Module: Introduction

Page: Introduction

CC0.1

Introduction
Please give a general description and introduction to your organization.

Şişecam Group, the foundations of which were laid by Mustafa Kemal Atatürk in 1935 is an industrial group with the main activity fields of glass. Established by İŞBANK, Şişecam initially set out to meet the requirements of the country as regards to glass products; in the 1960's, turned its attention towards exports on the principle that "the whole world is our market". In the 1970's and 1980's the Group diversified its activities and expanded further in the global markets.
Today, as a result of specialization and highly competitive operations, Şişecam Group took its place among the leading glass manufacturers in the world, in business lines covering all basic fields of glass such as float glass, tableware, glass packaging and glass fiber.
Şişecam Group with a goal to become one of the top three companies in the global glass industry, ambitiously produces initiatives towards improvement in economic axis, or in other words, initiatives directed at enhancing productivity, efficiency and profitability. As one of the biggest companies working in a wide extent of production in Turkey and other countries, Şişecam Group has always considered the social and environmental awareness and performance as the other two key pillars of sustainable development beside economic performance.
Compliance to social and environmental legislations and reduction of environmental impacts of the processes are always taken into account during the decision making step of investments. Environmental, social and economic impacts of the processes are evaluated and sustainable solutions are considered. This approach is considered as one of the pillars of Şişecam's strategic management and is integrated in every phase of its work processes.
Şişecam actively pursues the UN Sustainable Development Goals (UN SDGs) especially Goal 5-6-7-8-9-12-13-15-17 and related principles are integrated into all the operations globally, taking into consideration the SDGs performance indicators. All studies are conducted with a focus on energy efficiency, renewable energy use, carbon emissions, waste recovery and are prioritized within the framework of our sustainability strategy. These targets are realized within an effective governance structure.
In this respect, in Şişecam and its subsidiary companies, all environmental issues including compliance with the environmental legislation are handled within the framework of Şişecam's Environmental and Energy Policy, declared as: Şişecam, as an organization aware of its responsibility towards the protection of environment, believes in the need to maintain the world as a livable place for coming generations. This approach is considered as the corner stone of Şişecam's strategic management and is integrated in every phase of its processes. Our aim is to carry out all environmental protection activities in Şişecam within a framework of an Environmental Management System, by taking into account the sustainability principles and improving the system continuously with the support of all our employees and stakeholders. All Group companies' operations are in line with ISO 14001 Environmental Management System and ISO 50001 Energy Management System principles.
The Group consists of companies serving in diverse activity fields related to different types of glass:

Flat Glass: Carrying out the activities of Sisecam Group in the field of flat glass. Şişecam Flat Glass operates in the fields of architectural glass (flat glass, patterned glass, mirror, laminated glass and coated glass), automotive glass and glass for other vehicles, encapsulated glass, solar glass, home appliances glass.
Glassware: Carrying out the activities of Sisecam Group in the field of tableware, Paşabahçe Cam Sanayii ve Ticaret A.Ş. performs design, production, marketing and sale of table, kitchen articles, and souvenirs made of glass, which are needed by domestic and foreign markets. It carries on its activities in the design, production, marketing and sale as main business fields of glass household articles.
Glass Packaging: Carrying out the activities of Sisecam Group in the field of glass packaging, Şişecam Glass Packaging produces designed glass packaging of different colors and sizes for the food, beverage, alcoholic drinks, pharmaceutical and cosmetic sectors.
Glass Fibre: Cam Elyaf San. A.Ş. is a corporation of Şişecam Chemicals Group, and produces reinforcing materials from “E” glass fiber for reinforced plastic (GRP) industry.
Except glass manufacturing, which is the main field of the Group, chemical production (soda and chromium compounds) industrial raw materials, electricity, Vitamin K3 derivatives, sodium metabisulphite are the other activities of Şişecam. Besides its activities in Turkey, Şişecam became a global company with its facilities in Bulgaria, Russia, Georgia, Ukraine, Egypt, Bosnia, Germany, Slovakia, Hungary, Romania, India and Italy.

CC0.2

Reporting Year
Please state the start and end date of the year for which you are reporting data.
The current reporting year is the latest/most recent 12-month period for which data is reported. Enter the dates of this year first.
We request data for more than one reporting period for some emission accounting questions. Please provide data for the three years prior to the current reporting year if you have not provided this information before, or if this is the first time you have answered a CDP information request. (This does not apply if you have been offered and selected the option of answering the shorter questionnaire). If you are going to provide additional years of data, please give the dates of those reporting periods here. Work backwards from the most recent reporting year.
Please enter dates in following format: day(DD)/month(MM)/year(YYYY) (i.e. 31/01/2001).

Enter Periods that will be disclosed
Fri 01 Jan 2016 - Sat 31 Dec 2016

CC0.3

Country list configuration

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

Select country
Turkey
Bulgaria

CC0.4

Currency selection

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

TRY

CC0.6

Modules

As part of the request for information on behalf of investors, companies in the electric utility sector, companies in the automobile and auto component manufacturing sector, companies in the oil and gas sector, companies in the information and communications technology sector (ICT) and companies in the food, beverage and tobacco sector (FBT) should complete supplementary questions in addition to the core questionnaire.
If you are in these sector groupings, the corresponding sector modules will not appear among the options of question CC0.6 but will automatically appear in the ORS navigation bar when you save this page. If you want to query your classification, please email respond@cdp.net.
If you have not been presented with a sector module that you consider would be appropriate for your company to answer, please select the module below in CC0.6.

Further Information

Module: Management

Page: CC1. Governance

CC1.1

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

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

CC1.1a

Please identify the position of the individual or name of the committee with this responsibility

"Chief Corporate Development & Sustainability Officer" is responsible for corporate development, improvement management, sustainability strategy and energy production facilities. Chief focuses on climate change, sustainability strategy and sustainability projects, energy efficiency, environmental management and corporate development issues within Şişecam.

CC1.2

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

Yes

CC1.2a

Please provide further details on the incentives provided for the management of climate change issues

Who is entitled to benefit from these incentives?	The type of incentives	Incentivized performance indicator	Comment
All employees	Monetary reward	Emissions reduction project Energy reduction project Efficiency project	Şişecam Corporate Rewarding Mechanism evaluates the successful projects that apply to have an award.

Further Information

Page: CC2. Strategy

CC2.1

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

Integrated into multi-disciplinary company wide risk management processes

CC2.1a

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

Frequency of monitoring	To whom are results reported?	Geographical areas considered	How far into the future are risks considered?	Comment
Annually	Board or individual/sub-set of the Board or committee appointed by the Board	Turkey and Bulgaria	> 6 years	Risk management function, which has been conducted centrally for many years, is integrated to “MicroSCope” software system. This system provides systematic information collection and reporting. MicroSCope has been developed to expand risk footprint and risk management activities, improving risk culture within the Sisecam Group.

CC2.1b

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

Operating in energy intensive sector, Şişecam Group operations are highly sensitive to all kinds of energy and environment related policies. For this reason, all risk and opportunity identification are assessed for both company and asset level as Şişecam Group. In addition, risks and opportunities are assessed according to certification systems (such as ISO 14001&50001) in each plant.
With the establishment of Şişecam Corporate Development and Sustainability Department in August 2013, risks and opportunities in energy and environmental

efficiency started to be treated in much more detailed way. In this respect, risk and opportunities affecting sustainable energy issues are considered for both new investments and existing plants. Identification and evaluation of risks and opportunities are applied by taking into account regulations, physical change, climate change, changes in market, strategic documents driven by legislations and international agreements.

CC2.1c

How do you prioritize the risks and opportunities identified?

Risk management function, which has been conducted centrally for many years is integrated to “MicroSCope” software system. This system provides systematic information collection and reporting. Criteria for determining materiality/priorities includes current or possible regulatory requirements, energy efficiency and security, global and regional regulations, financial factors and public awareness.
Şişecam Sustainability Directorate follows and evaluates the current and possible regulatory (climate change related) requirements and inform the related departments such as Production Units, Risk Management, Finance and Investor Relations Management about risks and opportunities on a regular basis. Moreover, risks are being assessed and applied according to environmental management and energy management certification systems (such as ISO 14001&50001) in each plant.
In addition, Energy Efficiency Department under Chief of Corporate Development and Sustainability is responsible for conducting detailed energy audits by independent auditors for every plant and implementing the energy efficiency projects identified during these audits in an effort to minimize energy consumption of the plants.

CC2.1d

Please explain why you do not have a process in place for assessing and managing risks and opportunities from climate change, and whether you plan to introduce such a process in future

Main reason for not having a process	Do you plan to introduce a process?	Comment

CC2.2

Is climate change integrated into your business strategy?

Yes

CC2.2a

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

1) How the business strategy has been influenced: Operating in line with the principle that its energy and environmental performance is one of the core components of its sustainable success, Şişecam actively pursues the UN Sustainable Development Goals (UN SDGs) especially Goal 5-6-7-8-9-10-12-13-15-17 and integrates the related principles into all the operations globally, taking into consideration the SDGs performance indicators. All studies are conducted with a focus on energy efficiency, renewable energy use, carbon emissions and waste recovery and are prioritized within the framework of our sustainability strategy. These targets are realized within an effective governance structure. As an energy intensive production group, Şişecam responds to climate change issues by continuously improving and minimizing energy consumption and implementation of renewable energy solutions as part of its corporate strategy. Reduction in carbon emissions in consequence of reduction in energy consumption will continue to dominate the agenda of Şişecam in the near future, inspiring new project developments. In addition to the routine procedure, with the energy and carbon management approach, short, mid and long-term energy & climate related measures, climate change risks and opportunities are continued to be integrated into Group activities.

2) Examples for influence on business strategy
- Integration of carbon and energy management facts into corporate strategy
- Monitoring and verification of Greenhouse Gas Emissions
- Implementation of the online energy management software for the monitoring of energy performance of production plants in the Group
- Waste heat recovery installations that converts the released thermal energy to electrical energy
- Preliminary and comprehensive energy audits by a certified consultant for all Şişecam companies
- Usage of energy efficient equipment (electric motors, pumps, fans and other production and auxiliary equipment)
- Adaptation of ISO 14001 Environmental Management System and ISO 50001 Energy Management System to all Şişecam Companies
- Integration of Environmental and Energy Policy centrally
- Sustainability reports for the operations in Turkey of Şişecam Group, Şişecam Flat Glass, Şişecam Glass Packaging, Paşabahçe and Soda Sanayii A.Ş.
- Şişecam Sustainability Committee working on prioritizing and realizing sustainability related issues

3) What aspects of climate change have influenced the strategy: Şişecam's climate change approach is based on corporate-national-global energy demand, energy security issues and related energy and climate change regulations. Strategy is based on tangible energy consumption and carbon reduction level.

4) The most important components of the short term strategy that have been influenced by climate change: Short-term measures into business strategy: (1-5 years) Energy efficiency projects or investments that have relatively short payback period are defined as high priority projects.

5) The most important components of the long- term strategy that have been influenced by climate change: Long term measures into business strategy: (+10 years)

Production of high value added, energy and environmental friendly products and optimum usage of renewable energy are in the scope of the Şişecam Group's common production strategy.

6) How this is gaining the company strategic advantage over competitors: Strategic advantage and substantial business decision:
An increase is expected in demand for Şişecam's existing climate and energy friendly products such as low-e and solar control glass. As a result; a significant market growth is expected. Şişecam's s R&D activities are focused on developing new energy efficient and environmental friendly high value added products.

CC2.2b

Please explain why climate change is not integrated into your business strategy

CC2.2c

Does your company use an internal price on carbon?

No, and we currently don't anticipate doing so in the next 2 years

CC2.2d

Please provide details and examples of how your company uses an internal price on carbon

CC2.3

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

Direct engagement with policy makers
Trade associations

Funding research organizations

CC2.3a

On what issues have you been engaging directly with policy makers?

Focus of legislation	Corporate Position	Details of engagement	Proposed legislative solution
Energy efficiency	Support	Glass is 100% infinitely recyclable in closed loop system, each time a bottle or jar is properly collected and recycled and made into new containers, energy and raw materials are saved and less CO2 is emitted. In general terms, using 10 % recycled glass usage results in an energy saving of 2 - 3 % in the melting process and each tonne of cullet used saves CO2 emissions emitted for every tons of glass produced from carbonated virgin raw materials (soda ash, limestone and dolomite). Şişecam encourages and sponsors the “curb-side collection” of glass containers and recycle them. Şisecam has been collaborating with Ministry of Environment and Urbanism, local municipalities and recyclers for collecting and recycling glass containers.	Şişecam encourages and sponsors the “curb-side collection” of glass containers and recycle them. Şisecam has been collaborating with Ministry of Environment and Urbanism, local municipalities and recyclers for collecting and recycling glass containers. ”The Glass and Glass Again” Project launched by Şişecam aims to create awareness about recycling glass packaging and ensuring high recycling rates. Şişecam provided feedback on draft regulation of Control of Packaging Materials. Şişecam supports separate collection of glass packaging and the increase of glass cullet ratio in glass container productions.
Energy efficiency	Support	The project on next generation glasses patterned at nano level, applicable to the photovoltaic solar cells are managed. This project was titled “Development of Superior Performance Glasses Patterned at Nano Scale for Photovoltaic Energy Systems.” The patent application for the output of the project, which was supported by the Republic of Turkey, Ministry of Science, Industry and Technology, and carried out in partnership with ODTU- GUNAM, has been filed.	Şişecam Science and Technology Center is working with T.R. Ministry of Science, Industry and Technology on this project.
Cap and trade	Support	In accordance with decisions 1/CP.19 and 1/CP.20, the Republic of Turkey presented its Intended Nationally Determined Contribution (INDC) towards achieving the ultimate objective of the United Nations Framework Convention on Climate Change which is set out in its Article 2 and clarifying information, whereby Turkey is committed up to 21 percent reduction in GHG emissions from the Business as Usual (BAU) level by 2030. Ministry of Environment and Urbanism is working on many strategies and action plans to combat climate change, which will have a direct impact to business sectors.	Şişecam, as one of the main players of the sector, attends the workshops organized by Ministry of Environment and Urbanism and gives great support by providing feedback and recommendations about emissions, quotas and appropriate emission control systems in the sector. The aim of these workshops is to ensure multi-stakeholders engagement to provide the necessary inputs for the, improvement of Turkey’s position in the international negotiations and evaluation of Paris Agreement.

Focus of legislation	Corporate Position	Details of engagement	Proposed legislative solution
		Şişecam attends and takes an important role in workshops and meetings focused on adaptation to Paris Agreement. Şişecam follows up the project on Partnership for Market Readiness (PMR), governed by Ministry of Environment and Urbanism and attends workshops related to this project. The key objective of the project is to identify alternative “Market Based Instrument” to cope with climate change and to be implemented in Turkey.	

CC2.3b

Are you on the Board of any trade associations or provide funding beyond membership?

Yes

CC2.3c

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

Trade association	Is your position on climate change consistent with theirs?	Please explain the trade association's position	How have you, or are you attempting to, influence the position?
Istanbul Chamber of Industry	Consistent	The main objective of İstanbul Chamber of Industry (ICI) is to fulfil the existing and future needs of the Turkish industry through information, training and consulting services, to improve the international competitiveness of our industry and country and to contribute to the development of the country as a whole. In this respect; ICI is involved in the climate change issue as "Turkish Industry Representative" and it intends to follow global and national regulations on climate change, train and support the Turkish Industry and contribute	Şişecam has been an active member of ICI Environmental Management and Policies Commission, in order to: -define realistic targets and strategies for the industry in accordance with Turkey's special conditions on Kyoto Protocol, Paris Agreement and global competition conditions -Deliver sectoral opinions on Turkey's National Strategy and Regulations. - introduce the contribution of energy efficient products, - provide sectoral opinions and data

Trade association	Is your position on climate change consistent with theirs?	Please explain the trade association's position	How have you, or are you attempting to, influence the position?
		national strategies in the industrial perspective. ICI considers environment and energy related issues in a separate department. Commissions perform their studies with the coordination of this department.	
Association of Turkish Building Material Producers (IMSAD)	Consistent	Energy efficiency in new buildings and energy efficient renovation of existing building stock is crucial for meeting our ambitious energy and climate policy goals. IMSAD is the leader non-governmental organization of Turkish construction sector. IMSAD committees works on energy efficiency of buildings, environmental friendly construction materials, health and safety, window-door-glass, sustainability, market improvement, construction materials regulation etc.	Şişecam Flat Glass has been an active member of IMSAD Sustainability Committee and Environmental Friendly Materials Committee in order to introduce the contribution of its products to energy saving and economy. Şişecam gives feedback to IMSAD about the draft regulations that will be published by the government and affect the sector directly. Moreover Şişecam Flat Glass, sponsored Sustainable Built Environment SBE 2016 Conference which was coordinated by IMSAD.
Glass Alliance Europe, FEVE, Glass for Europe, APFE	Consistent	Glass Alliance Europe's work focuses on EU environment policy, marked in recent years by the EU's Climate Change Policy. The primary mission of Glass Alliance Europe is to enhance the exchange of information between its members and to coordinate views on common environmental and regulatory challenges, which affect the glass sector. To fulfil this mission, Glass Alliance Europe issues reports, statements and press releases from the European glass industries on different topics.	As a member of these trade associations, Şişecam follows the EU Regulations and related applications related to climate chance closely. In this way, Şişecam has the opportunity to transfer EU glass market's experience into national implementations. Also,President of Şişecam Flat Glass is Chairman of Glass for Europe.

CC2.3d

Do you publicly disclose a list of all the research organizations that you fund?

No

CC2.3e

Please provide details of the other engagement activities that you undertake

CC2.3f

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

Operating in line with the principle that its energy and environmental performance is one of the core components of its sustainable success, Şişecam actively pursues the UN Sustainable Development Goals (UN SDGs) especially Goal 5-6-7-8-9-12-13-15-17 and integrates its principles into all the operations globally, taking into consideration the SDGs performance indicators. All studies are conducted with a focus on energy efficiency, renewable energy use, carbon emissions and waste recovery and are prioritized within the framework of our sustainability strategy. These targets are realized within an effective governance structure. All Group companies' operations are in line with ISO 14001 Environmental Management System and ISO 50001 Energy Management System principles, in all operational countries. In this respect,the Group monitor its energy consumption level and environmental aspects of its activities periodically and determine action plans to get the solutions for the related problems if there is any.

CC2.3g

Please explain why you do not engage with policy makers

Further Information

Page: CC3. Targets and Initiatives

CC3.1

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

Intensity target
Renewable energy consumption and/or production target

CC3.1a

Please provide details of your absolute target

ID	Scope	% of emissions in scope	% reduction from base year	Base year	Base year emissions covered by target (metric tonnes CO2e)	Target year	Is this a science-based target?	Comment

CC3.1b

Please provide details of your intensity target

ID	Scope	% of emissions in scope	% reduction from base year	Metric	Base year	Normalized base year emissions covered by target	Target year	Is this a science-based target?	Comment
Int1	Scope 1+2 (location-based)	56%	1%	Metric tonnes CO2e per metric tonne of product	2015	0.69	2016	No, and we do not anticipate setting one in the next 2 years	Sisecam's Glass Plants in Turkey, contributed to combat climate change by reducing its specific energy by five times more than the 2016 target, which was 1%. Therefore, specific greenhouse gas emissions are reduced by 5%.

CC3.1c

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

ID	Direction of change anticipated in absolute Scope 1+2 emissions at target completion?	% change anticipated in absolute Scope 1+2 emissions	Direction of change anticipated in absolute Scope 3 emissions at target completion?	% change anticipated in absolute Scope 3 emissions	Comment

CC3.1d

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

ID	Energy types covered by target	Base year	Base year energy for energy type covered (MWh)	% renewable energy in base year	Target year	% renewable energy in target year	Comment
RE1	Electricity production	2016	0	0%	2017	12%	The indicated value is provided based on solar power plant installation in Trakya Cam Mersin Plant. This plant will produce electricity and sell to the grid, the produced energy is equivalent to 12% of electricity consumption of the plant.

CC3.1e

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

ID	% complete (time)	% complete (emissions or renewable energy)	Comment
Int1	100%	100%	

ID	% complete (time)	% complete (emissions or renewable energy)	Comment
RE1	50%	0%	

CC3.1f

Please explain (i) why you do not have a target; and (ii) forecast how your emissions will change over the next five years

CC3.2

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

No

CC3.2a

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

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

CC3.3

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

Yes

CC3.3a

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

Stage of development	Number of projects	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation		
To be implemented*		
Implementation commenced*		
Implemented*	10	15500
Not to be implemented		

CC3.3b

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

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/ Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
Energy efficiency: Processes	Renewal of energy transmission line in Anadolu Cam Mersin plant	2996	Scope 2 (location-based)	Voluntary	1342158	1150000	1-3 years	16-20 years	
Energy efficiency: Processes	Usage of fan air instead of pressurized air in bottle corner's meters Anadolu Cam Eskişehir plant	655	Scope 2 (location-based)	Voluntary	286518		<1 year	11-15 years	
Energy efficiency: Processes	Automation of compressors in Trakya Cam Mersin plant	941	Scope 2 (location-based)	Voluntary	421730		1-3 years	16-20 years	
Energy efficiency: Processes	Increase of efficiency in furnaces in Trakya Cam Mersin plant	3034	Scope 1	Voluntary	1260000			11-15 years	
Energy efficiency: Processes	Usage of natural gas in social facilities in Trakya Cam Trakya plant	3403	Scope 1	Voluntary	1242191	320000	4-10 years	11-15 years	
Energy efficiency: Processes	Regenspray isolation of TR4 regenerator in Trakya Cam Mersin plant	1549	Scope 1	Voluntary	650000	498400	1-3 years	16-20 years	
Energy efficiency: Processes	Transmission of oxygen enriched air from nitrogen facility to use as burning air in TR2 furnace in Trakya Cam Trakya plant	756	Scope 1	Voluntary	276104	150000	1-3 years	11-15 years	
Energy efficiency: Processes	Usage of waste heat from cooling in Trakya Cam Trakya plant	701	Scope 1	Voluntary	255966			6-10 years	

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/ Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
Energy efficiency: Processes	Usage of waste steam of chromic acide in Soda San. Kromsan plant			Voluntary	510000	1600000	1-3 years	11-15 years	
Energy efficiency: Processes	Change of circulation pumps in Soda San. Kromsan plant	1465	Scope 2 (location-based)	Voluntary	549637	1840000	1-3 years	11-15 years	

CC3.3c

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

Method	Comment
Dedicated budget for energy efficiency	Şişecam being a highly energy intensive manufacturing company, but in the same time recognizes that sustainable energy solutions (energy efficiency, renewable energy, alternative energy mix) are key for sustainability, several actions are taken corporately to respond and adopt to the increasingly competitive global business environment. Şişecam's cost of energy is between 25-30% of the total operational cost. To minimize the risks related to volatility of energy prices, access of quality and continuous energy, Şişecam proactively identifies and implements energy efficiency, renewable energy and innovative energy mix solutions. To ensure timely monitoring of the production energy efficiency, on-line electricity, water, natural gas etc. consumptions are monitored. Additionally, 6 MWh solar panel installation has been initiated and planned to be finalized by 2017. Furthermore, annually corporate energy consumption targets are identified and periodically monitored and reported to senior management. As per the Energy Efficiency Law (no 5627), Şişecam ensures that each factory has its own energy manager who is responsible for monitoring and reporting the energy efficiency performance of the factories.

Method	Comment
Compliance with regulatory requirements/standards	Turkish Energy Efficiency Law (no 5627) and Regulation on “Improving Energy Efficiency on Energy Usage (2008), aim to improve industrial energy efficiency and provide energy savings in the production processes. Therefore, energy intensive sectors face with strict constraints. In accordance with decisions 1/CP.19 and 1/CP.20, the Republic of Turkey presented its Intended Nationally Determined Contribution (INDC) towards achieving the ultimate objective of the United Nations Framework Convention on Climate Change which is set out in its Article 2 and clarifying information, whereby Turkey is committed up to 21 percent reduction in GHG emissions from the Business as Usual (BAU) level by 2030. Ministry of Environment and Urbanism is working on many strategies and action plans to combat climate change that will directly influence business sectors. However, it is still not clarified how the target will be distributed to different sectors. It is for sure that restrictions on greenhouse gas emissions will be applied. The Partnership for Market Readiness (PMR) Project governed by Ministry of Environment and Urbanism aims to identify potential alternatives to govern the carbon mechanisms nationwide (for example carbon taxes, carbon-trading systems etc.). To this end, the Ministry of Environment and Urbanism makes extra effort to engage private sectors in the preparations. Şişecam is actively involved in these preparations and provided the necessary technical inputs.

CC3.3d

If you do not have any emissions reduction initiatives, please explain why not

Further Information

Page: CC4. Communication

CC4.1

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

Publication	Status	Page/Section reference	Attach the document	Comment
In other regulatory filings	Complete	Page 10	https://www.cdp.net/sites/2017/42/21142/Climate Change 2017/Shared Documents/Attachments/CC4.1/Trakya Glass bulgaria_Annual Report CO2.pdf	
In voluntary communications	Complete	Page 34-38	https://www.cdp.net/sites/2017/42/21142/Climate Change 2017/Shared Documents/Attachments/CC4.1/sisecam_en.pdf	http://www.sisecam.com.tr/en/sustainability/sustainability-reports
In other regulatory filings	Complete	Page 58-61	https://www.cdp.net/sites/2017/42/21142/Climate Change 2017/Shared Documents/Attachments/CC4.1/SISECAM_ANNUAL_REPORT_2016.pdf	http://www.sisecam.com.tr/en/investor-relations/presentations-and-bulletins/annual-reports

Further Information

Module: Risks and Opportunities

Page: CC5. Climate Change Risks

CC5.1

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

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

CC5.1a

Please describe your inherent risks that are driven by changes in regulation

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Emission reporting obligations	Regulation on Monitoring, Reporting and Verification of Greenhouse Gas Emissions is adopted in Turkey. The Regulation aims to set the principles and procedures related to monitoring, reporting and verification of GHGs resulting from activities listed in Annex I of the by-law. 13 plants of Şişecam have prepared monitoring plans and reports for the year 2015-2016. Verification process by licensed audit company is ongoing.	Increased operational cost	1 to 3 years	Direct	Virtually certain	Low-medium	Regulation on Monitoring, Reporting and Verification of Greenhouse Gas Emissions came into force in 2015.It has provided government to track industrial greenhouse gas emissions with rules similar to European Union's Emissions Trading Scheme.This regulation has brought some extra responsibilities like reporting and extra cost for verification. The cost for verification will be managed in budget for upcoming years.	Since 2009; Şişecam has been carrying out basic activities related to expected reporting obligations, such as; collection and evaluation of reliable/verifiable data related to Scope 1 – 2 emissions, adaptation of a corporate based calculation method and preparation of annual inventories. These activities are based on IPCC-2006 and ISO 14064 GHG Standard. Şişecam shares the GHG emissions with all stakeholders through Sustainability Reports. In this context, a project related to greenhouse gas monitoring plans was performed.	Greenhouse gas emissions monitoring plan has been prepared by Şişecam factory representatives. Verification phase is ongoing and will be planned as environmental expenses for each factory.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								According to the regulation, related plants has prepared greenhouse gas monitoring plans, received approval from the Ministry of Environment and Urbanism. Verification process by licensed audit company is ongoing. Management actions related to this risk are being implemented.	
Fuel/energy taxes and regulations	Regarding to regulations, Turkish energy policy has made impressive progress in the last years. Turkey attaches great importance to more efficient and rational functioning of the energy sector for promoting the competitiveness of the national	Increased operational cost	1 to 3 years	Direct	Very likely	Medium	Turkey's Energy Efficiency Law, Energy Strategy Plan and National Climate Change Action Plan guided the industry for the energy targets. Şişecam Group is highly sensitive to all kinds of energy related policies and limitations. Limitations or	The Sustainable Energy Monitoring System (SEOIS) was established in most of the factories to monitor online energy consumption. The system is managed centrally at the Headquarter level, and it allows a comparative management and identification of potential	Costs related to SEOIS system and consultancy in energy audits is integrated in the budget.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	economy. In order to reach these targets, Turkish Law on Energy Efficiency was enacted. It introduced significant obligations and sets the rules for energy management in industry. According to the law, Şişecam plants has to manage comprehensive energy efficiency audits.						taxes on fuel/energy usage will affect operations directly and will limit productivity. The magnitudes of these risks are still not clear.	improvement instantaneously. Energy efficiency projects are considered as one of the most important investment items. All Group factories benefiting from the SEOIS system are also ISO 50001 certified. The Group's core principle is to select high efficient equipment as part of its sustainable investment strategy. Moreover energy audits which are coordinated by Energy Efficiency Department, are another important tool for identifying energy saving opportunities. Management actions related to these risks are being implemented.	

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
International agreements	In accordance with decisions 1/CP.19 and 1/CP.20, the Republic of Turkey presented its Intended Nationally Determined Contribution (INDC) towards achieving the ultimate objective of the United Nations Framework Convention on Climate Change which is set out in its Article 2 and clarifying information, whereby Turkey is committed up to 21 percent reduction in GHG emissions from the Business as Usual (BAU) level by 2030. Ministry of Environment and Urbanism is working on many strategies and action plans to combat climate	Increased operational cost	>6 years	Direct	More likely than not	Medium-high	The adaptation to Paris Agreement will result in substantial future capital costs, and regulated carbon quotas. If the sectors can not reach the target, they should purchase carbon credits which will directly result in increase of operational expenses.	Şişecam attends and takes an important role in workshops and meetings focused on adaptation to Paris Agreement. Şişecam follows up the project on Partnership for Market Readiness (PMR) Project governed by Ministry of Environment and Urbanism and attends workshops related to this project.Moreover in order to manage this risk, Şişecam implements actions related on energy efficiency projects that result in GHG emissions reduction. Management actions related to this risk are being implemented.	Investments and costs for energy efficiency projects is integrated in the budget.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	change which will directly influence business sectors. However, it is still not clarified how the target will be distributed to different sectors. This will bring extra responsibilities for Şişecam.								
General environmental regulations, including planning	In December 2014, a new regulatory framework on 'Online Monitoring of Continuous Emission Measurement Systems' is adopted in Turkey. The Regulation aims to set the principles and procedures related to collection, storage and transfer of data from the continuous emission measurement systems.	Increased operational cost	>6 years	Direct	Virtually certain	Low-medium	This regulation on 'Online Monitoring of Continuous Emission Measurement Systems' allows Ministry to track industrial emissions online. This regulation brought some extra responsibilities like purchasing and maintenance of the related equipments and license of the software system.	The Sustainable Emission Monitoring System (SEOS) was established in 7 factories to online monitor NOx emissions, which contributes global sustainability targets. The system is managed centrally at the Headquarter level, and it allows a comparative management. The instantaneous emission measurement forms an important database for the emission	The software system is purchased. Additional cost associated with the maintenance of the related equipments and license of the software is planned within budget.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	Şişecam's glass manufacturing factories's NOx emissions are transferred to the Ministry's database continuously.							measurements. Required actions related to this risk are implemented. For instance, Şişecam evaluted the increase in operational cost and integrated this into the budget.	

CC5.1b

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

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Other physical climate drivers	Increase of GHG concentrations in the atmosphere leads to impacts on climate change and global warming. Globally, much more extreme	Reduction/disruption in production capacity	>6 years	Direct	About as likely as not	Low	Floods can damage operations and can pause the production. Moreover, extreme rain and storms can hinder the supply of imported some vital materials/equipment and so unexpected long term-delays can occur both in	The potential impact and time frame of this weather related risks are still unclear. So that the risk is evaluated and partially included in company's	Insurance fee for the facilities are integrated in the budget.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	and variable weather conditions are expected in the future. Floods, sudden temperature rises and decreases forms a risk for our plants and floods can damage the plants and production. Extreme rain and storms can hinder the supply of raw materials, production and transportation of products.						investments and production. These situations which may have a significant adverse impact on the company's financial results are considered in risk management concept.	current risk strategy. In order to handle such circumstances required actions related to this risk and emergency action plans are implemented. For instance in order to handle similar risks in the long term; vital equipment and raw materials are stocked. Besides, the factory lay-outs and infrastructures are designed due to the related risks. Related projects are being implemented. Also, during deciding new investments facility locations are evaluated according to these risks.	

CC5.1c

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

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Reputation	Due to increased public concern both in Turkey and in rest of the world, climate change is an important issue in managing corporate reputation. Today, it is critical that companies safeguard their reputations through effective communications with all their stakeholders about their environmental performance on climate change issue. This risk may impact Şişecam's reputation also.	Wider social disadvantages	>6 years	Indirect (Client)	About as likely as not	Low	There is no tangible financial impacts due to reputation loss due to climate change effect and emissions. Corporate reliability relies on regulations and may negatively affect customer behaviour. This may limit company's role on future policy and strategies.	Şişecam recognizes that corporate environmental behavior highly affects the corporate reputation. Therefore related studies and projects are being implemented. The Sustainability Directorate under the Şişecam Corporate Development and Sustainability Department continues intensive studies to contribute to the Group's environmental and energy management strategies, policies, implementation monitoring, and leading to sustainable energy solutions through energy efficiency, and renewable energy practices. The Group's Sustainability Committee focuses on to mainstream sustainability principles into all levels of operations and administration with a holistic approach. In order to meet stakeholder expectations including carbon emissions, Sustainability	No extra cost associated with these actions. Şişecam uses its own technical capacity, experience and human sources.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								Reports for the operations in Turkey of Şişecam Group, Şişecam Flat Glass, Şişecam Glass Packaging, Paşabahçe and Soda Sanayii A.Ş are published every year. Şişecam takes part in Istanbul Stock Exchange Sustainability Index (BIST SI) formation on the sustainability which also includes climate change performance indicators.In addition to supporting this kind of projects, Group has also been collaborating with Ministry of Environment and Urbanism, Ministry Of Science Industry and Technology and Ministry of Energy and Natural Resources by providing reliable production/energy/emission data, by sharing its corporate experience on energy saving potentials of glass sector and best available techniques on energy saving.	

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

CC5.1e

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

CC5.1f

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

Further Information

Page: CC6. Climate Change Opportunities

CC6.1

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

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

Opportunities driven by changes in other climate-related developments

CC6.1a

Please describe your inherent opportunities that are driven by changes in regulation

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Fuel/energy taxes and regulations	With regulations such as Energy Efficiency Law and Regulation on Energy Performance in Buildings in Turkey, energy efficiency in buildings are supported. Using value added energy efficient construction products became important by this way. All new buildings must meet minimum design requirements	Increased demand for existing products/services	1 to 3 years	Direct	Very likely	Medium-high	This will create opportunities for the market growth of high performance, added value products. Increase in demand for Şişecam's energy efficient products such as low-e, tenteseol titanium, solar control and, thermal insulation glass is expected.	Sisecam implements related activities studies and projects by: (a) Lobbying activities: In order to introduce the contribution of its products to energy saving and economy, Şişecam has been an active member of several associations such as Glass for Europe, Association of Turkish Building Material Producers (IMSAD) and Association of Thermal Insulation, Waterproofing,	Company implements necessary advertisement budget into its general budget

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	for energy efficiency and get Energy Performance Certificate. Existing buildings should get Energy Performance Certificate till 2020. This creates an opportunity for sales of Şişecam's energy efficient products.							Sound Insulation and Fireproofing Material Producers, Suppliers and Applicators (IZODER). Group also takes part in several organizations. b) Collaboration with Policy Makers: As the most important sector representative, Şisecam collaborates with experts from Ministry of Environment and Urbanism,Ministry Of Science Industry and Technology and Ministry of Energy and Natural Resources. c) R&D activities: Şişecam focuses on its R&D activities for developing new energy friendly high added value products. d) Commercials:	

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								Advertisement campaign of products which provided advanced level of isolation compared to standard double glasses is managed.	
Other regulatory drivers	In April 2014, regulation on 'Certification of sustainable sites with sustainable green buildings' is published by Ministry of Environment and Urbanism. The regulation aims to set the principles and procedures related to evaluate and certify green buildings and green sites. This creates an	Increased demand for existing products/services	1 to 3 years	Direct	Virtually certain	Medium-high	With this regulation main concepts of green buildings such as energy efficiency, renewable energy, lighting, local material, ecolabels get more importance than before. This will directly influence the demand for high value added products like low e, solar control, thermal insulation and	Şişecam implements lobbying activities, seminars and trainings in order to emphasize the importance of design and glass selection in the construction sector. Moreover, Şişecam Flat Glas is at the last stage for getting it's the Environmental Product Declaration (EPD) for its main products. Also,"Glass Solutions For Green Buildings Catalog- The Right Glass	Company implements necessary advertisement and training budget from its general budget.

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	opportunity for Şişecam's energy efficient products.						solar control glasses.	Solutions in Green Building" booklet informs business partners and enable the right choice of glass.	
Other regulatory drivers	Law on Utilization of Renewable Energy Resources for the Purpose of Generating Electrical Energy, Law on Energy Efficiency, Electricity Market Law supports usage of renewable energy. The aim of these regulations, is to increase the usage of renewable energy in generating electrical energy, to add renewable energy	Increased demand for existing products/services	1 to 3 years	Direct	Very likely	Medium-high	This will create opportunities for the market growth of high performance, value added glass products. Şişecam Flat Glass plays an important role in the generation of solar power through solar panels and engages in business activities related to this field. While renewable energy becomes an increasingly important issue in Turkey and around the	Sisecam implements related lobbying activities, studies and projects in order to introduce the contribution of its products to economy. Şişecam Flat Glass is an active member of Turkish Photovoltaic Industry Association (GENSED) and takes part in many organizations.In Flat Glass Mersin Plant 6 MW-power, roof type solar energy panel project and connection agreements isrealized; it is planned to be	The related costs are integrated into the budget.

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	sources to economy, to increase source diversification, to decrease greenhouse gas emissions, to protect the environment and to improve the related sectors. This creates an opportunity for sales increase of Şişecam's solar glasses and glass fiber.						world, the Turkish Ministry of Energy and Natural Resources stipulates the use of domestic products in planned, large-scale solar projects. Given this precondition imposed on investors by the Ministry, solar glass sales are expected to expand further. As for wind energy, glass fiber that is used as a main component of many large-scale wind turbine blades because of its durable and lightweight characteristics.	commissioned by end-2017. The Solar Energy Project brings not only energy saving advantages, but also contributes to other sustainable environmental solutions such as Green House Gas (GHG) emission reduction	

CC6.1b

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

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Change in temperature extremes	Unparalleled extremes and disastrous weather events occur every year. Changes in temperature, precipitation, and the frequency and severity of extreme events will likely affect how much energy is produced, delivered, and consumed in the world. In Turkey approximately 30% of energy is consumed in buildings. Thus, buildings can make a major contribution to tackling climate change and energy use. Şişecam successfully reacts to environmental issues by offering	Increased demand for existing products/services	>6 years	Direct	Likely	Medium-high	Regulation on Energy Performance in Buildings came into force in December 2009. So that; it is expected an increase in demand for Şişecam's energy efficient products such as low-e and solar control glass. Within the scope of R&D studies, special attention is paid to value added glass products.	Sisecam implements related activities studies and projects by lobbying activities. In order to introduce the contribution of its products to energy saving and economy, Şişecam has been an active member of several associations such as Glass for Europe, Association of Turkish Building Material Producers (IMSAD) and Association of Thermal Insulation, Waterproofing, Sound Insulation and Fireproofing Material Producers, Suppliers and	The investment of R&D studies are implemented in the budget.

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	a variety of applications for green buildings. Today's glass can be practically custom-made to fit into any environmental condition and offer specific appearances and performance and energy efficiency.							Applicators (IZODER). Group also takes part in several organizations. Collaboration with Policy Makers: As the most important sector representative, Şisecam collaborated with experts from Ministry of Environment and Urbanism, Ministry Of Science Industry and Technology and Ministry of Energy and Natural Resources. Şişecam focuses on its R&D activities for developing new energy efficient high value added products.	

CC6.1c

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

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Changing consumer behavior	It has been observed that ratio of value added coated products on turnover increased regularly. Due to increasing awareness, Şişecam's customer profile has been changing. Customers also look for energy efficient products.	Increased demand for existing products/services	>6 years	Indirect (Client)	Likely	Low	Şişecam Group is one of the promising companies that enable greenhouse gas emission reduction and energy saving by its main products.This awareness, is expected to increase the demand for Şişecam's energy efficient products such as low-e and solar control glass and provide R&D activities on this issue.Besides, consumption of glass containers and bottles due to its endless recycle capability compared to alternative packaging materials, is expected to increase.	Sisecam implements related activities studies and project with the aim of differentiating its products in the growing competitive environment, increasing the awareness towards its brands and widening their utilization. Şişecam completed its branding studies covering its current product range to be employed commonly in all markets. In order to obtain consumer feedback, consumer surveys are performed, analysed and strategic plans are issued accordingly. With its experienced	Company implements necessary R&D and advertisement budget into its general budget. Also costs related to consultancy in sustainability reporting is integrated in the budget.

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								team, Şişecam Flat Glass offers glass consultancy to project decision makers such as architects, facade consultants, investors and contractors on their projects and develops solution offers according to project requirements. For new products, R&D studies and marketing of products are going on. In order to show its awareness; Şişecam implements social responsibility projects such as Glass and Glass Again. Sustainability Report is an other example to respond accordingly. Sustainability reports are published for the	

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								operations in Turkey of Şişecam Group, Şişecam Flat Glass, Şişecam Glass Packaging, Paşabahçe and Soda Sanayii A.Ş. Moreover, Şişecam takes part in Istanbul Stock Exchange Sustainability Index (BIST SI) which also evaluates climate change performance indicators in detail.	

CC6.1d

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

CC6.1e

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

CC6.1f

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

Further Information

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

Page: CC7. Emissions Methodology

CC7.1

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

Scope	Base year	Base year emissions (metric tonnes CO2e)
Scope 1	Fri 01 Jan 2016 - Sat 31 Dec 2016	3965287

Scope	Base year	Base year emissions (metric tonnes CO2e)
Scope 2 (location-based)	Fri 01 Jan 2016 - Sat 31 Dec 2016	525761
Scope 2 (market-based)		

CC7.2

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

Please select the published methodologies that you use
ISO 14064-1

CC7.2a

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

CC7.3

Please give the source for the global warming potentials you have used

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

CC7.4

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

Fuel/Material/Energy	Emission Factor	Unit	Reference
Natural gas	56.1	Other: metric tonnes CO2 per TJ	IPCC Guidelines
Diesel/Gas oil	74.1	Other: metric tonnes CO2 per TJ	IPCC Guidelines
Liquefied petroleum gas (LPG)	63.1	Other: metric tonnes CO2 per TJ	IPCC Guidelines
Other: CaCO3	440	Other: kg CO2 per metric tonnes material	IPCC Guidelines
Other: MgCO3	522	Other: kg CO2 per metric tonnes material	IPCC Guidelines
Other: Na2CO3	415	Other: kg CO2 per metric tonnes material	IPCC Guidelines
Other: CaMg(CO3)2	477	Other: kg CO2 per metric tonnes material	IPCC Guidelines
Electricity	479.93	kg CO2e per MWh	Green House Gas Protocol-2009 Emission Factor for Purchased Electricity in Turkey
Electricity	463.45	kg CO2e per MWh	Green House Gas Protocol-2009 Emission Factor for Purchased Electricity in Bulgaria

Further Information

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

CC8.1

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

Other: Financial and operational

CC8.2

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

3965287

CC8.3

Please describe your approach to reporting Scope 2 emissions

Scope 2, location-based	Scope 2, market-based	Comment
We are reporting a Scope 2, location-based figure	We have no operations where we are able to access electricity supplier emissions factors or residual emissions factors and are unable to report a Scope 2, market-based figure	

CC8.3a

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

Scope 2, location-based	Scope 2, market-based (if applicable)	Comment
525761	0	

CC8.4

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

Yes

CC8.4a

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

Source	Relevance of Scope 1 emissions from this source	Relevance of location-based Scope 2 emissions from this source	Relevance of market-based Scope 2 emissions from this source (if applicable)	Explain why the source is excluded
Headquarter buildings	Emissions are relevant and calculated, but not disclosed	Emissions are relevant and calculated, but not disclosed	No emissions from this source	Emissions from operational buildings are calculated however they are relatively small when compared to the emissions of the plants.

CC8.5

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

Scope	Uncertainty range	Main sources of uncertainty	Please expand on the uncertainty in your data
Scope 1	More than 5% but less than or equal to 10%	Assumptions Metering/ Measurement Constraints	While gathering the specific activity data, a few constraints are encountered which affected the accuracy of emission calculations like the uncertainty values on relevant counters, flowmeters and balances. In the calculation phase (due to use of different suppliers and some variable parameters such as; instant calorific values of fossil fuels and purity of raw materials), constant data from regulation and literature was used in the activity data instead of laboratory data.
Scope 2 (location-based)	More than 2% but less than or equal to 5%	Metering/ Measurement Constraints Other: published emission factors	In the literature, several different country specific emission factors may be found related to electricity production. Hence, there is an uncertainty, depending on the factor used.
Scope 2 (market-based)			

CC8.6

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

Third party verification or assurance process in place

CC8.6a

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

Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/section reference	Relevant standard	Proportion of reported Scope 1 emissions verified (%)
Annual process	First year it has taken place	Third party verification/assurance underway			ISO14064-3	90
Annual process	Complete	Reasonable assurance	https://www.cdp.net/sites/2017/42/21142/Climate Change 2017/Shared Documents/Attachments/CC8.6a/Trakya Glass bulgaria_Annual Report CO2.pdf	page 10	ISO14064-3	9

CC8.6b

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

Regulation	% of emissions covered by the system	Compliance period	Evidence of submission

CC8.7

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

No third party verification or assurance

CC8.7a

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

Location-based or market-based figure?	Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/Section reference	Relevant standard	Proportion of reported Scope 2 emissions verified (%)

CC8.8

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

Additional data points verified	Comment
No additional data verified	Financial values are verified by third party and published annually. Scope 1 emissions of Bulgaria plant are verified by a third party according to EU ETS rules and published annually. The report is enclosed in CC 4.1.

CC8.9

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

No

CC8.9a

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

Further Information

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

CC9.1

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

Yes

CC9.1a

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

Country/Region	Scope 1 metric tonnes CO2e
Bulgaria	357280
Turkey	3608007

CC9.2

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

By business division

CC9.2a

Please break down your total gross global Scope 1 emissions by business division

Business division	Scope 1 emissions (metric tonnes CO2e)
Glass production	2070729
Soda and chromium production	1804488
Other	90070

CC9.2b

Please break down your total gross global Scope 1 emissions by facility

Facility	Scope 1 emissions (metric tonnes CO2e)	Latitude	Longitude

CC9.2c

Please break down your total gross global Scope 1 emissions by GHG type

GHG type	Scope 1 emissions (metric tonnes CO2e)

CC9.2d

Please break down your total gross global Scope 1 emissions by activity

Activity	Scope 1 emissions (metric tonnes CO2e)

Further Information

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

CC10.1

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

Yes

CC10.1a

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

Country/Region	Scope 2, location-based (metric tonnes CO2e)	Scope 2, market-based (metric tonnes CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low carbon electricity, heat, steam or cooling accounted in market-based approach (MWh)
Bulgaria	47878	0	103320	0
Turkey	477883	0	1204187	0

CC10.2

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

By business division

CC10.2a

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

Business division	Scope 2, location-based (metric tonnes CO2e)	Scope 2, market-based (metric tonnes CO2e)
Glass production	497624	0
Soda and chromium production	3235	0
Other	53649	0

CC10.2b

Please break down your total gross global Scope 2 emissions by facility

Facility	Scope 2, location-based (metric tonnes CO2e)	Scope 2, market-based (metric tonnes CO2e)

CC10.2c

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

Activity	Scope 2, location-based (metric tonnes CO2e)	Scope 2, market-based (metric tonnes CO2e)

Further Information

Page: CC11. Energy

CC11.1

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

More than 25% but less than or equal to 30%

CC11.2

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

Energy type	MWh
Heat	0
Steam	0
Cooling	0

CC11.3

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

14186679

CC11.3a

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

Fuels	MWh
Natural gas	14149515
Liquefied petroleum gas (LPG)	14214
Diesel/Gas oil	9669
Other: Total of subsidiary fuels	13281

CC11.4

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

Basis for applying a low carbon emission factor	MWh consumed associated with low carbon electricity, heat, steam or cooling	Emissions factor (in units of metric tonnes CO2e per MWh)	Comment

CC11.5

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

Total electricity consumed (MWh)	Consumed electricity that is purchased (MWh)	Total electricity produced (MWh)	Total renewable electricity produced (MWh)	Consumed renewable electricity that is produced by company (MWh)	Comment
1204187	1131808	1886622	0	0	

Further Information

Page: CC12. Emissions Performance

CC12.1

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

Increased

CC12.1a

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

Reason	Emissions value (percentage)	Direction of change	Please explain and include calculation
Emissions reduction activities	0.5	Decrease	Decreasing specific energy consumption has been achieved through combination of a number of energy efficiency projects and energy saving actions/measures taken over the time. (All the details are given in Answer 3.3b) In 2016 15.500 ton CO2 emissions were reduced by energy efficiency projects and total CO2 emissions (scope 1+2) was 4375861 in 2015, therefore %0,3 reduction is achieved.
Divestment			
Acquisitions			
Mergers			
Change in output	3.5	Increase	One of the main differences is that in 2016, total production has increased. This has resulted in 3,5% increase in total CO2 emissions.
Change in methodology			
Change in boundary			
Change in physical operating conditions			
Unidentified			
Other			

CC12.1b

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

Location-based

CC12.2

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

Intensity figure =	Metric numerator (Gross global combined Scope 1 and 2 emissions)	Metric denominator: Unit total revenue	Scope 2 figure used	% change from previous year	Direction of change from previous year	Reason for change
0.00069	metric tonnes CO2e	6500000000	Location-based	7	Decrease	Decrease of intensity figure is a result of increase in total revenue compared to 2015 and emission reduction activities performed in 2016.

CC12.3

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

Intensity figure =	Metric numerator (Gross global combined Scope 1 and 2 emissions)	Metric denominator	Metric denominator: Unit total	Scope 2 figure used	% change from previous year	Direction of change from previous year	Reason for change
407	metric tonnes CO2e	full time equivalent (FTE) employee	11031	Location-based	4	Decrease	Decrease of intensity figure is a result of increase in FTE value compared to 2015 and emission reduction activities performed in 2016.

Further Information

Page: CC13. Emissions Trading

CC13.1

Do you participate in any emissions trading schemes?

Yes

CC13.1a

Please complete the following table for each of the emission trading schemes in which you participate

Scheme name	Period for which data is supplied	Allowances allocated	Allowances purchased	Verified emissions in metric tonnes CO2e	Details of ownership
European Union ETS	Fri 01 Jan 2016 - Sat 31 Dec 2016	295904	372863	356858	Facilities we own and operate

CC13.1b

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

Trakya Glass Bulgaria EAD (TGB), which is the subsidiary of Şişecam, has been participating in EU-ETS. Under the 'cap and trade' principle, a certain number of allowances (EUA) have been allocated to TGB, since 2007.
Beginning from 2008, the balance of the emission-permit level has being followed continuously by Şişecam finance and environmental experts and we have been kept in touch with consultant agencies to evaluate the most suitable trading options/risks for us and to fulfill the obligations from the Directive 2003/87/EC of The European Parliament and of The Council and the Kyoto Protocol. For the new period; financial evaluations for trading options will be continued in collaboration with

carbon trade agencies.

CC13.2

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

No

CC13.2a

Please provide details on the project-based carbon credits originated or purchased by your organization in the reporting period

Credit origination or credit purchase	Project type	Project identification	Verified to which standard	Number of credits (metric tonnes CO2e)	Number of credits (metric tonnes CO2e): Risk adjusted volume	Credits canceled	Purpose, e.g. compliance

Further Information

Page: CC14. Scope 3 Emissions

CC14.1

Please account for your organization’s Scope 3 emissions, disclosing and explaining any exclusions

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
Purchased goods and services	Relevant, not yet calculated				
Capital goods	Not relevant, explanation provided				Not considered as a relevant category in terms of emissions due to its negligible proportion among Şişecam activities.
Fuel-and-energy-related activities (not included in Scope 1 or 2)	Not relevant, explanation provided				All the fuel and energy related activities were reported under Scope 1 and Scope 2.
Upstream transportation and distribution	Relevant, not yet calculated				
Waste generated in operations	Not evaluated				
Business travel	Relevant, not yet calculated				
Employee commuting	Relevant, not yet calculated				
Upstream leased assets	Relevant, not yet calculated				
Downstream transportation and distribution	Relevant, not yet calculated				
Processing of sold products	Not relevant, explanation provided				The vast majority of Şişecam products are ready to be consumed or distributed. Only a part of glass products (mostly flat glass and a few part of container glass) are processed. However, reliable figures are difficult to obtain due to wide range of large and small workshops
Use of sold products	Not relevant, explanation provided				Glass which is the main field of Şişecam Group is one of the most sustainable products. Formed and finished glass products are ready to use and do not directly emit or cause any greenhouse gas emissions

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
End of life treatment of sold products	Not evaluated				
Downstream leased assets	Not relevant, explanation provided				Not considered as a relevant category in terms of emissions due to its negligible proportion among Şişecam activities.
Franchises	Not evaluated				
Investments	Not relevant, explanation provided				All the investments are operationally controlled by Şişecam itself and defined in organizational boundaries. Therefore; scope 1 and scope 2 emissions of all the active (operational) Şişecam investments are reported under Scope 1 and Scope 2.
Other (upstream)					
Other (downstream)					

CC14.2

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

No emissions data provided

CC14.2a

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

Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/Section reference	Relevant standard	Proportion of reported Scope 3 emissions verified (%)

CC14.3

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

No, we don't have any emissions data

CC14.3a

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

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

CC14.4

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

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

CC14.4a

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

(i) Methods: Şişecam Group's engagement strategy is based on data and information sharing. Sisecam provides requested information regarding to Group's climate change strategy and energy saving activities through CDP Supply Chain Program, Questionnaires of Spesific Customers, Sustainability Reports and IFC/EBRD Reports (ii) Strategy: Group is prioritizing the engagement activities based on customer demands. Measures: Şişecam commits to supply the required information, as reliable and accurate.

CC14.4b

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

Type of engagement	Number of suppliers	% of total spend (direct and indirect)	Impact of engagement

CC14.4c

Please explain why you do not engage with any elements of your value chain on GHG emissions and climate change strategies, and any plans you have to develop an engagement strategy in the future

Further Information

Module: Sign Off

Page: CC15. Sign Off

CC15.1

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

Name	Job title	Corresponding job category
Dilek Bolcan	Environmental Management Manager	Environment/Sustainability manager

Further Information

CDP 2017 Climate Change 2017 Information Request