
Energy efficiency in buildings
Motors and drives

Estimated annual CO2e savings (metric tonnes CO2e)
4,187

Scope(s)
Scope 1

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
569,040

Investment required (unit currency – as specified in C0.4)
926,540

Payback period
1-3 years

Estimated lifetime of the initiative
16-20 years

Comment
14 energy efficiency projects of various types across the U.S., China, Canada, Brazil, and Europe, including pump upgrades, motor upgrades and other infrastructure

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Initiative category & Initiative type

Energy efficiency in production processes
Process optimization

Estimated annual CO2e savings (metric tonnes CO2e)

6,029

Scope(s)

Scope 1

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

626,273

Investment required (unit currency – as specified in C0.4)

658,604

Payback period

1-3 years

Estimated lifetime of the initiative

11-15 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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Initiative category & Initiative type

Energy efficiency in production processes
Waste heat recovery

Estimated annual CO2e savings (metric tonnes CO2e)

1,505

Scope(s)

Scope 1

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

302,121

Investment required (unit currency – as specified in C0.4)

342,494

Payback period

1-3 years

Estimated lifetime of the initiative

6-10 years

Comment

Two Process Heat and heat recovery projects focused on improving the energy efficiency of process heat systems in plants in 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. In 2019, our EMS for approximately 35% of our locations was certified to ISO 14001, which accounts for 50% of our employees, and 22% of our sites are certified to OHSAS 18001/ISO 45001.
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 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. To ensure accountability and encourage further progress, we recognize plant energy teams with company-wide performance awards and include sustainability goals in management's incentive compensation. Additionally, Owens Corning

	partners with over 200 like-minded organizations in the U.S. Department of Energy's Better Plants Program. Our energy leaders utilize the Better Plants program for tools, training, and technical assistance.
Internal price on carbon	We consider Scope 1,2 and 3 emissions, and have both internally and externally published reduction goals. We use our aligned and committed reduction goals to drive strategy and action, not an actual carbon charge such as an internal carbon tax. For use in internal decision making and risk analysis, we place an economic value on carbon emissions to help frame the challenges and opportunities in monetary, more broadly understood terms than simply tons of emissions. This includes considering the impact on our operations and our supply chain. Quantifying these added costs in the event that a price is put on carbon in regions around the world where a current price or trading scheme is not in place, provides additional insight into our business decisions. We bracket this analysis, on the low end at $10/metric ton and high of $60/metric ton.
Internal incentives/recognition programs	Owens Corning has annual Global sustainability awards that are available to all employees. Our awards include: 1. Environmental Leadership – This award is for an individual who showed environmental leadership through the lens of ideation, action, evaluation, and connection. Nominees were passionate about the environment, working beyond their expected responsibilities. They may have raised environmental awareness or actively participated in community environmental programs. In addition, they may have mentored other sites, colleagues, customers, or vendors in environmental leadership. These nominees led and inspired others to continuously improve OC's environmental performance. 2. Environmental Impact Improvement - This award is for an individual, team, or site that has implemented environmental processes or technology and reduced footprint or compliance risk. Nominees completed a project or established a practice that addressed a specific environmental problem in a new or innovative way. Improvements were sustainable and supported company and business strategic goals. Finally, the Composites business has an annual contest designed to drive participation for the Plant Energy Teams each year with cash awards with are managed by the Energy Efficiency Program Manager. This program evaluates, among other items: 1) Implementation of low/ no cost improvement projects, 2) Energy intensity metric improvement year over year, 3) Project listing for the coming year, 4) Engagement in an energy program (see below) and

	communications, 5) Implementing electrical reliability actions, 6) Waste reduction improvement Year-over-Year. Engagement in the Energy Program includes scoring for: 1) Holding site energy meetings with published minutes 2) Holding at least 1 energy kaizen or assessment, 3) Participating in at least 1 kaizen event at another facility, 4) Making at least 1 formal presentation for the internal energy network, 5) Best practices shared across the network, 6) Attending a given number of global energy network conference calls, 7) Capital projects implementation, 8) Completing greater than or equal to 24 hours of energy training, 9) Communication internally and externally
Partnering with governments on technology development	Owens Corning continues to advocate for energy and building codes to include embodied carbon as a factor and metric when evaluating the various compliance options. In California, we have advocated that the analytics that impact which measures deliver the most energy savings, with a focus on peak load reduction, must begin to include a carbon and embodied carbon component. The CA Energy Commission (CEC) will include a carbon metric for their 2022 energy code, but this will focus on electric vs gas as fuel sources. It remains to be seen if the next code cycle will include the embodied carbon and impact on climate of various energy efficiency measures. In this equation, we expect fiberglass and mineral wool insulation to fare better than appliances, HVAC equipment or other measures.

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 emissions-avoiding products manufactured throughout our global operations include fiberglass, extruded polystyrene (XPS) foam, cellular glass, and mineral wool, a subset of our Cool Roof Collection™ shingles product line that is ENERGY STAR rated and several composites products. These products help customers avoid emissions, as Insulation by its nature reduces energy use along with corresponding emissions.

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. Cool Roof Collection™ shingles meet prescriptive Cool Roof requirements in California, and some are Energy Star rated.

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

64

Comment

Of the 64%, 15% is from residential fiberglass and XPS insulation manufactured in 2019 in North America. This has been estimated to be 8,514,082 metric tons CO2e/year (or 510,844,943 metric tons CO2e over 60 yrs). This is publicly disclosed on page 93 of our 2019 Sustainability Report. (https://www.owenscorning.com/corporate/sustainability/docs/2020/2019-Owens-Corning-Sustainability-Report.pdf.)

The remaining percentage of total revenues is from mineral wool, commercial and industrial insulation, and from insulation manufactured outside North America. An additional amount comes from the sale of energy star rated roofing shingles as well several products from our Composites business.

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. 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. Today, a growing number of Owens Corning products are made with 100% wind-powered electricity and are part of a reduced embodied-carbon portfolio. These products were certified in accordance with SCS Global Services' certification protocol. We currently have eight

insulation products that have received third-party wind electricity certification:

- EcoTouch® insulation.
- Pink® Fiberglas™ insulation.
- Thermafiber® insulation.
- Unbonded loosefill insulation.
- QuietR® duct board insulation.
- EcoTouch® insulation for flexible duct media.
- EcoTouch® insulation for metal buildings.
- QuietR® spiral duct liner.

These certified products alert commercial architects, specifiers, builders, and homeowners to lower-carbon product options as they seek to build greener structures. They also help architects design buildings with reduced life cycle impacts, in keeping with 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 and avoided emissions

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

25

Comment

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)

3,501,008

Comment

Scope 2 (location-based)

Base year start
January 1, 2010

Base year end
December 31, 2010

Base year emissions (metric tons CO2e)
1,641,962

Comment

Scope 2 (market-based)

Base year start
January 1, 2010

Base year end
December 31, 2010

Base year emissions (metric tons CO2e)
1,641,962

Comment

C5.2

(C5.2) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate 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?

Reporting year

Gross global Scope 1 emissions (metric tons CO2e)
2,776,410

Start date

January 1, 2019

End date

December 31, 2019

Comment

Past year 1

Gross global Scope 1 emissions (metric tons CO2e)

2,906,495

Start date

January 1, 2018

End date

December 31, 2018

Comment

Past year 2

Gross global Scope 1 emissions (metric tons CO2e)

2,796,955

Start date

January 1, 2017

End date

December 31, 2017

Comment

Past year 3

Gross global Scope 1 emissions (metric tons CO2e)

2,770,570

Start date

January 1, 2016

End date

December 31, 2016

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, along with location-based Scope 2 emissions. Owens Corning's GHG emissions were verified by SCS Global Services in 2019.

C6.3

(C6.3) What were your organization's gross global Scope 2 emissions in metric tons CO2e?

Reporting year

Scope 2, location-based

1,427,149

Scope 2, market-based (if applicable)

922,883

Start date

January 1, 2019

End date

December 31, 2019

Comment

Past year 1

Scope 2, location-based

1,516,124

Scope 2, market-based (if applicable)

950,844

Start date

January 1, 2018

End date

December 31, 2018

Comment

Past year 2

Scope 2, location-based

1,483,248

Scope 2, market-based (if applicable)

1,112,630

Start date

January 1, 2017

End date

December 31, 2017

Comment

Past year 3

Scope 2, location-based

1,566,308

Scope 2, market-based (if applicable)

1,544,843

Start date

January 1, 2016

End date

December 31, 2016

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 gross global Scope 3 emissions, disclosing and explaining any exclusions.

Purchased goods and services

Evaluation status

Relevant, calculated

Metric tonnes CO2e

1,943,019

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-gate 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 2019 annual production volume of the appropriate product manufactured by each of Owens Corning's three major businesses of insulation, composites and roofing and asphalt.

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

Please explain

Capital goods

Evaluation status

Relevant, calculated

Metric tonnes CO2e

150,012

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 2019 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: 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.

An index of 0.71 was determined using the CPI deflator calculator found at http://stats.areppim.com/index.html3 These values were the input values for economic activity.

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

Please explain

Links to the indicated items in the methodology section:
1. http://www.eiolca.net/
a. http://www.eiolca.net/cgi-bin/dft/use.pl
2. https://www.census.gov/eos/www/naics/
3. http://stats.areppim.com/index.html

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

Evaluation status

Relevant, calculated

Metric tonnes CO2e

436,358

Emissions calculation methodology

The calculation for Scope 3 GHG emissions for Fuel- & Energy- Related Activities (F&ERA) calculates impacts from both upstream and downstream activities associated with electricity generation; these are termed "Scope 3u" and "Scope 3d T&D". "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 T&D" 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 T&D line losses were calculated using U.S. EPA's eGRID. For non-U.S. facilities, T&D 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." Second, in order to isolate the emissions for upstream activities, generation-only emission rates were subtracted from the respective ecoinvent LCIA factor determined in the first step. For U.S. facilities, data for generation-only emission rates was obtained from eGRID2016, and from IEA for international facilities. For downstream activities, the emissions calculated were those associated with T&D 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 IEA 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 v3.4 and IEA datasets: this 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. For these countries, use of the 2017 - 2019 datasets led to negative "Scope 3u" factors.

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

Please explain

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

188,157

Emissions calculation methodology

Primary data was collected internally from Owens Corning logistic analysts for 2019 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

Please explain

Waste generated in operations

Evaluation status

Not relevant, explanation provided

Please explain

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

Business travel

Evaluation status

Relevant, calculated

Metric tonnes CO2e

13,931

Emissions calculation methodology

Rental car mileage and commercial air travel miles and emissions were received from our travel vendor. For employee vehicle reimbursement related to business mileage, Owens Corning used an extract of miles from our travel system and determined emissions based on a standard emission rate provided by the U.S. EPA Greenhouse Gas Emissions from a Typical Passenger Vehicle guide.

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

Please explain

Employee commuting

Evaluation status

Relevant, calculated

Metric tonnes CO2e

25,027

Emissions calculation methodology

Owens Corning uses a simplified version of the Scope 3 GHG Protocol's average-data method to calculate employee commuting emissions. We use the U.S. EPA Greenhouse Gas Emissions from a Typical Passenger Vehicle

(https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100U8YT.pdf) to determine an estimate of 404 grams of CO2 per mile. Starting with 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 roundtrip commuting distance in miles, assuming an average speed of 30 mph. Each country's roundtrip commuting distance is multiplied by the OECD average number ofdays worked per year for that country (http://stats.oecd.org/index.aspx?DataSetCode=ANHRS) and Owens Corning's annual employee count. Using this methodology, Owens Corning's estimated 2019 employee commuting GHG emissions is 25,026.50MT CO2. Because this calculation is an estimate at a high level, Owens Corning assumes that these calculated emissions for employee commuting are overstated, especially since the calculation is based on the assumption 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.

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

Please explain

Upstream leased assets

Evaluation status

Not relevant, explanation provided

Please explain

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

400,730

Emissions calculation methodology

Primary data were collected internally from Owens Corning logistic analysts for 2019 total spend associated with the outbound distribution and transportation of finished

goods. Transportation spend data were 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 online tool.

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

Please explain

Processing of sold products

Evaluation status

Relevant, calculated

Metric tonnes CO2e

436,358

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.

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

Please explain

Use of sold products

Evaluation status

Not relevant, explanation provided

Please explain

None of our products have end-use energy consumption. The impact from the use of sold products is avoided emissions. We estimate that our insulation produced in North

America in 2019 reduced GHG emissions for homeowners by approximately 8.5 million metric tons a year and 511 million metric tons over a 60-year building life.

End of life treatment of sold products

Evaluation status

Relevant, calculated

Metric tonnes CO2e

190,965

Emissions calculation methodology

Scope 3 emissions associated with the EoL of fiberglass insulation and XPS insulation products manufactured in 2019 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 third party-verified LCAs were internally conducted for these products in 2012 and 2013, respectively, and were updated in 2017 and 2018. These factors (i.e., from the updated LCAs) were used in conjunction with 2019 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

Please explain

Downstream leased assets

Evaluation status

Not relevant, explanation provided

Please explain

Owens Corning does not have any downstream leased assets.

Franchises

Evaluation status

Not relevant, explanation provided

Please explain

Owens Corning has a small basement finishing system franchise business that makes up less than 1% of annual revenues and is immaterial to the company.

Investments

Evaluation status

Not relevant, explanation provided

Please explain

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

Please explain

Other (downstream)

Evaluation status

Please explain

C6.7

(C6.7) Are carbon dioxide emissions from biogenic 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

0.000516661

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)

3,699,293

Metric denominator

unit total revenue

Metric denominator: Unit total

7,160,000,000

Scope 2 figure used

Market-based

% change from previous year

4.3

Direction of change

Decreased

Reason for change

In 2019 Owens Corning increased revenues while decreasing Scope 1 & 2 emissions, leading to a lower carbon-revenue intensity observed for 2019 than 2018. In 2019, we implemented 43 projects, generating energy savings of over 50,000 MWh and reducing more than 32,000 MT of greenhouse gas emissions per year. Additionally, through our power purchase agreements (PPA), Owens Corning retired 988,331 renewable energy credits (RECs) for a total of 486,164 metric tons of avoided CO2e in 2019.

C7. Emissions breakdowns

C7.1

(C7.1) Does your organization break down its Scope 1 emissions by greenhouse gas type?

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	1,588,285	IPCC Fifth Assessment Report (AR5 – 100 year)
CH4	350	IPCC Fifth Assessment Report (AR5 – 100 year)
N2O	563	IPCC Fifth Assessment Report (AR5 – 100 year)
HFCs	902,768	IPCC Fifth Assessment Report (AR5 – 100 year)
Other, please specify HCFC	284,444	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	19,692
Brazil	26,373
Canada	189,301
Chile	70
China	384,129
Czechia	6,526
Finland	24,745
France	74,202
India	54,133
Italy	51,722
Lithuania	54,985
Mexico	136,182
Netherlands	17,403
Poland	69,086
Russian Federation	76,584
Republic of Korea	39,799
Spain	84
Sweden	86,210
United Kingdom of Great Britain and Northern Ireland	2,575
United States of America	1,462,612

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	9,576
Composite Solutions Business	657,447
Foam	1,189,953

Insulation Systems Business	734,595
Roofing	184,839

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 for in Scope 2 market-based approach (MWh)
Belgium	12,732	317	74,112	72,805
Brazil	8,311	8,311	71,097	
Canada	25,440	23,426	178,401	
Chile	63	63	144	
China	123,925	123,925	198,715	
Czechia	16,799	0	33,424	33,424
Finland	6,318	17,995	59,656	
France	11,554	5,417	166,488	64,629
India	125,125	125,125	173,088	
Italy	21,539	32,093	65,868	
Lithuania	1,757	8,490	22,299	
Mexico	84,848	84,848	177,245	
Netherlands	8,518	0	19,413	19,413
Poland	81,090	102,700	115,972	
Russian Federation	27,185	27,185	80,484	
Singapore	791	835	1,995	
Republic of Korea	50,562	50,562	93,720	
Spain	440	685	1,519	
Sweden	941	2,131	49,592	
United Kingdom of Great Britain and Northern Ireland	1,647	2,540	6,668	
United States of America	786,095	274,748	1,685,113	1,006,323

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 (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Composite Solutions Business	603,807	558,872
Roofing	121,566	113,529
Corporate	16,339	6,813
Foam	22,134	5,053
Insulation Systems Business	631,815	207,127

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	0	No change	0	In 2019, Owens Corning reduced consumption of indirect energy by 7%, and approximately 49% of our electricity came from renewable sources. Between 2018 and 2019 we had no changes in the capacity of contracts for renewable power, including PPAs and green certifications in Oklahoma, Texas, Ohio, New Jersey, New York, and Belgium.

				Through our power purchase agreements (PPA), Owens Corning retired 988,331 renewable energy credits (RECs) for a total of 486,164 metric tons of avoided CO2e in 2019: the relative change from 2018 to 2019 is attributable to physical operating conditions, discussed in the 'Change in Physical Operating Conditions' row of this table.
Other emissions reduction activities	32,036	Decreased	0.83	Owens Corning had many emission reduction activities during 2019 that had a combined impact of (32,036 MT). These included 43 energy reduction projects resulting in improved energy efficiency at plants. Dividing the decrease between 2018 and 2019 (32,036 MT CO2e) over the 2018 Scope 1 and Scope 2 combined total of 3,857,339 gives a decrease of 0.83% in MT CO2e. (32,036 / 3,857,339) * 100 = 0.83% decrease
Divestment				
Acquisitions				
Mergers				
Change in output	164,723	Decreased	4.27	Our total GHG decrease from 2018 due to a change in output is 164,723 MT CO2e. Dividing the increase in avoided CO2e between 2018 and 2019 of 164,723 MT over the 2018 Scope 1 and Scope 2 combined total of 3,857,339 gives an increase of 4.27% in avoided MT CO2e. (164,723 / 3,857,339)*100 = 4.27% decrease in emissions.
Change in methodology				
Change in boundary				
Change in physical	38,713	Increased	1	Due to no change in the scope of our green certifications and PPAs between 2018 and 2019, the observed difference

operating conditions				in RECs generated from the PPAs is attributable to changes in physical operating conditions of the generation sources. A decrease of 38,713 mtCO2e is attributable to physical weather conditions causing our Wind PPAs to generate a smaller amount of RECs from 2018 to 2019. In 2018 OC retired 1,120,536 RECs for a total of 524,877 mtCO2e avoided, and 2019 we retired 988,331 renewable energy credits (RECs) for a total of 486,164 metric tons of CO2e avoided. The change is equivalent to 38,713 less mtCO2e avoided comparatively, equivalent to a 1% relative increase compared to our 2018 Scope 1 and 2 combined emissions (38,713 / 3,857,339)
Unidentified				
Other				

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 undertook this energy-related activity in the reporting year

Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	Yes
Consumption of purchased or acquired steam	Yes
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 (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	HHV (higher heating value)	0	7,013,806	7,013,806
Consumption of purchased or acquired electricity		1,583,886	1,676,450	3,260,336
Consumption of purchased or acquired heat		0	13,499.27	13,499.27
Consumption of purchased or acquired steam		0	1,176.66	1,176.66
Total energy consumption		1,583,886	8,704,932	10,288,818

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	No
Consumption of fuel for the generation of heat	No
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

6,088,815.49

Emission factor

53.115

Unit

kg CO2e per million Btu

Emissions factor source

US EPA MRR: Final Rule (40 CFR 98) - Industrial Sector 2013

Comment

Fuels (excluding feedstocks)

Propane Liquid

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

49,550.65

Emission factor

63.124

Unit

kg CO2e per million Btu

Emissions factor source

US EPA MRR: Final Rule (40 CFR 98) - Industrial Sector 2013

Comment

Fuels (excluding feedstocks)

Jet Gasoline

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

11,197.06

Emission factor

72.222

Unit

kg CO2e per million Btu

Emissions factor source

The Climate Registry: 2019 Gen. Reporting Protocol - USA Transport

Comment

Fuels (excluding feedstocks)

Diesel

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

18,217.6

Emission factor

74.214

Unit

kg CO2e per million Btu

Emissions factor source

US EPA MRR: Final Rule (40 CFR 98) - Industrial Sector 2013

Comment

Fuels (excluding feedstocks)

Liquefied Petroleum Gas (LPG)

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

51,120.12

Emission factor

61.964

Unit

kg CO2e per million Btu

Emissions factor source

US EPA MRR: Final Rule (40 CFR 98) - Industrial Sector 2013

Comment

Fuels (excluding feedstocks)

Liquefied Natural Gas (LNG)

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

36,369

Emission factor

52.588

Unit

kg CO2e per million Btu

Emissions factor source

The Climate Registry: 2019 Gen. Reporting Protocol - USA Transport

Comment

Fuels (excluding feedstocks)

Petrol

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

1,892.75

Emission factor

70.474

Unit

kg CO2e per million Btu

Emissions factor source

US EPA MRR: Final Rule (40 CFR 98) - Industrial Sector 2013

Comment

Fuels (excluding feedstocks)

Kerosene

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

418.67

Emission factor

75.454

Unit

kg CO2e per million Btu

Emissions factor source

US EPA MRR: Final Rule (40 CFR 98) - Industrial Sector 2013

Comment

Fuels (excluding feedstocks)

Fuel Oil Number 2

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

3,397.71

Emission factor

74.214

Unit

kg CO2e per million Btu

Emissions factor source

US EPA MRR: Final Rule (40 CFR 98) - Industrial Sector 2013

Comment

Fuels (excluding feedstocks)

Coke

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

752,827.21

Emission factor

94.627

Unit

kg CO2e per million Btu

Emissions factor source

The Climate Registry: 2019 Gen. Reporting Protocol - USA Industrial

Comment

C8.2e

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

Sourcing method

Power purchase agreement (PPA) with a grid-connected generator with energy attribute certificates

Low-carbon technology type

Wind

Country/region of consumption of low-carbon electricity, heat, steam or cooling

North America

MWh consumed accounted for at a zero emission factor

988,331

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 988,331 RECs for a total of 486,164 CO2e in 2019.

Sourcing method

Power purchase agreement (PPA) with a grid-connected generator with energy attribute certificates

Low-carbon technology type

Solar

Country/region of consumption of low-carbon electricity, heat, steam or cooling

North America

MWh consumed accounted for at a zero emission factor

1,928

Comment

The solar array system installed at the Toledo, Ohio, world headquarters will satisfy about 20 percent of the building’s energy needs. In addition, the project is a highly visible commitment to renewable energy.

Sourcing method

Power purchase agreement (PPA) with a grid-connected generator with energy attribute certificates

Low-carbon technology type

Solar

Country/region of consumption of low-carbon electricity, heat, steam or cooling

North America

MWh consumed accounted for at a zero emission factor

3,352

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 2019, this installation provided approximately 8 percent of the electricity required.

Sourcing method

Power purchase agreement (PPA) with a grid-connected generator with energy attribute certificates

Low-carbon technology type

Wind

Country/region of consumption of low-carbon electricity, heat, steam or cooling

Europe

MWh consumed accounted for at a zero emission factor

9,929

Comment

Our Tessenderlo, Belgium, location sourced 14% of its electricity from wind turbines onsite and offsite.

Sourcing method

Green electricity products (e.g. green tariffs) from an energy supplier, supported by energy attribute certificates

Low-carbon technology type

Wind

Country/region of consumption of low-carbon electricity, heat, steam or cooling

Europe

MWh consumed accounted for at a zero emission factor

19,413

Comment

Our Apeldoorn site in the Netherlands has a contract with a supplier for wind energy supported by EACs.

Sourcing method

Green electricity products (e.g. green tariffs) from an energy supplier, supported by energy attribute certificates

Low-carbon technology type

Hydropower

Country/region of consumption of low-carbon electricity, heat, steam or cooling

Europe

MWh consumed accounted for at a zero emission factor

33,424

Comment

Our Klasterec site in the Czech Republic has a contract with a supplier for hydropower supported by EACs.

Sourcing method

Power purchase agreement (PPA) with a grid-connected generator with energy attribute certificates

Low-carbon technology type

Solar

Country/region of consumption of low-carbon electricity, heat, steam or cooling

North America

MWh consumed accounted for at a zero emission factor

407

Comment

Our Kearny, New Jersey, U.S., roofing plant sourced around 5% of their required electricity from roof solar panels.

Sourcing method

Green electricity products (e.g. green tariffs) from an energy supplier, supported by energy attribute certificates

Low-carbon technology type

Hydropower

Country/region of consumption of low-carbon electricity, heat, steam or cooling

Europe

MWh consumed accounted for at a zero emission factor

62,876

Comment

Our Tessenderlo site in Belgium has a contract with a supplier for hydropower supported by EAC's.

Sourcing method

Green electricity products (e.g. green tariffs) from an energy supplier, not supported by energy attribute certificates

Low-carbon technology type

Hydropower

Country/region of consumption of low-carbon electricity, heat, steam or cooling

Europe

MWh consumed accounted for at a zero emission factor

64,629

Comment

Owens Corning's L'Ardoise, France, facility has 100 percent of its electric power supplied by hydro-electric power. It should be noted that the emission factor for this source is functionally zero but not exactly zero: the emissions factor is 0.000159 metric tons CO2e per MWh

Sourcing method

Green electricity products (e.g. green tariffs) from an energy supplier, not supported by energy attribute certificates

Low-carbon technology type

Nuclear

Country/region of consumption of low-carbon electricity, heat, steam or cooling

North America

MWh consumed accounted for at a zero emission factor

12,305

Comment

Owens Corning's Gastonia, North Carolina facility has 100 percent of its electric power supplied by nuclear power.

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 emissions, and attach the relevant statements.

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

2019-Owens-Corning-Sustainability-Report.pdf

Page/ section reference

Independent Assurance Statement, pages 281-283

SCS provided... Scope 1 and 2 greenhouse gas emissions and energy use at a high level of assurance.

Standards
SCS performed the assurance against:
- AA1000 Assurance Standard (AA1000AS, 2008) with 2018 Addendum
- ISAE 3000 (Revised), Assurance Engagements Other than Audits or Reviews of Historical Financial Information
- ISO 14064-3:2006 Specification with guidance for the validation and verification of GHG assertions

Relevant standard

AA1000AS

Proportion of reported emissions verified (%)

100

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

2019-Owens-Corning-Sustainability-Report.pdf

Page/ section reference

Independent Assurance Statement, pages 281-283

SCS provided... Scope 1 and 2 greenhouse gas emissions and energy use at a high level of assurance.

Standards
SCS performed the assurance against:
- AA1000 Assurance Standard (AA1000AS, 2008) with 2018 Addendum
- ISAE 3000 (Revised), Assurance Engagements Other than Audits or Reviews of Historical Financial Information
- ISO 14064-3:2006 Specification with guidance for the validation and verification of GHG assertions

Relevant standard

ISAE3000

Proportion of reported emissions verified (%)

100

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

2019-Owens-Corning-Sustainability-Report.pdf

Page/ section reference

Independent Assurance Statement, pages 281-283

SCS provided... Scope 1 and 2 greenhouse gas emissions and energy use at a high level of assurance.

Standards
SCS performed the assurance against:
- AA1000 Assurance Standard (AA1000AS, 2008) with 2018 Addendum
- ISAE 3000 (Revised), Assurance Engagements Other than Audits or Reviews of Historical Financial Information
- ISO 14064-3:2006 Specification with guidance for the validation and verification of GHG assertions

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 2 emissions and attach the relevant statements.

Scope 2 approach

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

2019-Owens-Corning-Sustainability-Report.pdf

Page/ section reference

Independent Assurance Statement, pages 281-283

SCS provided... Scope 1 and 2 greenhouse gas emissions and energy use at a high level of assurance.

Standards
SCS performed the assurance against:
- AA1000 Assurance Standard (AA1000AS, 2008) with 2018 Addendum
- ISAE 3000 (Revised), Assurance Engagements Other than Audits or Reviews of Historical Financial Information
- ISO 14064-3:2006 Specification with guidance for the validation and verification of GHG assertions

Relevant standard

AA1000AS

Proportion of reported emissions verified (%)

100

Scope 2 approach

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

2019-Owens-Corning-Sustainability-Report.pdf

Page/ section reference

Independent Assurance Statement, pages 281-283

SCS provided... Scope 1 and 2 greenhouse gas emissions and energy use at a high level of assurance.

Standards
SCS performed the assurance against:
- AA1000 Assurance Standard (AA1000AS, 2008) with 2018 Addendum
- ISAE 3000 (Revised), Assurance Engagements Other than Audits or Reviews of Historical Financial Information
- ISO 14064-3:2006 Specification with guidance for the validation and verification of GHG assertions

Relevant standard

ISAE3000

Proportion of reported emissions verified (%)

100

Scope 2 approach

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

2019-Owens-Corning-Sustainability-Report.pdf

Page/ section reference

Independent Assurance Statement, pages 281-283

SCS provided... Scope 1 and 2 greenhouse gas emissions and energy use at a high level of assurance.

Standards
SCS performed the assurance against:
- AA1000 Assurance Standard (AA1000AS, 2008) with 2018 Addendum

- ISAE 3000 (Revised), Assurance Engagements Other than Audits or Reviews of Historical Financial Information
- ISO 14064-3:2006 Specification with guidance for the validation and verification of GHG assertions

Relevant standard

ISO14064-3

Proportion of reported emissions verified (%)

100

Scope 2 approach

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

2019-Owens-Corning-Sustainability-Report.pdf

Page/ section reference

Independent Assurance Statement, pages 281-283

SCS provided... Scope 1 and 2 greenhouse gas emissions and energy use at a high level of assurance.

Standards
SCS performed the assurance against:
- AA1000 Assurance Standard (AA1000AS, 2008) with 2018 Addendum
- ISAE 3000 (Revised), Assurance Engagements Other than Audits or Reviews of Historical Financial Information
- ISO 14064-3:2006 Specification with guidance for the validation and verification of GHG assertions

Relevant standard

AA1000AS

Proportion of reported emissions verified (%)

100

Scope 2 approach

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

2019-Owens-Corning-Sustainability-Report.pdf

Page/ section reference

Independent Assurance Statement, pages 281-283

SCS provided... Scope 1 and 2 greenhouse gas emissions and energy use at a high level of assurance.

Standards
SCS performed the assurance against:
- AA1000 Assurance Standard (AA1000AS, 2008) with 2018 Addendum
- ISAE 3000 (Revised), Assurance Engagements Other than Audits or Reviews of Historical Financial Information
- ISO 14064-3:2006 Specification with guidance for the validation and verification of GHG assertions

Relevant standard

ISAE3000

Proportion of reported emissions verified (%)

100

Scope 2 approach

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

2019-Owens-Corning-Sustainability-Report.pdf

Page/ section reference

Independent Assurance Statement, pages 281-283

SCS provided... Scope 1 and 2 greenhouse gas emissions and energy use at a high level of assurance.

Standards
SCS performed the assurance against:
- AA1000 Assurance Standard (AA1000AS, 2008) with 2018 Addendum
- ISAE 3000 (Revised), Assurance Engagements Other than Audits or Reviews of Historical Financial Information
- ISO 14064-3:2006 Specification with guidance for the validation and verification of GHG assertions

Relevant standard

ISO14064-3

Proportion of reported emissions verified (%)

100

C10.1c

(C10.1c) Provide further details of the verification/assurance undertaken for your Scope 3 emissions and attach the relevant statements.

Scope 3 category

Scope 3 (upstream & downstream)

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Moderate assurance

Attach the statement

2019-Owens-Corning-Sustainability-Report.pdf

Page/section reference

Independent Assurance Statement, pages 281-283

SCS provided assurance... A moderate level of assurance was performed on Scope 3 greenhouse gas emissions

Standards
SCS performed the assurance against:
- AA1000 Assurance Standard (AA1000AS, 2008) with 2018 Addendum
- ISAE 3000 (Revised), Assurance Engagements Other than Audits or Reviews of Historical Financial Information
- ISO 14064-3:2006 Specification with guidance for the validation and verification of GHG assertions

Relevant standard

AA1000AS

Proportion of reported emissions verified (%)

100

Scope 3 category

Scope 3 (upstream & downstream)

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Moderate assurance

Attach the statement

2019-Owens-Corning-Sustainability-Report.pdf

Page/section reference

Independent Assurance Statement, pages 281-283

SCS provided assurance... A moderate level of assurance was performed on Scope 3 greenhouse gas emissions

Standards
SCS performed the assurance against:
- AA1000 Assurance Standard (AA1000AS, 2008) with 2018 Addendum
- ISAE 3000 (Revised), Assurance Engagements Other than Audits or Reviews of

Historical Financial Information
- ISO 14064-3:2006 Specification with guidance for the validation and verification of GHG assertions

Relevant standard

ISAE3000

Proportion of reported emissions verified (%)

100

Scope 3 category

Scope 3 (upstream & downstream)

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Moderate assurance

Attach the statement

2019-Owens-Corning-Sustainability-Report.pdf

Page/section reference

Independent Assurance Statement, pages 281-283

SCS provided assurance... A moderate level of assurance was performed on Scope 3 greenhouse gas emissions

Standards
SCS performed the assurance against:
- AA1000 Assurance Standard (AA1000AS, 2008) with 2018 Addendum
- ISAE 3000 (Revised), Assurance Engagements Other than Audits or Reviews of Historical Financial Information
- ISO 14064-3:2006 Specification with guidance for the validation and verification of GHG assertions

Relevant standard

ISO14064-3

Proportion of reported emissions verified (%)

100

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
C4. Targets and performance	Progress against emissions reduction target	AA1000AS, ISAE3000, ISO 14064	Independent Assurance Statement, pages 281-283 Scope 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 (2018) to a moderate level. In addition, SCS provided assurance at both high and moderate levels on specific performance data in 2019. Specific performance data included Scope 1 and 2 greenhouse gas emissions and energy use at a high level of assurance. A moderate level of assurance was performed on Scope 3 greenhouse gas emissions and the following additional performance data in 2019: water usage, waste streams, specified air emissions (nitrogen oxides (NOx), sulfur oxides (SOx), particulate matter less than 2.5 micron (PM2.5), volatile organic compounds (VOC), social performance indicators, 2030 goal setting, and 2019 progress towards 2020 and 2030 sustainability goals. Standards SCS performed the assurance of Owens Corning's 2019 Sustainability Report against the AA1000 Assurance Standard (AA1000AS, 2008) with 2018 Addendum. In addition, SCS

			evaluated the Report against the Global Reporting Initiative's (GRI) Standards. Specific performance data were assessed utilizing internationally recognized standards which included: - ISAE 3000 (Revised), Assurance Engagements Other than Audits or Reviews of Historical Financial Information - ISO 14064-3:2006 Specification with guidance for the validation and verification of GHG assertions. 1
C4. Targets and performance	Financial or other base year data points used to set a science-based target	AA1000AS, ISAE3000, ISO 14064	Independent Assurance Statement, pages 281-283 Scope 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 (2018) to a moderate level. In addition, SCS provided assurance at both high and moderate levels on specific performance data in 2019. Specific performance data included Scope 1 and 2 greenhouse gas emissions and energy use at a high level of assurance. A moderate level of assurance was performed on Scope 3 greenhouse gas emissions and the following additional performance data in 2019: water usage, waste streams, specified air emissions (nitrogen oxides (NOx), sulfur oxides (SOx), particulate matter less than 2.5 micron (PM2.5), volatile organic compounds (VOC), social performance indicators, 2030 goal setting, and 2019 progress towards 2020 and 2030 sustainability goals. Standards SCS performed the assurance of Owens Corning's 2019 Sustainability Report against the AA1000 Assurance Standard (AA1000AS, 2008) with 2018 Addendum. In addition, SCS evaluated the Report against the Global

			Reporting Initiative's (GRI) Standards. Specific performance data were assessed utilizing internationally recognized standards which included: - ISAE 3000 (Revised), Assurance Engagements Other than Audits or Reviews of Historical Financial Information - ISO 14064-3:2006 Specification with guidance for the validation and verification of GHG assertions. 1
C5. Emissions performance	Progress against emissions reduction target	AA1000AS, ISAE3000, ISO 14064	Independent Assurance Statement, pages 281-283 Scope 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 (2018) to a moderate level. In addition, SCS provided assurance at both high and moderate levels on specific performance data in 2019. Specific performance data included Scope 1 and 2 greenhouse gas emissions and energy use at a high level of assurance. A moderate level of assurance was performed on Scope 3 greenhouse gas emissions and the following additional performance data in 2019: water usage, waste streams, specified air emissions (nitrogen oxides (NOx), sulfur oxides (SOx), particulate matter less than 2.5 micron (PM2.5), volatile organic compounds (VOC), social performance indicators, 2030 goal setting, and 2019 progress towards 2020 and 2030 sustainability goals. Standards SCS performed the assurance of Owens Corning's 2019 Sustainability Report against the AA1000 Assurance Standard (AA1000AS, 2008) with 2018 Addendum. In addition, SCS evaluated the Report against the Global Reporting Initiative's (GRI) Standards. Specific performance data were assessed utilizing

			internationally recognized standards which included: - ISAE 3000 (Revised), Assurance Engagements Other than Audits or Reviews of Historical Financial Information - ISO 14064-3:2006 Specification with guidance for the validation and verification of GHG assertions. 1
C6. Emissions data	Year on year change in emissions (Scope 1 and 2)	AA1000AS, ISAE3000, ISO 14064	Independent Assurance Statement, pages 281-283 Scope 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 (2018) to a moderate level. In addition, SCS provided assurance at both high and moderate levels on specific performance data in 2019. Specific performance data included Scope 1 and 2 greenhouse gas emissions and energy use at a high level of assurance. A moderate level of assurance was performed on Scope 3 greenhouse gas emissions and the following additional performance data in 2019: water usage, waste streams, specified air emissions (nitrogen oxides (NOx), sulfur oxides (SOx), particulate matter less than 2.5 micron (PM2.5), volatile organic compounds (VOC), social performance indicators, 2030 goal setting, and 2019 progress towards 2020 and 2030 sustainability goals. Standards SCS performed the assurance of Owens Corning's 2019 Sustainability Report against the AA1000 Assurance Standard (AA1000AS, 2008) with 2018 Addendum. In addition, SCS evaluated the Report against the Global Reporting Initiative's (GRI) Standards. Specific performance data were assessed utilizing internationally recognized standards which included:

			- ISAE 3000 (Revised), Assurance Engagements Other than Audits or Reviews of Historical Financial Information - ISO 14064-3:2006 Specification with guidance for the validation and verification of GHG assertions. 1
C6. Emissions data	Year on year change in emissions (Scope 3)	AA1000AS, ISAE3000, ISO 14064	Independent Assurance Statement, pages 281-283 Scope 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 (2018) to a moderate level. In addition, SCS provided assurance at both high and moderate levels on specific performance data in 2019. Specific performance data included Scope 1 and 2 greenhouse gas emissions and energy use at a high level of assurance. A moderate level of assurance was performed on Scope 3 greenhouse gas emissions and the following additional performance data in 2019: water usage, waste streams, specified air emissions (nitrogen oxides (NOx), sulfur oxides (SOx), particulate matter less than 2.5 micron (PM2.5), volatile organic compounds (VOC), social performance indicators, 2030 goal setting, and 2019 progress towards 2020 and 2030 sustainability goals. Standards SCS performed the assurance of Owens Corning's 2019 Sustainability Report against the AA1000 Assurance Standard (AA1000AS, 2008) with 2018 Addendum. In addition, SCS evaluated the Report against the Global Reporting Initiative's (GRI) Standards. Specific performance data were assessed utilizing internationally recognized standards which included: - ISAE 3000 (Revised), Assurance Engagements Other than Audits or Reviews of

			Historical Financial Information - ISO 14064-3:2006 Specification with guidance for the validation and verification of GHG assertions. 1
C8. Energy	Renewable energy products	AA1000AS, ISAE3000	Independent Assurance Statement, pages 281-283 Scope 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 (2018) to a moderate level. In addition, SCS provided assurance at both high and moderate levels on specific performance data in 2019. Specific performance data included Scope 1 and 2 greenhouse gas emissions and energy use at a high level of assurance. A moderate level of assurance was performed on Scope 3 greenhouse gas emissions and the following additional performance data in 2019: water usage, waste streams, specified air emissions (nitrogen oxides (NOx), sulfur oxides (SOx), particulate matter less than 2.5 micron (PM2.5), volatile organic compounds (VOC), social performance indicators, 2030 goal setting, and 2019 progress towards 2020 and 2030 sustainability goals. Standards SCS performed the assurance of Owens Corning's 2019 Sustainability Report against the AA1000 Assurance Standard (AA1000AS, 2008) with 2018 Addendum. In addition, SCS evaluated the Report against the Global Reporting Initiative's (GRI) Standards. Specific performance data were assessed utilizing internationally recognized standards which included: - ISAE 3000 (Revised), Assurance Engagements Other than Audits or Reviews of Historical Financial Information - ISO 14064-3:2006 Specification with guidance

			for the validation and verification of GHG assertions. 1
C8. Energy	Energy consumption	AA1000AS, ISAE3000	Energy consumption including global energy sources. Independent Assurance Statement, pages 281-283 Scope 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 (2018) to a moderate level. In addition, SCS provided assurance at both high and moderate levels on specific performance data in 2019. Specific performance data included Scope 1 and 2 greenhouse gas emissions and energy use at a high level of assurance. A moderate level of assurance was performed on Scope 3 greenhouse gas emissions and the following additional performance data in 2019: water usage, waste streams, specified air emissions (nitrogen oxides (NOx), sulfur oxides (SOx), particulate matter less than 2.5 micron (PM2.5), volatile organic compounds (VOC), social performance indicators, 2030 goal setting, and 2019 progress towards 2020 and 2030 sustainability goals. Standards SCS performed the assurance of Owens Corning's 2019 Sustainability Report against the AA1000 Assurance Standard (AA1000AS, 2008) with 2018 Addendum. In addition, SCS evaluated the Report against the Global Reporting Initiative's (GRI) Standards. Specific performance data were assessed utilizing internationally recognized standards which included: - ISAE 3000 (Revised), Assurance Engagements Other than Audits or Reviews of

			Historical Financial Information

[1]2019-Owens-Corning-Sustainability-Report.pdf

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.

Beijing pilot ETS
California CaT - ETS
Canada federal Output Based Pricing System (OBPS) - ETS
EU ETS
Korea ETS
Québec CaT - ETS

C11.1b

(C11.1b) Complete the following table for each of the emissions trading schemes you are regulated by.

Beijing pilot ETS

% of Scope 1 emissions covered by the ETS

0.7

% of Scope 2 emissions covered by the ETS

0

Period start date

January 1, 2019

Period end date

December 31, 2019

Allowances allocated

24,071

Allowances purchased

0

Verified Scope 1 emissions in metric tons CO2e

20,630

Verified Scope 2 emissions in metric tons CO2e

0

Details of ownership

Facilities we own and operate

Comment

California CaT

% of Scope 1 emissions covered by the ETS

0.4

% of Scope 2 emissions covered by the ETS

0

Period start date

January 1, 2019

Period end date

December 31, 2019

Allowances allocated

12,302

Allowances purchased

0

Verified Scope 1 emissions in metric tons CO2e

12,302

Verified Scope 2 emissions in metric tons CO2e

0

Details of ownership

Facilities we own and operate

Comment

The allowances and emissions are not yet third-party verified, due to timing of the system. However, we do not anticipate any allowances needing to be purchased as historically we have had significantly less emissions than are allocated under the system.

Canada federal OBPS - ETS

% of Scope 1 emissions covered by the ETS

0.9

% of Scope 2 emissions covered by the ETS

0

Period start date

January 1, 2019

Period end date

December 31, 2019

Allowances allocated

20,591

Allowances purchased

5,686

Verified Scope 1 emissions in metric tons CO2e

26,278

Verified Scope 2 emissions in metric tons CO2e

0

Details of ownership

Facilities we own and operate

Comment

The allowances and emissions are not yet third-party verified, due to timing of the system.

EU ETS

% of Scope 1 emissions covered by the ETS

15.1

% of Scope 2 emissions covered by the ETS

0

Period start date

January 1, 2019

Period end date

December 31, 2019

Allowances allocated

301,939

Allowances purchased

18,723

Verified Scope 1 emissions in metric tons CO2e

419,681

Verified Scope 2 emissions in metric tons CO2e

0

Details of ownership

Facilities we own and operate

Comment

Korea ETS

% of Scope 1 emissions covered by the ETS

2.9

% of Scope 2 emissions covered by the ETS

0

Period start date

January 1, 2019

Period end date

December 31, 2019

Allowances allocated

86,954

Allowances purchased

0

Verified Scope 1 emissions in metric tons CO2e

81,239

Verified Scope 2 emissions in metric tons CO2e

0

Details of ownership

Facilities we own and operate

Comment

Québec CaT

% of Scope 1 emissions covered by the ETS

5.6

% of Scope 2 emissions covered by the ETS

0

Period start date

January 1, 2019

Period end date

December 31, 2019

Allowances allocated

125,423

Allowances purchased

0

Verified Scope 1 emissions in metric tons CO2e

155,621

Verified Scope 2 emissions in metric tons CO2e

0

Details of ownership

Facilities we own and operate

Comment

The allowances and emissions are not yet third-party verified, due to timing of the system. However, we do not anticipate the need to purchase any allowances as we have credits on the account which surpass the expected allowance overage.

C11.1d

(C11.1d) What is your strategy for complying with the systems you are regulated by or anticipate being regulated by?

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, and increasing renewable energy sources, while also implementing low- or no-cost solutions to drive reductions. For our 2030 goal, we have an embraced a Science-Based Target for Greenhouse Gas Emissions in line with the most stringent standard, designed to limit global warming to 1.5° Celsius. Our 2030 goal is to reduce absolute Scope 1 and Scope 2 GHG emissions by 50% from 2018.

Carbon Emissions Trading Schemes (ETS) are tools that we can use to ensure that we reduce our GHG emissions and reduce our costs related to the trading scheme. While Owens Corning always strives to go beyond compliance, many of Owens Corning's products are made from heavy manufacturing processes that generate carbon emissions. Owens Corning has a long-term strategy to manage its CO2 allowances focused on compliance with regulations and drive cost reductions while taking advantage of market opportunities in areas where trading schemes are in existence. Our strategy for complying with the systems in which we participate includes tracking emissions and reducing emissions.

To calculate emissions and allowances, we use a software application from Schneider Electric, EcoStruxure™ Resource Advisor, to track environmental data at the plant level. The data are normalized on a unit-of-production basis to evaluate variations and potential areas of risk. If

risks are identified, mitigation plans are developed. The plant-level environmental data are then aggregated at a business unit and corporate level. Every plant, business unit, and corporate organization is provided footprint files for comparisons and the ability to track against their goals. Using estimates for future production for our plants, we can calculate estimated associated emissions, then calculate how much in allowances we will need to purchase in future years.

Our strategy for reducing emissions includes energy reduction projects, using renewable electricity, and eliminating blowing agents with high global warming potential. In 2019, we implemented 43 energy reduction projects, generating energy savings of over 50,000 MWh and reducing more than 32,000 MT of GHG emissions per year. Generally, we invest in energy and GHG reduction projects costing about $3.5 million per year company-wide. We have established a 2030 goal for sourcing 100% renewable electricity to help us sharply reduce emissions from our processes and products. We continue to review potential renewable energy projects domestically and internationally. We have also committed to solve the technical, business, and commercial puzzles in both our global foam insulation operations and our products to eliminate blowing agents that have high global warming potential, a significant source of Scope 1 emissions for our operations.

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. In most cases the difference is compensated by surplus allowances from previous years. With the further reductions in allowances through Phase 4 of the EU ETS, we forecast that our allowances will be depleted after 2020, which will require us to purchase credits.

One specific example of applying this strategy to proactively reduce emissions in regulated regions can be seen in the electrification of a furnace in Trzemeszno, Poland. Paroc finished construction of a new energy-efficient line in Trzemeszno, Poland, in 2019 and the upgrade of the production technology supports our growth strategy for Central and Western Europe and further expands our current operational capabilities. We expect to reduce our CO2 emission by 75-80% with this line compared to a traditional coke-fired furnace line. Moreover, the new line's Electric Arc Furnace (EAF) will reduce carbon intensity1 by roughly 10% for all Paroc Insulation in Europe. The new EAF is the third stone wool electric furnace for Owens Corning in Europe in Europe and the second on the Owens Corning site in Poland.

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 2019 Scope 1 and Scope 2 (Market-based) Emissions as well as 2019 Scope 3 Emissions for business travel only for a total of 3,713,224 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. The reduction goals we aligned on and committed 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

Shadow price

Impact & implication

We consider Scope 1, 2 and 3 emissions, and have both internal and externally published reduction goals. The reduction goals we aligned on and committed 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, and our 2030 50% absolute Scope 1 and 2 emissions reduction goal (from a base year of 2018). We can take the estimated difference in metric tons CO2e from 2019 year-end and the end of our 2020 and 2030 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.

As another example of how we have used carbon pricing specific to our operations, we use bracketed shadow pricing to assess the reduction in potential carbon-price risk that has been realized attributable to our major wind deals: in 2015 we signed PPAs that enabled 250MW of new wind capacity in Oklahoma and Texas. Both wind farms came online in late 2016 and have the potential to generate 1.1 million megawatt hours of electricity per year.

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

% of supplier-related Scope 3 emissions as reported in C6.5

Rationale for the coverage of your engagement

Our annual week-long supplier engagement event connects suppliers with employees to share ideas and discuss how to work even more closely together to achieve our shared sustainability goals. Sustainability performance, including climate-related performance and initiatives, is a factor in determining the winners of our annual Supplier Awards. As we want to influence the sustainability performance of all our suppliers, any supplier can attend the event and all suppliers are eligible for the award, regardless of how critical the supplier is to our business. Through the awards scheme, our intention is to challenge and inspire our suppliers to engage with us proactively and to continue to improve their sustainability performance, which helps their business and ours.

Impact of engagement, including measures of success

The impact of the engagement is to help suppliers understand Owens Corning's sustainability strategy and what our suppliers can do to help us meet it. One measure of success is the number of suppliers nominated for an Owens Corning Supplier of the Year Award with sustainability as an attribute of their performance, as well as the impact of their contribution to our improved sustainability performance. When our suppliers improve their own sustainability performance, they help us to achieve our Scope 3 Sustainability Goal, so this is a win/win situation for our value chain. Our Science-Based Scope 3 reduction target for 2030, a reduction in greenhouse gas emissions related to our purchased materials and services through collaboration with our suppliers to cut these emissions by 30%. In 2019, we measured a 3% reduction in our Scope 3 emissions, indicating that we are already on our way, and our method of engaging with our supply chain is helping us to realize changes needed to meet our 2030 Scope 3 reduction goal. We also measure success by a reduction in risk. One way to measure risk is if our suppliers have and/or report on environmental goals. We track this information through our annual supplier survey. Our goal is a year over year increase in

the percentage of suppliers that have a sustainability related goals. Our 2019 survey found that 81% of suppliers have sustainability related organizational goals and policies, up from 77% in 2018. This upward trend is another sign of successful supplier incentivization and engagement. As a result of this engagement we have established ongoing relationships with these suppliers around sustainability topics such as emissions and climate change.

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

% of supplier-related Scope 3 emissions as reported in C6.5

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. 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

Run an engagement campaign to educate customers about the climate change impacts of (using) your products, goods, and/or services

% of customers by number

32

% of customer - related Scope 3 emissions as reported in C6.5

Please explain the rationale for selecting this group of customers and scope of engagement

Engaging Customers through Building Science: Owens Corning's experts continually research and deploy building science to serve architects, builders, occupants, and the environment. The Owens Corning Building Science Solution Center is a 24/7 portal connecting architects to emerging research, best practices, and thought leadership across a spectrum of building disciplines. In addition to delivering expertise related to sustainability, the Building Science Research Center offers practical insights into the diverse challenges architects experience and provides access to certification documentation to meet green building program requirements. The portal's resources include content drawing on more than 40 years of experience pioneering perimeter fire containment assemblies, as well as information designed to help architects predict moisture and thermal performance across a range of climates using WUFI® analysis.

Building Science within the company is also promoted through an internal team whose scope specializes in engaging architects, engineers, and builders through informational sessions. This team uses engagement to educate actual and potential customers and architects about how to optimally use Owens Corning's energy-saving products to maximize their performance and contribute to green buildings, including helping customers successfully use Owens Corning products to achieve green certifications such as LEED and GreenGuard.

Engaging architects, engineers, and construction customers around building science is crucial, as this can have a 'ripple effect' on sustainable revenue. This is because the company prioritizes engaging with high-impact architects and engineers who, if successfully engaged, can spread practices and specifications that use Owens Corning products to a broader network. For example, if a major architecture firm is engaged and begins to specify using an Owens Corning insulation product as a result, that firm may share their approach with their satellite locations, magnifying the impact of the engagement.

Impact of engagement, including measures of success

The company's approach to engaging customers around building science includes lunch-and-learns, webinars, in-person and virtual seminars, workshops, and national and regional trade shows. The impact of this engagement is that the company can build trust with customers, and drive the use of Owens Corning energy-saving products in more green building applications, as more customers are engaged. Metrics tracking customers' building science engagement include monitoring engagement numbers in people reached and events held. In 2019, the company held over 100 building science engagement events, and reached several thousand architects, engineers, and builders who currently use or could potentially use Owens Corning's insulation products.

C12.1d

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

Owens Corning also undertakes climate-related engagement with other partners in the value chain in the form of building science and housing-oriented governmental and NGO engagement. For example, in 2019 we continued to work with the Gary Sinise Foundation's RISE (Restoring Independence, Supporting Empowerment) program, which builds specially adapted homes for severely wounded U.S. military members and their families. We donate insulation and roofing products for homes built through the program and work with contractors who volunteer in the construction of those homes, which includes leveraging our building science expertise around how to make the home optimally energy efficient. Our commitment to supporting safe, efficient housing for people in need makes R.I.S.E. a perfect fit for Owens Corning.

Another example of climate-related engagement can be seen through the work we do with Natural Resources Canada, or NRCAN. We partner with NRCAN on several demonstration projects to help the building construction industry move towards net zero ready performance which will be mandated for all new buildings in 2030 as part of the PAN Canadian framework on clean growth and climate change. We have a new project with NRCAN that started this year in Quebec and will run for 2 years. The project is to demonstrate and educate the building construction industry on building affordable net zero ready homes in a large-scale setting. We are also working with NRCAN on the PEER group project (prefabricated exterior energy retrofit) to develop insulation systems and technologies for deep energy retrofits to get existing buildings in Canada up to net zero-ready performance.

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	Local and State Energy Codes, Gaining adoption of 2015 & 2018 IECC 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 and/or 2018 Energy Codes, Enforce the energy codes that have been adopted.

Energy efficiency	Support	Grain Belt Express Clean Line: Owens Corning publicly supported a large-scale wind opportunity, Grain Belt Express Clean Line, brought by a transmission company to build a line to transmit 4,000 megawatts of low-cost wind energy from Kansas to Missouri and PJM.	Owens Corning encouraged the Missouri Public Service Commission to provide companies increased access to affordable, renewable energy by approving the Grain Belt Express Clean Line.
Energy efficiency	Support	Worked with small builders, lumberyards, local and State home builders association and state code agencies to come up with alternative compliance paths for various residential energy codes.	NY, PA, NC, VA Energy Code Updates – based on barriers to energy code compliance surfaced by small home builders, we developed, promoted, and gained acceptance of alternative compliance paths that suited the builders desire for low-risk methods of construction. While relatively unsophisticated from an optimized energy efficiency and cost-effectiveness approach, these practices none the less removed barriers to builder acceptance of a new code. Where the prescriptive code requirement mandated the use of exterior insulated sheathing (which Owens Corning makes and promotes) on walls as the only option, we developed alternative paths allowing for the use of 2x6 walls with maximized cavity insulation, added attic insulation, and improved window requirements to make up for the removal of the exterior insulation board on the wall. This practice was in the builder's comfort zone and it did not weaken the energy code and provided the same level of efficiency for a home
Energy efficiency	Support	State Code Adoptions in FL, NY, PA, OH and CA . Worked through trade associations, NGOs, and directly to impact the energy codes being drafted in these states and other.	Engaged in these code update processes to promote improved energy codes and counter home-building industry efforts to weaken the codes

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 National Association of State Energy Officials, National Council of State Legislators, lending institutions/banks in this space, and various housing affordability organizations, we have influenced over 30 States to include Passive House as a "sweetener" or option for private developers bidding on these state and local government projects. 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 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.	Various State regulatory and legislative vehicles are used to drive this depending on the opportunity. We routinely 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 remain in the States.

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 (North American Insulation Manufacturers Association)

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

NAIMA works closely with worldwide manufacturers of fiberglass, 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 unites with other international organizations 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 influenced, or are you attempting to influence their position?

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

Trade association

ACMA (American Composites Manufacturers Association)

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

ACMA has supported efforts to improve resilience of our nation's energy grid, surface transportation and water infrastructure through the promotion of fiber-reinforced polymer composites and advanced materials. The association and its member companies have advocated for the benefits of composites, such as corrosion resistance, ease of installation, extreme weather resilience and superior service life.

How have you influenced, or are you attempting to influence their position?

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

Trade association

BRT (Business Round table)

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

"The Business Roundtable is an association of CEOs of America's leading companies working to promote a thriving U.S. economy and expand opportunity for all Americans through sound public policy." BRT "supports an open and constructive dialogue about the principles that should shape climate policy and the pros and cons of various options." Currently, the membership agrees on the following:
• Voluntary public reporting of emissions reductions progress by industry;
• Improved use of energy efficiency;
• Development and deployment of low GHG technologies;
• Increasing RD&D investment;
• Investing in climate science; and,
• Adopting global solutions to a global problem.

How have you influenced, or are you attempting to influence their position?

We are active on the committees to further these goals.

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 help make it easy for 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, "expanding 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. Owens Corning's political advocacy objectives are to support initiatives which align with the company's core values, namely advocating for energy efficiency measures, and for contemporary building code development and adoption. In 2019, Energy Efficiency accounted for around $225,000 worth of related expense, and Building Codes accounted for around $125,000, with some overlap of spending between these areas.

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

oc proxy 2020.pdf

Page/Section reference

Page 6 - Doing Business in a Sustainable Way
Page 8 - Social sustainability, ESG recognitions
Page 10 - Board Sustainability Skill/Expertise Matrix
Page 21 - Board/Audit Committee Sustainability Risk oversight
Pages 10-50 - Corporate Governance

Content elements

Governance
Strategy
Risks & opportunities
Emission targets
Other metrics

Comment

Annual Proxy Statement filed April 2020

Publication

In mainstream reports

Status

Complete

Attach the document

oc 10k fy2019.pdf

Page/Section reference

P. 5 - Environmental Control
P. 93 - Discussion of compliance, EMS, Sustainability Goals
Risks related to Climate:
P. 9 - Climate change, weather conditions and storm activity could have a material adverse impact on our results of operations.
P.9 - We may be exposed to cost increases or reduced availability of energy, materials or transportation...
P. 10 - We may be subject to liability under and may make substantial future expenditures to comply with environmental laws and regulations

Content elements

Governance
Strategy
Risks & opportunities
Emission targets
Other metrics

Comment

2019 Fiscal Year Form 10K

Publication

In voluntary sustainability report

Status

Complete

Attach the document

2019-Owens-Corning-Sustainability-Report.pdf

Page/Section reference

The whole report relates to Climate Change and GHG. Specific sections include:

Board of Directors Accountability (including climate) - p. 36
Product Innovation & Stewardship - p. 62
Energy - p. 96
Combating Climate Change - p. 105
Appendix - Emission data (p. 256), energy data (p.249), assurance statement (p. 283), TCFD framework discussion (p. 287)

Risks and Information on emissions figures and targets are listed throughout each individual environmental aspect chapter and in the appendices.

Content elements

Governance
Strategy

Risks & opportunities
Emissions figures
Emission targets
Other metrics

Comment

2019 Sustainability Report published April 2020

C15. 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.

C15.1

(C15.1) 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)