Siemens AG - Climate Change 2019

C0. Introduction

C0.1

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

Siemens AG – Organization and sustainability management

Siemens is a global powerhouse positioned along the electrification value chain – from power generation, transmission and distribution to smart grid solutions and the efficient application of electrical energy – as well as in the areas of medical imaging and laboratory diagnostics. As of September 30, 2018, Siemens had around 379,000 employees in more than 200 countries/regions. We operate in nearly 300 production and manufacturing plants worldwide. In addition, we have office buildings, warehouses, research and development facilities or sales offices in almost every country/region in the world. We hold leading market positions worldwide in our businesses. We can look back on a successful history spanning more than 170 years, with groundbreaking and revolutionary innovations such as the invention of the dynamo, the first commercial light bulb, the first electric streetcar, the construction of the first public power plant, and the first images of the inside of the human body.

Siemens comprises Siemens AG, a stock corporation under the Federal laws of Germany, as the parent company and its subsidiaries. Our company is incorporated in Germany, with our corporate Headquarters situated in Munich. Siemens operates under the leadership of its Managing Board. The Managing Board is the sole management body and has overall business responsibility in accordance with the German Stock Corporation Act (Aktiengesetz). At all other organizational levels within our company, management responsibility is assigned to individuals who make decisions and assume personal responsibility (CEO principle). This principle establishes clear and direct responsibilities and fosters efficient decision-making.

For the reporting year 2018, Siemens had the following reportable segments: the Divisions Power and Gas; Energy Management; Building Technologies; Mobility; Digital Factory; and Process Industries and Drives as well as the publicly listed subsidiary Healthineers and the separately managed business Wind Power (Siemens Gamesa Renewable Energy, SGRE). The Division Financial Services (SFS) supports the activities of our Industrial Business and also conducts its own business with external customers. As “global entrepreneurs” our Divisions, SGRE and Healthineers carry business responsibility worldwide, including their operating results.

For more than 170 years, we have had a clear commitment to think and act in the interest of future generations. We believe acting responsibly is the only way to achieve a balance between profitable long-term growth, people and planet. Sustainability has been anchored in our company strategy for many years and is one of three key enablers of our strategy program, Vision 2020. This vision is based on our analysis and perspective on climate change, demographic change, urbanization, globalization and digitalization as megatrends that will drive global demand in coming decades. The implementation of our strategy with respect to climate change is reflected in our portfolio as well as our own operations. Within our portfolio in the areas of Electrification, Automation and Digitalization, we aim to provide our customers with technologies, products and solutions in our Environmental Portfolio (EP) that increase our customer’s competitiveness, with a special focus on energy efficiency leading to reduced energy consumption and CO2 emissions. With regard to our own operations, we “walk the talk” and are committed to becoming carbon neutral by 2030. Our decarbonization strategy is implemented in all Siemens Divisions. Our emissions inventory covers direct emissions from sources in the Company’s ownership or under its control, indirect emission from the consumption of purchased electrical energy and district heating as well as emissions from our supply chain.

Furthermore, we are guided by responsible business practices in our interactions with external and internal stakeholders. We are convinced that sustainability is a business opportunity, especially in the sense of energy and resource efficiency, as our company is one of the world’s largest providers of environmental technologies (46% of our total revenue originates from green products and solutions) and further contributes as a key element for our aim to be the employer of choice.

Review period and report boundaries: This CDP response is based on activities during Siemens’ FY 2018 (October 1, 2017 – September 30, 2018), and does not reflect any organizational, strategic or management changes that have been announced after the end of that period. Any exceptions are indicated as such. In general, our fully consolidated companies are all covered by the report. Here, too, possible exceptions regarding the pool of data used are indicated. Minority equity investments are not included in our reporting.

C0.2

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

	Start date	End date	Indicate if you are providing emissions data for past reporting years	Select the number of past reporting years you will be providing emissions data for
Row 1	October 1 2017	September 30 2018	No	<Not Applicable>

C0.3

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

Afghanistan
Albania
Algeria
Angola
Argentina
Armenia
Australia
Austria

Azerbaijan
Bahrain
Bangladesh
Belarus
Belgium
Bolivia (Plurinational State of)
Bosnia and Herzegovina
Brazil
Brunei Darussalam
Bulgaria
Cambodia
Canada
Chile
China
China, Hong Kong Special Administrative Region
China, Macao Special Administrative Region
Colombia
Costa Rica
Cote d'Ivoire
Croatia
Czechia
Denmark
Dominican Republic
Ecuador
Egypt
El Salvador
Estonia
Finland
France
Georgia
Germany
Ghana
Greece
Guatemala
Honduras
Hungary
India
Indonesia
Iran (Islamic Republic of)
Ireland
Israel
Italy
Japan
Jordan
Kazakhstan
Kenya
Kuwait
Latvia
Libya
Lithuania
Luxembourg
Malaysia
Mexico
Mongolia
Montenegro
Morocco
Mozambique
Myanmar
Netherlands
New Zealand
Nigeria
Norway
Oman
Pakistan
Panama
Peru
Philippines
Poland
Portugal
Qatar
Republic of Korea
Republic of Moldova
Romania
Russian Federation
Saudi Arabia
Serbia
Singapore
Slovakia
Slovenia
South Africa
Spain

Sweden
Switzerland
Taiwan, Greater China
Thailand
The former Yugoslav Republic of Macedonia
Tunisia
Turkey
Turkmenistan
Ukraine
United Arab Emirates
United Kingdom of Great Britain and Northern Ireland
United Republic of Tanzania
United States of America
Uruguay
Uzbekistan
Venezuela (Bolivarian Republic of)
Viet Nam
Zambia

C0.4

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

C0.5

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

C1. Governance

C1.1

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

C1.1a

(C1.1a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for climate-related issues.

Position of individual(s)	Please explain
Chief Sustainability Officer (CSO)	Member of the Managing Board / Chief Sustainability Officer: Since sustainability is a core element of our strategy, our sustainability activities are led by the Chief Sustainability Officer (CSO), a member of our Managing Board, who is also the Chief Operating Officer (COO) and the Chief Technology Officer (CTO) for Siemens. Within his responsibility, he is leading the Sustainability Board, where e.g. climate change targets, KPIs or risk and opportunities are reviewed on a regular basis. For this reporting year, climate change was on the agenda every single board meeting – which means on a quarterly basis (see 1.2a)
Chief Operating Officer (COO)	Member of the Managing Board / Chief Sustainability Officer: Since sustainability is a core element of our strategy, our sustainability activities are led by the Chief Sustainability Officer (CSO), a member of our Managing Board, who is also the Chief Operating Officer (COO) and the Chief Technology Officer (CTO) for Siemens. Within his responsibility, he is leading the Sustainability Board, where e.g. climate change targets, KPIs or risk and opportunities are reviewed on a regular basis. For this reporting year, climate change was on the agenda every single board meeting – which means on a quarterly basis (see 1.2a)
Board-level committee	Siemens Sustainability Board (SSB) chairs consisting of representatives from the Managing Board (4), Divisions (businesses), Countries and Functions (e.g. Human Resources). The SSB is the central sustainability steering committee and the second highest institution in Siemens, meeting quarterly to direct our sustainability activities and decide on initiatives such as related climate change. It reports to the Management Board if necessary.
Other C-Suite Officer	Managing Director and Member of the Labor Board: Siemens integrates its company-wide governance for “Environmental Protection, Health Management and Safety“ into the EHS unit under the leadership of the Director of Labor. The overall sustainability activities are supported by two environmental protection programs: "Serve the Environment" (StE) for industrial environmental protection and "Product Eco Excellence" for environmental protection related to products. Since FY 2012, both have been running and have been reconfirmed in FY 15 and extended to 2020. Our goal is to improve our sustainable performance. The energy efficiency target of StE is an integral part of our CO2-neutral program, which aims to create a net carbon footprint in our own business by 2030. We encourage our staff to participate in our programs in all key markets through training and workshops.
Other, please specify (CTO)	Member of the Managing Board / Chief Sustainability Officer: Since sustainability is a core element of our strategy, our sustainability activities are led by the Chief Sustainability Officer (CSO), a member of our Managing Board, who is also the Chief Operating Officer (COO) and the Chief Technology Officer (CTO) for Siemens. Within his responsibility, he is leading the Sustainability Board, where e.g. climate change targets, KPIs or risk and opportunities are reviewed on a regular basis. For this reporting year, climate change was on the agenda every single board meeting – which means on a quarterly basis (see 1.2a)

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 – some meetings	Reviewing and guiding strategy Reviewing and guiding annual budgets Setting performance objectives Monitoring implementation and performance of objectives Monitoring and overseeing progress against goals and targets for addressing climate-related issues	Climate change is a key challenge that Siemens has been tackling for over a decade. We are committed to making an important contribution to the global economy's decarbonization. Siemens works to reduce GHG emissions throughout our entire value chain – in the supply chain, in our own operations, and through the goods and services, we provide to our customers. In September 2015, we launched our global "CO2-neutral program" regarding our own operations. Based on a positive business case, we plan to have the footprint of our own operations by 2020 compared to 2014 and become carbon neutral by 2030. Progress towards this goal is regularly presented by the Sustainability Director or Head of the Carbon Neutral Program to the Siemens Sustainability Board (SSB). As such, the SSB reviews and guides the carbon neutral strategy, sets performance objectives and monitory/oversees progress against this goal incl. target setting to address the CO2N program and thus climate change issues. The SSB is Siemens ' central management committee for sustainability and consists of management board, divisions, countries and business functions representatives. Our Chief Sustainability Officer (CSO) who is a member of our Management Board and chairs the SSB leads all sustainability activities. Themes are selectively brought to the Management Board meetings if required. Since climate change is not a risk for all our businesses, the issue is not scheduled at all Board meetings, because a company of Siemens size has many other subjects to discuss. However, details of the topic, as well as our Carbon Neutral Program, are discussed in the SSB meetings, and if major drawbacks were reported, action would be taken. Within the current FY19 climate change has so far been on the agenda for every single sustainability meeting and for every four in the FY2018 reporting with a focus on the update of the Carbon Neutral Program, the Environmental Portfolio, carbon pricing / carbon credits and scope 3 emissions in our supply chain. The Sustainability Committee also regularly discusses other areas of sustainability management (e.g. in our environmental programs or supply chain activities). Country CEOs present progress on their country plans from time to time. All this is accomplished in the presence of selected Board members (see C 1.1a).

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
Sustainability committee	Both assessing and managing climate-related risks and opportunities	Quarterly
Other, please specify (Sustainability Director)	Both assessing and managing climate-related risks and opportunities	More frequently than quarterly
Business unit manager	Both assessing and managing climate-related risks and opportunities	As important matters arise
Chief Sustainability Officer (CSO)	Both assessing and managing climate-related risks and opportunities	More frequently than quarterly
Chief Operating Officer (COO)	Both assessing and managing climate-related risks and opportunities	More frequently than 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).

The importance we attach to sustainability is evident in how it is embedded into our organization, our programs and our actions. Sustainability is managed from top down to bottom up–from management to operational responsibility in various units. Sustainability management is a company-wide effort that is integrated in our corporate culture and is expressed through our Vision 2020 + Strategy. Our Chief Sustainability Officer (CSO), who is a member of our Management Board and as such COO and CTO, leads all sustainability activities. This individual chair the Siemens Sustainability Board (SSB) – a sustainability committee , which is Siemens ' central sustainability steering committee and consists of managing board representatives, divisions, countries, and corporate functions such as Environmental, Health & Safety. It meets every quarter to monitor and discuss sustainability activities under our corporate strategy and takes appropriate action and initiatives. In this respect, the SSB is responsible for our strategic response to climate change issues. It also monitors internally and with our customers and supply chain our decarbonization efforts. In FY 2018, all the SSB meetings included decarbonization, such as progress in our carbon-neutral program or environmental portfolio, and emissions of scope 3 within our supply chain. Where climate risks and opportunities do not yet fall under our corporate risk management process (see C2), the SSB can bring those topics to its agenda.

The Sustainability Director reports directly to the Chief Sustainability Officer and manages the Department of Sustainability, which is responsible for driving sustainability within Siemens and coordinating business-wide sustainability activities, programs and actions. Throughout the organization, sustainability is further anchored by our global network of Country Sustainability Managers as well as Divisions whose role is to support their CEOs in implementing sustainability at local level. This ensures the full and correct implementation of all measures and initiatives. Additionally, to their role, by the respective units or functions (EHS, Supply Chain, etc.). For instance, based on ISO14001, the environmental manager is responsible for regularly assessing and managing environmental issues, including emissions reduction, and its reports material issues to the respective management.

C1.3

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

Yes

C1.3a

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

Who is entitled to benefit from these incentives?
Board/Executive board

Types of incentives
Monetary reward

Activity incentivized
Other, please specify (Sustainability-conscious management)

Comment
The remuneration system for Siemens' Managing Board is intended to provide an incentive for successful corporate management with an emphasis on sustainability. Managing Board members are expected to make a long-term commitment to and on behalf of the Company and may benefit from any sustained increase in the Company's value. For this reason, a substantial portion of their total remuneration is linked to the long-term performance of Siemens stock. The components of compensation – base compensation, variable compensation (Bonus) and long-term stock-based compensation – are weighted equally, and each comprises about one-third of target compensation.
Variable compensation (Bonus) is based on the Company's business performance in the past fiscal year. The Bonus depends on the achievement of three equally weighted target parameters: return on capital employed, earnings per share and individual targets (which can also include specific innovation, sustainability and other components). The Long-term stock-based compensation is based on the performance of Siemens stock relative to the stock of competitors – at present – five competitors (ABB, Eaton, General Electric, Mitsubishi Heavy Industries and Schneider Electric). Changes in the share price are measured on the basis of a twelve-month reference period (compensation year) over three years (performance period), while Stock Awards are restricted for a period of four years. This also reflects the performance in all relevant areas (incl. innovations).

Who is entitled to benefit from these incentives?
Corporate executive team

Types of incentives
Monetary reward

Activity incentivized
Emissions reduction target

Comment
Company fleet: In general, the selection of vehicles is dependent on the CO2 emissions. Globally, all Fleet Policies do consider this essential topic. Senior Managers that are entitled to a company car are incentivized financially to select a vehicle with lower CO2 emissions than a given reference value and penalized financially if a vehicle is selected with higher emissions. The reference value was lowered from year to year. A "Mobility Incentive" is paid if the senior manager refrains from the option to use a company car in order to encourage the use of public transportation. Currently, almost 2,400 senior managers are covered by this regulation and approximately 21% opted for the "Mobility Incentive" in Germany.

Who is entitled to benefit from these incentives?
All employees

Types of incentives
Recognition (non-monetary)

Activity incentivized
Efficiency project

Comment
The "Werner von Siemens Award" is Siemens' annual global company award. In the tradition of our founder, it honors Siemens colleagues who have made outstanding contributions to driving our business and inspiring people – in line with the priorities and goals of Vision 2020+ and Siemens' Ownership Culture. Exemplary initiatives/ projects will be acknowledged and rewarded with special attention of a pre-defined group of senior managers and experts across Siemens. The success stories are also promoted to the wider Siemens audience. The defined four categories allow applications for a variety of initiatives, including emission reduction, energy reduction and efficiency reduction projects. In FY 18, there were over 765 projects coming from our employees in Werner von Siemens Award. Some of them, for instance, have been correlated with reducing CO2. "Sustainable Future–Growing business by reducing the Carbon footprint", which aims at developing a global EHS portal that provides emission data (CO2 & NOx) and emission cuts related to our products for countries across the world. Another example is the project "Saving 70% CO2 emissions from Siemens' Czech Republic", which saved 70% CO2 emissions in 2018 compared to 2014, with further savings planned in the coming years. Additionally, we also have an app project called "Own your CO2" where Siemens partnered with Joulebug to record employees' emissions in an easy and fun environment for their daily sustainable activities. This project aims to raise employee awareness of reducing carbon footprint, saving water, energy, and waste.

Who is entitled to benefit from these incentives?
All employees

Types of incentives
Monetary reward

Activity incentivized
Emissions reduction project

Comment
Siemens encourages its employees to come up with innovative ideas as part of its 3i (Ideas, Impulses and Initiatives) process. Suggestions relating to occupational health and safety and to environmental protection within the company are particularly important. Many of the ideas submitted are about energy efficiency in buildings and factories. All employees are entitled to participate and a monetary reward is given relative to the value add/cost saving potential of the proposed idea.

C2. Risks and opportunities

C2.1

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

	From (years)	To (years)	Comment
Short-term	0	1	The time horizon for the report of expected development is one year.
Medium-term	1	3	Identification aims at detecting the relevant business risks across the entire organization as possible deviations from the company's objectives. Risks are relevant for the ERM process (Enterprise Risk Management) as long as their likelihood of occurrence and / or their impact is not certain. A time horizon of three years (i.e. current and next two fiscal years) has to be considered.
Long-term	3	100	Our ERM radar is a long-term forward-looking feature within the ERM framework to enable the Business Fields, Lead Countries and Corporate Units to monitor emerging risks and opportunities and potential game-changing topics going beyond the normal three-year time horizon. Assessment is based on impact and velocity with very low formal requirements.

C2.2

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

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

C2.2a

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

	Frequency of monitoring	How far into the future are risks considered?	Comment
Row 1	Six-monthly or more frequently	>6 years	The Managing Board's risk management policy is based on a philosophy of sustainable growth and value creation while avoiding and managing inappropriate risks. Our organizational and accountability structure requires each of our respective Industrial Business, Financial Services (SFS), Regions, and Corporate Units to implement risk management programs tailored to their specific industries and responsibilities in line with overall policy. Our strategic units Siemens Healthineers and SGRE also follow our group-wide principles of risk management and are individually responsible for adhering to them. Siemens Risk Management is based on a comprehensive, integrated, interactive and management oriented ERM approach that addresses both risks and opportunities. Additional features in the ERM framework allow our businesses to monitor emerging risks, opportunities and potential game-changing issues (e.g. climate change) beyond the usual 3-year horizon.

C2.2b

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

With our Enterprise Risk Management process (ERM), we describe risks that could have a material adverse effect on our business, financial condition (effects on assets, liabilities and cash flows), results of operations and reputation. The order in which the risks are presented in each of the four categories (Strategic Risks, Operational Risks, Financial Risks and Compliance Risks) reflects Siemens ' estimated relative risk-related exposure and provides an indication of the current importance to us of the risks. Within the ERM framework, climate change is not a separate category. It is considered among these four areas under risk identification. For instance, Siemens considers shifting fossil fuels to renewable sources as market risk. Due to the size and diversity of our operations, the definition of "substantial risk" depends on multiple (qualitative and quantitative) factors Furthermore, we regularly identify, evaluate and respond to opportunities that present themselves in our various fields of activity (e.g. Climate Change). In 2018, for instance, with our environmental portfolio, we managed to reduce 609 (million metric ton) CO2 at customer sites. Moreover, all major sites are certified ISO 14001 and thus undergo an energy risk assessment including the applicable legislation (current and future), which is highly correlated to climate change. Whether it shows significance level, we then evaluate it within the ERM.

Principles of Risk Identification:

The management of Business Fields, Lead Countries and the Heads of the Units of Corporate Core and Global Services are responsible for providing all relevant risks for the respective unit. The completeness of the local register is a basic principle. When identifying a potential risk which might impact the entity's business objectives, it needs to be decided whether the subject should be seen as a risk or as an opportunity. It must then be adequately documented in the respective register with cause and effect. The description should be as clear as possible to avoid risks having more than one cause. To complement the root cause description, adding the triggering event is essential.

Top-Down Risk Identification:

The top-down perspective involves management with a broad overview of the business in the respective organization and is considered in various stages of the ERM process. ERM workshops are conducted once a year with the aim of discussing top-down topics by reflecting the existing risk profile. Starting with a corporate process, the top-down perspective is cascaded from the corporate level to business fields and leading countries. Its output is presented to the Managing Board to decide on relevant top-down topics (e.g. Climate Change, Sanctions Regimes) to be provided as input to the Business and Country workshops. For example, this could include the discussion of emerging trends and concerns (risk and opportunity scenarios) potentially affecting Siemens ' business objectives, which were not considered before. As we see climate change as a huge business opportunity for Siemens, it is integrated as a top-down topic since 2016.

Bottom-Up Risk Identification:

The bottom-up perspective involves people in the organization who are close to day-to-day operations. They identify risks with a view to the achievement of their objectives. The implementation of an appropriate bottom-up risk management process is mandatory but stays within the responsibility of the management at the respective organizational level. An example of a bottom-up risk is that customers request re-negotiations or termination of existing long-term programs. Customers cannot efficiently operate combined-cycle power plants because of decreasing dispatch rates that result from uncertain gas prices, low pricing for CO2-certificates, support of local coal mining and increasing competition from subsidized renewable energy generation.

Principles of Risk Assessment

Risk assessment prioritize the risks and focus management attention on the most important topics and defines adequate response and monitoring measures. Risks are assessed in impact (potential effect on the company's objectives, if the risk materializes) and likelihood (probability that a given risk occurs with the previously defined impact). ERM methodology considers the net approach. The potential impact of a risk is assessed from a quantitative (financial) or 4 qualitative perspectives: Business Objectives, Media, Regulatory Body, Management Time. For opportunities, only the perspectives Business Objectives and Financial are applicable. The financial impact must be documented unless it cannot be evaluated with reasonable effort. Likelihood and impact scales are the same throughout the whole organization: The most relevant impact perspective determines the final impact score on a range from "marginal" to "major" (substantive).

C2.2c

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

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	In general, our model ERM Categorization provides a scheme to identify and aggregate the organization's business risks, including climate-related risks. It covers a broad spectrum of 'topics' and 'sub-topics'. These topics are reflected in four dimensions – Strategic, Operations, Financial and Compliance. The topics are aligned with the structure of the Policy & Control Masterbook. Current regulation is a sub-topic from "Compliance". Risks arising from non-compliance with the code of conduct, legal, contractual or regulatory requirements. The category current and emerging regulation on emission does impact Siemens. An example of a risk resulting from a current climate change related regulation is F-gas regulation (EU) 517/2014, which includes the reduction of SF6 GHG. Siemens is affected by this regulation. 24 sites are currently using SF6. The reduction of SF6 is one element of our efforts to become carbon neutral by 2030. As such, we achieve a reduction by 27% in comparison to last year (see 7.1a).
Emerging regulation	Relevant, always included	The ERM Categorization Model provides a scheme to identify and aggregate the organization's business risks. It covers a broad spectrum of 'topics' and 'sub-topics'. These topics are reflected in four dimensions – Strategic, Operations, Financial and Compliance. The topics are aligned with the structure of the Policy & Control Masterbook. Emerging regulation is a sub-topic from "Compliance". Risks arising from non-compliance with the code of conduct, legal, contractual or regulatory requirements. An example of a potential risk from emerging regulation are carbon related taxes or prices that are currently strongly discussed in several countries. This trend is considered across our businesses but not yet seen as a risk with substantive impact on Siemens on a global scale. Nonetheless we currently evaluate the potential of CO2 prices and therefore started a CO2 internal carbon pricing pilot in the U.K. (see chapter 11.1). In addition, we aim to be carbon neutral until 2030, which for e.g. included purchase of green electricity. This will mitigate our exposure to carbon taxes / prices.
Technology	Relevant, always included	The ERM Categorization Model provides a scheme to identify and aggregate the organization's business risks, including climate change risks. It covers a broad spectrum of 'topics' and 'sub-topics'. These topics are reflected in four dimensions – Strategic, Operations, Financial and Compliance. The topics are aligned with the structure of the Policy & Control Masterbook. "Technology" is a sub-topic in "Operations". Risks arising from the day-to-day business and relating to the effectiveness and efficiency of the entity´s operations, including performance and profitability goals. An example for a transition risk arising for our technology is the falling battery prices that could potentially impact our gas turbine business. However, this is an opportunity for other parts of our business. For instance, Fluence has installed in the UK a 100MW as a peak load provider. Another example for a risk but also an opportunity for our technology is digitalization. As it is one of the most important trends for Siemens, we treat is as a separate risk theme within ERM. With digitalization we see an enormous potential to enhance low-carbon technologies to meet our customers' needs and generate a positive impact in our society.
Legal	Relevant, always included	The ERM Categorization Model provides a scheme to identify and aggregate the organization's business risks. It covers a broad spectrum of 'topics' and 'sub-topics'. These topics are reflected in four dimensions – Strategic, Operations, Financial and Compliance. The topics are aligned with the structure of the Policy & Control Masterbook. Legal regulation a sub-topic from "Compliance". Risks arising from non-compliance with the code of conduct, legal, contractual or regulatory requirements. An example of a legal risk resulting climate change related regulation is F-gas regulation (EU) 517/2014, which includes the reduction of SF6 GHG. Siemens is affected by this regulation. 24 sites are currently using SF6. The reduction of SF6 is one element of our efforts to become carbon neutral by 2030. As such, we achieve a reduction by 27% in comparison to last year (see 7.1a).
Market	Relevant, always included	The ERM Categorization Model provides a scheme to identify and aggregate the organization's business risks, including climate-related risks. It covers a broad spectrum of 'topics' and 'sub-topics'. These topics are reflected in four dimensions – Strategic, Operations, Financial and Compliance. The topics are aligned with the structure of the Policy & Control Masterbook. "Market" is a sub-topic from "Strategic". An example of market risk concerns is related to our power generation business, which in FY2018 is very competitive on the market. Global energy trends continue to reduce overall market demand for the Division's offerings structurally, resulting in declining large turbine new-unit business, corresponding price pressure due to structural overcapacity and aggressive competitive behavior. Overall, we expect that markets remain challenging, with current low volumes, especially in the segment of large gas turbines. Volume decreased significantly in that segment during FY2018, primarily due to customer delays in large projects in America, the Middle East and high price pressures as a result of intense competition. Customers have also been moderate as a result of continued weak energy demand growth combined with uncertainty about regulatory developments. By contrast, small and medium-sized gas turbines are expected to continue growth, especially in countries with less developed power infrastructure. On the steam turbine market for power generation, volumes decreased from an already low basis of confrontation year on year due to a continuous shift from coal-fired to gas-fired and renewable energy generation, and to carbon emissions regulation, as in China. This development is expected to continue in FY2019. The industrial steam turbine markets have shown slight growth in FY2018. However, the market segment is expected to be flat in FY2019.
Reputation	Relevant, always included	We understand that the reputation of all organizations is critical where positive perception can bring significant strategic advantage over competitors and are the most valuable asset for every business. In this regard, the adverse effect on our business, financial condition (including effects on assets, liabilities and cash flows), results of operations and reputation. Reputation risks are thus assessed in all the four dimensions – Strategic, Operations, Financial and Compliance and not listed as a separate risk category. For instance, the markets of the power and gas division are strongly affected by changes in national energy regulations, such as support of renewable energy, the security of supply through capacity markets or strategic reserve capacity, carbon pricing and climate change targets, and the modernization of energy and electricity markets. Our division Power and Gas addresses these trends, among others, through its research and development (R & D) and investing activities. This trend does not just impact our strategy but could also lead to a potential reputation risk, if we are not flexible and fast enough. Other, potential general reputational risk is restructuring. We see risks that we may not be flexible enough in adjusting our organizational and manufacturing footprint in order to quickly respond to changing markets. The necessary restructuring might not be executed to the extent or in the time frame planned (e.g. due to local co-determination regulations), limiting our improvements of our cost position with negative profit impacts and the loss of key personnel. Strikes and disputes with unions and workers councils might result in negative media coverage and delivery problems. Additionally, public criticism related to restructuring might negatively impact Siemens' reputation. We mitigate these risks by closely monitoring the implementation of the planned measures, maintain strict cost management, and conduct ongoing discussions with all concerned interest groups.
Acute physical	Relevant, always included	Since Siemens is a global corporation with locations in over 160 countries, there are no acute physical risks that are material on a corporate level. In accordance with the global ERM process, acute physical risks are evaluated regularly by individual units or countries. Nevertheless, all SESIS (Siemens Environmental Safety Information System) sites are analyzed at their water stress level including flood exposure, droughts and the general availability of water. For this evaluation we use external tools such as the WBSCD and Aqueduct Global Water Tool (WRI). Furthermore, we use IPCC data to predict precipitation changes. This evaluation is checked by our Siemens water tool with each site that receives a final analysis and thus receives the best physical risk evaluation possible. We analyzed 85% of the locations in fiscal 2018. One of our major sites–Siemens Erlangen will be equipped with large-scale rainwater protection measures to prevent future flood risks. Protection measures are not limited to SESIS sites. One example of the acute physical risk could include drought in water-stressed areas, for example, we have established a comprehensive water management process at one site in South Africa, including emergency water tanks, installation of water saving equipment and switching to water-friendly gardens.
Chronic physical	Relevant, always included	Since Siemens is a global corporation with locations in over 160 countries, there are no chronic physical risks that are material on a corporate level. In accordance with the global ERM process, chronic physical risks are evaluated regularly by individual units or countries. In the UK climate change is expected to result in more winter rainfall, drier and hotter summers and often harder weather conditions. Siemens has a key role in helping Network Rail to achieve a resilient railway network. For instance, flooding was identified to be a risk and 100-year flood predictions were used to identify key locations where REBs (Relocatable Equipment Building) needed to be raised onto platforms to reduce risk and impact of flooding on the equipment.
Upstream	Relevant, always included	Since Siemens is a global corporation with a diverse set of suppliers and customers in over 160 countries, there are no upstream risks that are material on a corporate level. Upstream risks are assessed by individual Business Units on a regular basis in accordance with the global ERM process. We do not make a distinction of upstream or downstream risks but treat the whole value chain as one. Upstream risks are thus not listed separately, but if a substantial supply chain risk is anticipated, then it would be covered under one of the four categories as mentioned in C2.2b. For example, our EM business identified a potential risk of single source supplier's business interruption impact, if climate change related physical risk would occur and implement respective countermeasures.
Downstream	Relevant, always included	Since Siemens is a global corporation with a diverse set of suppliers and customers in over 160 countries, there are no downstream risks that are material on a corporate level. Downstream risks are assessed by individual Business Units on a regular basis in accordance with the global ERM process. We do not make a distinction of upstream or downstream risks but treat the whole value chain as one. Upstream risks are thus not listed separately. The energy market risk, as described under market risk, for example would be an upstream risk and is classified in ERM as strategy risk.

C2.2d

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

Our ERM approach is based on the worldwide accepted Enterprise Risk Management (ERM) – Integrated Framework (2004) developed by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). It additionally conforms to ISO (International Organization for Standardization) Standard 31000. Please see answer C2.2b for the description of the identification process.

Our ERM is based on a net risk approach. It covers risks and opportunities remaining after the execution of existing control measures. Relevant risks and opportunities are prioritized in terms of impact and likelihood. Reported risks and opportunities are analyzed regarding potential cumulative effects and are aggregated within and for each of the organizations mentioned above. The individual risks/opportunities are clustered into certain risk/opportunity themes, including climate-related manners.

ERM Radar: It is a long-term forward-looking feature within the ERM framework to enable all units to monitor emerging risks, opportunities and potential game-changing topics beyond the normal three-year time horizon. Assessment is based on impact and velocity. Additionally, physical risks are assessed also by external tools such as the WBSCD and Aqueduct Global Water Tool (WRI), where we analyzed all SESIS sites at their water stress level including flood exposure, droughts and the general availability of water.

Climate-related physical and transition risks are considered in our value chain and considered in our ERM framework. They are part of the four categories as described in section 2.2b and/or classified as opportunities as well. For instance, an acute physical risk such as a drought in a water-stressed area at one site in South Africa, are thus managed locally in alignment with the global ERM process.

In climate-related transition opportunity, we extensively focus on hydrogen research and scale up of respective hydrolyzers as one future source of clean, green energy. For example, we started in 2018, a pilot plant for production of "green" hydrogen at the voestalpine site in Linz, Austria. This project “H2FUTURE” is the world’s largest pilot facility to produce green hydrogen, taking energy future and decarbonization of steel production in shape. With a capacity of 6 MW and production of 1,200 cubic meters of "green" hydrogen an hour this is the most effective and advanced plant of its type. CO2-free hydrogen is an important source of energy for sector coupling and can significantly contribute to climate goals. The plant is scheduled to be fully operational by spring 2019.

Another site specific example can be given for our Energy Management business. This division generally benefits from major trends and changes in global electrical power systems for example the decentralization trend: the integration of wind power, photovoltaics, biomass, storage and other intermittent or distributed energy resources into efficient and reliable power networks. For example, on the transitional opportunity side, EM business significantly supports the Galapagos Islands to reach their zero-fossil-fuel aim, since the Islands are threatened by excessive CO2 emissions as well as the constant risk of fuel spills. In 2018, the Isabela Hybrid Power Plant, a pioneering model, was installed on Isabela Island. The new solution engineered for the power plant exploits a variety of energy resources to create a system that can meet the local power demands. It generates a power output of 1.2 MW and comprises 3,024 solar panels, five generators and 84 battery modules, which are all controlled by a smart hybrid control solution. The power plant is based on 100% carbon-neutral energy combining solar energy and biodiesel. With this future-changing project, Siemens manages to provide electricity for 900 households while saving 85 tons of CO2 each month.

In our Annual Report 2018 (Section A.8.4), we disclose the following statement, demonstrating that the evaluation of climate change effects is a high priority for us and part of our business considerations:

“Climate change: While climate change represents a serious risk for business and society, it also presents an opportunity for Siemens to help mitigate its effects. In line with the global agreement in Paris (COP21) that entered into force in November 2016, Siemens strives to support a trend towards reducing CO2 emissions both in our own operations as well as for our customers, based on technologies from our environmental portfolio such as low-carbon power generation from renewable energy sources.

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?

No

C2.3b

(C2.3b) Why do you not consider your organization to be exposed to climate-related risks with the potential to have a substantive financial or strategic impact on your business?

	Primary reason	Please explain
Row 1	Risks exist, but none with potential to have a substantive financial or strategic impact on business	We analyze risks accordingly with NDCs in our ERM approach. We do not anticipate substantial regulatory, physical or other risks associated with our business. Our ERM process evaluates risks that could substantially affect our value chain and potential responses with a time horizon of 3 years. It’s also a long-term future-oriented feature that enables us to monitor emerging risks and opportunities that may occur beyond this time horizon. Risks such as an increase in electricity costs are also considered in this framework. We assess the likelihood that climate change-related risks will be low over the next 3 years and believe that opportunities outweigh the risks. Egg.: our wind turbine business SGRE through higher electrification rate needed as a result of sector coupling that will boost the energy demand and electricity that needs to be transmitted. Moreover, we see the possibility of the generation of hydrogen to be fed into our existing gas-fired power stations. However, the transition to energy is also a challenge for our current business, e.g. for our large gas turbines due to structural overcapacity (see 2.2c in market). But this risk does not pose a significant financial risk to our business. Our ERM lead us to a sustainable resilience against impacts arising from temperature changes, precipitation, drought, cyclones, snow or sea level rise. Physical risks are assessed locally in line with the global process, including the likelihood affected by natural disasters. Egg.: at one site with an increased risk, we have implemented flood protection measures in France. Our supply chain risks are low due to our diversified supplier base, a low likelihood of a climate-change-related risk increase over the next few years. The natural hazard risks are analyzed for selected key suppliers. Egg.: the resilience of our supply chain was proven in the Japan-tsunami/Thailand-flood of 2011. Although the supplier factories were massively destroyed, we could manage our supply network. Since our GHG emissions from Scope 1+2 are relatively small (~1.6Mt, section 6), we consider that our own activities are not significantly exposed to regulatory hazards. We consider CO2 to be a countermeasure to higher carbon prices. Whichever preferences consumers develop, our portfolio is wide-ranging, allowing us to move our focus areas relatively quickly to respond to consumer behavior.

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?
Customer

Opportunity type
Products and services

Primary climate-related opportunity driver
Development and/or expansion of low emission goods and services

Type of financial impact
Increased revenue through demand for lower emissions products and services

Company-specific description
Our Environmental Portfolio (EP) represents our biggest contribution to climate change mitigation. The EP is part of Siemens' response to global challenges such as climate change, scarcity of natural resources and environmental pollution. The Environmental Portfolio consists of products, systems, solutions, and services (Environmental Portfolio elements) that meet one of our selection criteria, namely energy efficiency and renewable energy – for example smart metering equipment. Revenues of the Environmental Portfolio amounted to 38.6 bn in FY 2018, which is 46% of total revenues. While the EP elements reduce impact on the environment and emissions of carbon dioxide and other greenhouse gases (defined together in the following as carbon dioxide emissions) they directly influence SDG 7 "Affordable and Clean Energy", SDG 8 "Decent Work and Economic Growth", SDG 9 "Industry, Innovation and Infrastructure", SDG 11 "Sustainable Cities and Communities", SDG 12 "Responsible Consumption and Production" as well as SDG 13 "Climate Action". The reduced level of the environmental impact is measured by carrying out comparisons with reference solutions (baselines) (see C3.1c).

Time horizon
Short-term

Likelihood
Virtually certain

Magnitude of impact
High

Are you able to provide a potential financial impact figure?
Yes, a single figure estimate

Potential financial impact figure (currency)
38600000000

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

Explanation of financial impact figure
Energy efficiency and annual customer CO2 reduction are assessed by carrying out a comparison with a reference solution (baseline). Siemens product, system, solution or service are compared to either an average of installations employed for the same or similar purpose, to a reference technology or to an initial situation at the customer. E.g. combined cycle power plants (CCPP) are compared with the average global GHG emissions factor for electricity generation. A highly efficient CCPP (efficiency rate >60%) emits only 348g CO2/kWh compared to the global power generation emission factor (incl. all primary energy carriers) of 554g CO2/kWh. The delta is than multiplied by installed capacities and operating hours p.a.. EP portfolio revenue amounted to € 38.6 billion in FY18 (46% of revenue), slightly less than FY17 (38.7) due to decreasing power generation portfolio. In total, we have helped our customers to mitigate 73 million tons of CO2, a substantial increase to FY17 (see comments).

Strategy to realize opportunity
Our Environmental Portfolio (EP) is our major contribution to the mitigation of climate change. It is part of our response to global challenges such as climate change, scarcity of resources, and pollution of the environment. We intend to help our customers mitigate their CO2 footprint, reduce energy costs and improve profitability through higher productivity, among other things. In addition to its environmental advantages, our EP allows us to compete successfully in attractive markets and generate profitable growth, highlighting Siemens ' strategic focus on energy efficiency and climate and environmental technologies. The EP includes products, systems, solutions and services (EP elements), which comply with one of the criteria, energy efficiency or renewable energies. SDGs 7, 8, 9, 11, 12 and 13 are directly affected by the EP. The EP grew from 24% in FY08 to 46% in FY18 (numbers as reported) over time, generating profitability. With total EPs installed on customers since 2002, which are still in use today, the accumulated annual customer CO2 emissions have been mitigated by 609 million tons in FY 2018. Only between last financial year and FY2018 the share declined by 1% due to the decline in revenue generated from our power generation unit. Aggregated costs to realize opportunity are not available, but we disclose our R&D expenses, which were 5.6'' in FY2018 (see below comment).

Cost to realize opportunity
5600000000

Comment
We had a substantial increase of customer mitigation emissions compared to FY17 (59 million tons of CO2), mainly due to the Egyptian mega-project through power generation. In July 2018 this project concluded with an additional 14.4GW installation on Egypt's national grid, which is enough energy to meet the electricity needs of more than 40 million people and helps Egypt save more than 1 billion annual fuel costs.

Aggregated costs to realize opportunity are not available. We see our R&D expenses as one way to realize business opportunities through investment in new technologies and adhering to our customer and market needs. In fiscal 2018, we reported research and development expenses of € 5.6 billion, compared to € 5.2 billion in fiscal 2017. The resulting R & D intensity, defined as the ratio of R & D expenses and revenue, was 6.7 %, thus above the R & D intensity of 6.2 % in fiscal 2016. We do not disclose R&D expenses to EP elements specifically.

Identifier
Opp2

Where in the value chain does the opportunity occur?
Direct operations

Opportunity type

Resource efficiency

Primary climate-related opportunity driver
Other

Type of financial impact
Reduced operating costs (e.g., through efficiency gains and cost reductions)

Carbon Neutral program - Energy Efficiency, distributed energy systems, fleet emissions, green energy procurement

Company-specific description
Regarding our own operations, Siemens launched the global "CO2-neutral" program in September 2015. Based on a positive business case, by 2020, we are planning to halve our own business size compared with 2014 and become carbon-neutral by 2030. By fiscal 2018, we managed to reduce our CO2 emissions by more than 700,000 metric tons versus 2014. Additionally, 19 projects in Europe, North America and Asia were completed in 2018. A total of EUR 52 million has been invested to help us achieve our interim 2020 goal. The program's main levers include the Drive Energy Efficiency Program, leverage distributed energy systems, reduction of fleet emissions and "green" purchase of energy (see 4.1a).

Time horizon
Long-term

Likelihood
Virtually certain

Magnitude of impact
High

Are you able to provide a potential financial impact figure?
Yes, a single figure estimate

Potential financial impact figure (currency)
20000000

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

Explanation of financial impact figure
Between FY 2016 and 2020 we are investing € 100 Mio to improve energy efficiency at our own sites, resulting in ~ € 20 million worth of energy cost savings per year once the program is completed. Our Carbon Neutral program is led by our Corporate Headquarters in collaboration with Functions, Countries and Divisions. Emissions reductions are achieved by four levers (see 4.1a): 1) Energy Efficiency Program; 2) Distributed energy systems; 3) Fleet emissions and 4) Green energy. Those levers are explained below.

Strategy to realize opportunity
1) between FY 2016 and 2020, we are investing € 100 m to improve energy efficiency at our own sites, (cost to realize opportunity resulting in energy cost savings of ~€20 m per year. Example: The new Siemens HQ consumes 90% less electricity than its predecessor and has "green" DGNB Platinum and LEED Platinum certifications. 2) We are expanding our use of distributed energy systems at our sites through combined heat and power plants, solar panels, wind turbines, intelligent energy management systems and energy storage solutions. Our long-term objective is to meet 10% of our demand for electricity through on-site power generation with a high share of renewable energy. One of the first showcases, our Erlangen Campus will be carbon-neutral from day one. 3) Fleet emissions and fuel costs of ~48,000 vehicles are to be reduced by 33% by 2025 (~200,000 t CO2). We will continue to incorporate CO2 emission factors as an integral part of our local car fleet policies around the world. 4) We are increasing the share of electricity we purchase from renewable sources such as wind farms. A significant proportion of sites in Germany, the United States, the United Kingdom, Austria, Spain, the Czech Republic, the Netherlands, and Denmark were already supplied with "green" electricity in fiscal 2018. In fiscal year 2018, the overall coverage of green electricity was 55 %. As a result, more than 500,000 metric tons could be reduced by purchasing electricity from renewable sources.

Cost to realize opportunity
100000000

Comment
We cannot allocate costs for the measures in the Carbon Neutral program to fiscal years. For our energy efficiency measures, between FY 2016 and 2020 we are investing € 100 million to improve energy efficiency at our own sites. For the other measures, the resulting costs (e.g. for green electricity purchase) are covered by savings from installations of Distributed Energy Systems. In total, all other measures are planned to be cost neutral.

Identifier
Opp3

Where in the value chain does the opportunity occur?
Customer

Opportunity type
Energy source

Primary climate-related opportunity driver
Use of lower-emission sources of energy

Type of financial impact
Returns on investment in low-emission technology

Company-specific description
Due to the increased demand for renewable energy, Siemens and Gamesa have decided to create the market leader for renewable energy in 2017: Siemens Gamesa Renewable Energy SA (SGRE) is a leading supplier of wind power solutions to customers all over the globe. A key player and innovative pioneer in the renewable energy sector, we have installed products and technology in more than 90 countries, with a total capacity base of over 89 GW and 23,000 employees. With these efforts, we are a major provider for technical solutions and know-how for the Energy Transition.

Time horizon
Long-term

Likelihood
Virtually certain

Magnitude of impact
High

Are you able to provide a potential financial impact figure?
Yes, a single figure estimate

Potential financial impact figure (currency)
23000000000

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

Explanation of financial impact figure
SGRE has reported €9.1 bn in revenues in FY18 and shows an order entry of €23 bn in the order book. We have installed 6.7 GW of wind energy, helping our customers further reduce their emissions by 18 million tons of CO2. Cumulatively since 1998, more than 89 GW of wind energy has been installed from Siemens Gamesa's wind turbine. This allows our customers to mitigate their carbon footprint by more than 233 million tons of CO2 per year.

Strategy to realize opportunity
To ensure the long-term success of on-shore wind projects, we offer innovative solutions–based on our proven of track record and technological We have nearly 4 decades of onshore and wind turbines experience, a mature value chain with an extensive innovative capability. With our global strategy, we are operating regionally with technology tailored to local needs. For instance, the SGRE Environmental Portfolio supplied 330 MW in the U.S. in December 2018. These turbines will generate enough energy to power more than 100,000 U.S. households.
Moreover, to guide our customers and society in decarbonization, it is essential to comprehend the technological and economic feasibility of a future low-carbon energy system. This includes an understanding of the technological changes needed over the next 30+ years as the costs involved and the knowledge about these steps. As an example, for a country with an ambitious decarbonization plan, we have chosen Germany to show how the transformation could look like with an 80% reduction in GHG emissions and we have published these results. (See section 3.1)

Cost to realize opportunity
166000000

Comment
Aggregated costs to realize opportunity are not available. We see our R&D expenses as one way to realize business opportunities through investment in new technologies and adhering to our customer and market needs. R&D expenses of SGRE amounted to 166 m in FY 2018 from 141 m in FY2017.

C2.5

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

	Impact	Description
Products and services	Impacted	The effect of the identified opportunities is an increased demand from our customers for energy-efficient products. Thus, the Siemens Environmental Portfolio (EP) represents our biggest contribution to climate change mitigation. In addition to its environmental benefits, our EP enables us to compete successfully in attractive markets and generate profitable growth, underlining Siemens ' strategic focus on energy efficiency and climate and environmental protection technologies. The EP, which accounts for 46% of revenue, continually outperforms the growth of our conventional portfolio and thus shows the impact of environmental technologies. Moreover, in FY18, the accumulated annual customer reductions of CO2 generated by elements from the Siemens EP installed since 2008 ('baseline') and still in use saved 609 million metric tons of CO2, which is equivalent to more than 70% of Germany's annual CO2 emissions. The products and solutions we installed in fiscal 2018 alone are cutting our customers' annual CO2 emissions by some 73 million metric tons of CO2. According to our ERM impact scales, the impact is therefore significant – impact magnitude is high. One example of the impact is the increasing demand for efficient and environmentally friendly products such as the SGT5-8000H, the market's first air-cooled H-class gas turbine. About 650,000 fired hours of operating experience make it the most reliable and tested H-class gas turbine technology available today. With a power output of 450 MW in a simple cycle, or 665 MW in combined cycle operation, and a combined cycle efficiency of 61 %, it is one of the most efficient and powerful commercial gas turbines with low operating and lifecycle costs.
Supply chain and/or value chain	Impacted for some suppliers, facilities, or product lines	Since our global supply chain is very diverse and active in over 190 countries, we are not yet substantially impacted on a global scale – hence impact magnitude is low. The projected impact is thus minor, according to our ERM impact scales. In order to be prepared and to analyze potential effects on our supply chain. In autumn 2017, we started a pilot project with some of our major CO2-emitting suppliers, including target CO2 reduction. Within this process, we developed and conducted a training program for selected CO2 information buyers. This project aims to collect suppliers' CO2 information and encourage them reduce their emissions. The first results were very confident: all selected suppliers (all high expenditure and CO2 significance) cooperated and were open to assessing their own CO2 footprint. In each case specific measures (shifting supply of energy from fossil to green as well as relevant measures for the production process (from LED bulbs to investment in new manufacturing equipment) were defined We follow up on a half-year basis to track improvements. In summer 2019, we are currently repeating the 2017-18 survey with extensive contents and a larger number of pilot suppliers (see also C12.1).
Adaptation and mitigation activities	Impacted for some suppliers, facilities, or product lines	Due to our global operations and diverse business activities, we are not yet significantly impacted globally in over 190 countries – hence impact magnitude is low. According to our ERM impact scales, the projected impact is minor. Selected activities occur on local sites where climate change effects such as flooding, or drought have an effect (see our response to CDP Water 2019). For instance, our site in India collects rainwater in underground cisterns during the rainy season. This water is then used in the dry season to recharge groundwater and irrigate green spaces and plants in a nursery. Saplings from the nursery are distributed to employees. The planting of vegetation reduces erosion of soil and serves as a buffer for rainwater. Therefore, with this the eutrophication potential of the waste water is reduced protecting local ecosystems. Additionally, by recycling the water and using it to water green spaces, they are contributing to circular economy. India is a country in which there are cases of economic water stress and not all sewage is treated. With this measure local economic water stress is reduced.
Investment in R&D	Impacted	We see our R&D expenses as one way to achieve business opportunities by investing in new technologies and meeting our customers and market needs. We reported research and development expenses of € 5.6 billion in fiscal 2018 compared to € 5.2 billion in fiscal 2017. We don't expect this trend to change as our focus is on technologies that help our customers achieve their efficiency goals. Since FY17, we have defined 14 core technology fields that are critical to the company's and our customers ' success, such as Connected e-Mobility or Energy Storage. Besides this, we also engage in collaboration with other companies, e.g. Airbus with whom we enable planes designed for 60 to 90 passengers to fly with hybrid-electric propulsion systems–a revolution in aviation. In Linz, Austria, we demonstrated a long-term commitment to decarbonization, along with five other consortia, including Austria's Power Grid, K1-MET, ECN, Voestalpine and VERBUND. These technologies ensure power supply and will be a key to transitioning into a new energy mix and decarbonization. Nevertheless, the magnitude of climate change impact is minor, based on our ERM impact scales.
Operations	Impacted for some suppliers, facilities, or product lines	As with climate change, decarbonization is seen as a further business opportunity. Internally, we are also exploiting the potential to cut our CO2 footprint by 2020, becoming carbon-neutral by 2030 with our carbon neutral program launched in 2015. With it, we make use of resource efficiency, distributed energy, changes in our car fleet and green energy procurement to increase resilience and showcase our products and services (see also our Environmental Portfolio). While at our sites we invest over € 100 million in energy efficiency measures based on a positive business case, all other measures are planned to be cost-neutral. The impact is thus major (high), according to our ERM impact scales.
Other, please specify	Please select	

C2.6

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

	Relevance	Description
Revenues	Not yet impacted	Our ERM process aims for early identification and evaluation of, and response regarding, risks and opportunities that could materially affect the achievement of our strategic, operational, financial and compliance objectives. The time horizon is typically three years . Our Enterprise Risk Management (ERM) is based on a net risk approach, addressing risks and opportunities remaining after the execution of existing control measures. If risks or opportunities have already been considered in plans, budgets, forecasts or the financial statements (e.g. as a provision or risk contingency), they are supposed to be incorporated with their financial impact in the entity's business objectives and timescale. One example are the projected increased investments in renewable energies that affect the financial planning process of our Divisions and Strategic Units, e.g. Siemens Gamesa Renewable Energy. As a consequence, only additional risks arising from the same subject (e.g. deviations from business objectives, different impact perspectives) should be considered for the ERM. We do not see and substantial risk arising from climate change on revenue instead we consider Climate Change to be an opportunity for Siemens. The established processes (e.g. with regards to a further increase in revenues from the Environmental Portfolio) remain also valid for the opportunities we have identified. The financial impact has to be always documented unless it cannot be evaluated with reasonable effort. Likelihood and impact scales are the same throughout the whole organization: The most relevant impact perspective determines the final impact score on a range from "marginal" to "major" (substantive). This Primary Impact Perspective should be adequately reflected in the risk description (e.g. financial impact on a scale from >10m€ to >150m€). The timescales vary from short-term (0-1y) to long-term (3y+). This holds true for all areas of the financial planning processes.
Operating costs	Not yet impacted	Our ERM process aims for early identification and evaluation of, and response regarding, risks and opportunities that could materially affect the achievement of our strategic, operational, financial and compliance objectives. The time horizon is typically three years. Our Enterprise Risk Management (ERM) is based on a net risk approach, addressing risks and opportunities remaining after the execution of existing control measures. If risks or opportunities have already been considered in plans, budgets, forecasts or the financial statements (e.g. as a provision or risk contingency), they are supposed to be incorporated with their financial impact in the entity's business objectives and timescale. One example are the projected increased investments in renewable energies that affect the financial planning process of our Divisions and Strategic Units, e.g. Siemens Gamesa Renewable Energy. As a consequence, only additional risks arising from the same subject (e.g. deviations from business objectives, different impact perspectives) should be considered for the ERM. We do not see and substantial risk arising from climate change on operating costs instead we consider Climate Change to be an opportunity for Siemens. The established processes (e.g. with regards to a further increase in revenues from the Environmental Portfolio) remain also valid for the opportunities we have identified. The financial impact has to be always documented unless it cannot be evaluated with reasonable effort. Likelihood and impact scales are the same throughout the whole organization: The most relevant impact perspective determines the final impact score on a range from "marginal" to "major" (substantive). This Primary Impact Perspective should be adequately reflected in the risk description (e.g. financial impact on a scale from >10m€ to >150m€). The timescales vary from short-term (0-1y) to long-term (3y+). This holds true for all areas of the financial planning processes.
Capital expenditures / capital allocation	Not yet impacted	Our ERM process aims for early identification and evaluation of, and response regarding, risks and opportunities that could materially affect the achievement of our strategic, operational, financial and compliance objectives. The time horizon is typically three years. Our Enterprise Risk Management (ERM) is based on a net risk approach, addressing risks and opportunities remaining after the execution of existing control measures. If risks or opportunities have already been considered in plans, budgets, forecasts or the financial statements (e.g. as a provision or risk contingency), they are supposed to be incorporated with their financial impact in the entity's business objectives and timescale. One example are the projected increased investments in renewable energies that affect the financial planning process of our Divisions and Strategic Units, e.g. Siemens Gamesa Renewable Energy. As a consequence, only additional risks arising from the same subject (e.g. deviations from business objectives, different impact perspectives) should be considered for the ERM. We do not see and substantial risk arising from climate change on capital expenditure instead we consider Climate Change to be an opportunity for Siemens. The established processes (e.g. with regards to a further increase in revenues from the Environmental Portfolio) remain also valid for the opportunities we have identified. The financial impact has to be always documented unless it cannot be evaluated with reasonable effort. Likelihood and impact scales are the same throughout the whole organization: The most relevant impact perspective determines the final impact score on a range from "marginal" to "major" (substantive). This Primary Impact Perspective should be adequately reflected in the risk description (e.g. financial impact on a scale from >10m€ to >150m€). The timescales vary from short-term (0-1y) to long-term (3y+). This holds true for all areas of the financial planning processes.
Acquisitions and divestments	Not yet impacted	Our ERM process aims for early identification and evaluation of, and response regarding, risks and opportunities that could materially affect the achievement of our strategic, operational, financial and compliance objectives. The time horizon is typically three years. Our Enterprise Risk Management (ERM) is based on a net risk approach, addressing risks and opportunities remaining after the execution of existing control measures. If risks or opportunities have already been considered in plans, budgets, forecasts or the financial statements (e.g. as a provision or risk contingency), they are supposed to be incorporated with their financial impact in the entity's business objectives and timescale. One example are the projected increased investments in renewable energies that affect the financial planning process of our Divisions and Strategic Units, e.g. Siemens Gamesa Renewable Energy. As a consequence, only additional risks arising from the same subject (e.g. deviations from business objectives, different impact perspectives) should be considered for the ERM. We do not see and substantial risk arising from climate change on acquisitions and diverstments instead we consider Climate Change to be an opportunity for Siemens. The established processes (e.g. with regards to a further increase in revenues from the Environmental Portfolio) remain also valid for the opportunities we have identified. The financial impact has to be always documented unless it cannot be evaluated with reasonable effort. Likelihood and impact scales are the same throughout the whole organization: The most relevant impact perspective determines the final impact score on a range from "marginal" to "major" (substantive). This Primary Impact Perspective should be adequately reflected in the risk description (e.g. financial impact on a scale from >10m€ to >150m€). The timescales vary from short-term (0-1y) to long-term (3y+). This holds true for all areas of the financial planning processes.
Access to capital	Not yet impacted	Our ERM process aims for early identification and evaluation of, and response regarding, risks and opportunities that could materially affect the achievement of our strategic, operational, financial and compliance objectives. The time horizon is typically three years. Our Enterprise Risk Management (ERM) is based on a net risk approach, addressing risks and opportunities remaining after the execution of existing control measures. If risks or opportunities have already been considered in plans, budgets, forecasts or the financial statements (e.g. as a provision or risk contingency), they are supposed to be incorporated with their financial impact in the entity's business objectives and timescale. One example are the projected increased investments in renewable energies that affect the financial planning process of our Divisions and Strategic Units, e.g. Siemens Gamesa Renewable Energy. As a consequence, only additional risks arising from the same subject (e.g. deviations from business objectives, different impact perspectives) should be considered for the ERM. We do not see and substantial risk arising from climate change on access to capital instead we consider Climate Change to be an opportunity for Siemens. The established processes (e.g. with regards to a further increase in revenues from the Environmental Portfolio) remain also valid for the opportunities we have identified. The financial impact has to be always documented unless it cannot be evaluated with reasonable effort. Likelihood and impact scales are the same throughout the whole organization: The most relevant impact perspective determines the final impact score on a range from "marginal" to "major" (substantive). This Primary Impact Perspective should be adequately reflected in the risk description (e.g. financial impact on a scale from >10m€ to >150m€). The timescales vary from short-term (0-1y) to long-term (3y+). This holds true for all areas of the financial planning processes.
Assets	Not yet impacted	Our ERM process aims for early identification and evaluation of, and response regarding, risks and opportunities that could materially affect the achievement of our strategic, operational, financial and compliance objectives. The time horizon is typically three years. Our Enterprise Risk Management (ERM) is based on a net risk approach, addressing risks and opportunities remaining after the execution of existing control measures. If risks or opportunities have already been considered in plans, budgets, forecasts or the financial statements (e.g. as a provision or risk contingency), they are supposed to be incorporated with their financial impact in the entity's business objectives and timescale. One example are the projected increased investments in renewable energies that affect the financial planning process of our Divisions and Strategic Units, e.g. Siemens Gamesa Renewable Energy. As a consequence, only additional risks arising from the same subject (e.g. deviations from business objectives, different impact perspectives) should be considered for the ERM. We do not see and substantial risk arising from climate change on assets instead we consider Climate Change to be an opportunity for Siemens. The established processes (e.g. with regards to a further increase in revenues from the Environmental Portfolio) remain also valid for the opportunities we have identified. The financial impact has to be always documented unless it cannot be evaluated with reasonable effort. Likelihood and impact scales are the same throughout the whole organization: The most relevant impact perspective determines the final impact score on a range from "marginal" to "major" (substantive). This Primary Impact Perspective should be adequately reflected in the risk description (e.g. financial impact on a scale from >10m€ to >150m€). The timescales vary from short-term (0-1y) to long-term (3y+). This holds true for all areas of the financial planning processes.
Liabilities	Not yet impacted	Our ERM process aims for early identification and evaluation of, and response regarding, risks and opportunities that could materially affect the achievement of our strategic, operational, financial and compliance objectives. The time horizon is typically three years. Our Enterprise Risk Management (ERM) is based on a net risk approach, addressing risks and opportunities remaining after the execution of existing control measures. If risks or opportunities have already been considered in plans, budgets, forecasts or the financial statements (e.g. as a provision or risk contingency), they are supposed to be incorporated with their financial impact in the entity's business objectives and timescale. One example are the projected increased investments in renewable energies that affect the financial planning process of our Divisions and Strategic Units, e.g. Siemens Gamesa Renewable Energy. As a consequence, only additional risks arising from the same subject (e.g. deviations from business objectives, different impact perspectives) should be considered for the ERM. We do not see and substantial risk arising from climate change on liabilities instead we consider Climate Change to be an opportunity for Siemens. The established processes (e.g. with regards to a further increase in revenues from the Environmental Portfolio) remain also valid for the opportunities we have identified. The financial impact has to be always documented unless it cannot be evaluated with reasonable effort. Likelihood and impact scales are the same throughout the whole organization: The most relevant impact perspective determines the final impact score on a range from "marginal" to "major" (substantive). This Primary Impact Perspective should be adequately reflected in the risk description (e.g. financial impact on a scale from >10m€ to >150m€). The timescales vary from short-term (0-1y) to long-term (3y+). This holds true for all areas of the financial planning processes.
Other	Not yet impacted	

C3. Business Strategy

C3.1

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

Yes

C3.1a

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

Yes, qualitative and quantitative

C3.1c

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

Our strategy program Vision 2020+ is based on the megatrends that will drive global markets in the coming decades. Sustainability is one of three Vision 2020+ enablers. This is also reflected in our organizational structure as the Sustainability Office was integrated into the department of Corporate Strategy in 2015.

We regularly discuss sustainability topics with our stakeholders based on their significance. Topics are prioritized by materiality to identify key levers for business opportunities. The results are discussed and approved by the Management Board with the Siemens Sustainability Board (SSB). For example, the carbon neutral target was discussed in the SSB and then released – due to its significance – within the Managing Board in 2015. Climate Change is therefore an integral part of our decision-making processes and reflected in our portfolio (e.g. EP with 46% revenue in FY2018) and our own operations.

Effect of the Paris Agreement: We support the Paris Agreement and believe it will boost low-carbon investment. It affirmed our (short-and long-term) strategy, which is also reflected in a statement by CEOs of 79 companies, which affirmed the responsibility and leadership of the private sector to engage in global efforts such as the Carbon Pricing Leadership Coalition or the WEF Climate CEO Initiative to reduce GHG emissions and transition to a low-carbon, climate-resilient economy.

Risks and opportunities of climate change and a 2°C scenario are analysed as part of our climate strategy (see 2.1). At national level, climate policies are analyzed in line with the 2°C scenario, such as the German plan for a decarbonized economy. We have established a project to analyze various approaches to technology options, costs and investment needs for Germany and now evaluate the EU decarbonization strategy (see 3.1d).

Strategic advantage: our business strategy has an impact, apart from business opportunities and regulatory developments following COP21. Our diverse product range and global presence enables us to balance these effects and to concentrate on low-carbon business opportunities. Consequently, in 2017 we created Siemens Gamesa Renewable Energy SA, the market leader in wind power technologies and renewable energy.

One example of a market necessity which leads to a competitive advantage is our 61.5% efficiency SGT5-8000H gas turbine that is one of the most efficient gas-fired turbines in the world. We have just succeeded in launching the new HL-class, a technology provider with an efficiency of >63% in the short term and >65% in the medium term. First fire scheduled for the beginning of 2020 at a Duke Energy (US) power plant.

Short-term strategy: In 2013, a "Toolkit for Resilient Cities" was developed to support urban decision-makers to analyze the risks and opportunities involved in the development of climate change impacts in cities. We have developed an interactive tool for city performance (CyPT) to help a city achieve its environmental goals and how its decisions affect job creation and growth. More than 25 cities have used the instrument to reduce emissions and improve quality of life (e.g., Vienna or San Francisco).

As cities deal with the lower air quality and health effects, we further developed the tool and created "CyPT Air" in 2017-a tool focusing on air quality indicators and emission levels. After generating an air quality baseline, users can calculate the impact of their city's infrastructure technologies. Built on Siemens ' technology expertise and global database, CyPT Air can calculate the impact of > 80 energy-related technologies and transport on KPIs, such as PM2.5, PM10, NOx etc., to see how air quality can be improved. It also examines other social and economic KPIs, such as CAPEX and OPEX, in order to provide the most effective technological roadmap and policy advice.

Sustainable strategy: a. Environmental Portfolio (EP): we are one of the world's largest environmental technology suppliers, helping our customers to reduce CO2 emissions, reduce energy costs and increase profitability. The EP is our main contribution to mitigating climate change and gives us a strategic advantage over our competitors. Creating our customers ' EP, reporting revenues and CO2 abatement were substantial business decisions in 2009. This approach was further reinforced by the Paris agreement, as the EP takes advantage of low-carbon business opportunities and allows us to compete in attractive markets and create profitable growth. Two key performance indicators, revenue and customer CO2 reduction, reflect our focus on climate change mitigation. The EP is continually challenged and strategically adapted in line with our business strategy.

In FY18 we helped our customers save more than 609 million metric tons of CO2. The size of our cradle-to-gate emissions is more than 25 times or about 10 times New York City's annual carbon emissions. Additionally, the products and solutions we installed in fiscal 2018 alone are cutting our customers' annual CO2 emissions by some 73 million metric tons of CO2.

In Egypt, with the help of Siemens Megaproject, 40 million Egyptians have gained access to a stable and reliable energy supply. In the incredible time of a little over two years, Siemens boosted Egypt's power generation capacity by more than 40%, connecting 14.4 gigawatts to the Egyptian national grid. The company built three highly efficient gas-fired power plants – the largest of their kind in the world. One huge benefit is the savings in fuel costs, which amount to about $1 million per year.

b. Own operations: We started our Carbon Neutral Program in 2015 by reducing our CO2 footprint by 2020 and by 2030. To achieve this, we use four main levers (see 4.1a).

In 2016, we launched our new headquarters in Munich, a certified LEED Platinum building that consumes 90% less energy than the previous facility. Its PV system meets approximately 30% of the demand for electricity. We continue to install our own energy systems at other facilities, e.g. the new Siemens Campus in Erlangen offering floor space of over 280,000 m2 from 2025 onwards. Additionally, by 2018, 19 projects in Europe, North America and Asia were completed. A total of EUR 46 was invested. A total of EUR 52 million was invested. Over the next three years we will be investing € 100 million and expecting accumulated annual savings of € 20 million.

Our long-term business strategy is based on major trends such as electrification, automation and digitalization. In these areas, our R&D investment (€ 5.6 billion in FY 18, up from € 5.2 billion in FY 17) will have an impact in the next few decades. Moreover, in conjunction with Austrian Power Grid, K1-MET, ECN, voestalpine and VERBUND, we have demonstrated our long-term commitment to decarbonization by investing € 18 million in hydrogen energy storage technologies in Linz. These technologies are crucial to the transition towards a new energy mix and decarbonization.

C3.1d

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

Climate-related scenarios	Details
IRENA	In Siemens, the use of climatic scenarios has various facets, and for different purposes are used: 1) corporate strategy 2) Divisional strategy 3) global decarbonization strategy: we use climate scenarios in order to support the Paris Agreement in limiting global warming and to avoid climate change impacts. Decarbonization will transform the whole energy value chain over the next few decades, encompassing energy exploration and transformation, electricity generation, transmission and end-user applications in the middle and long term (until 2030 or 2050). We consider ourselves a leading partner for decarbonization for our customers and society by providing innovative technologies. To be our customers and society's leading decarbonizing partner, the technological and economic viability of a future low-carbon energy system is essential. This includes an understanding of the technological changes required for the next 30 + years, the costs involved and acknowledging when to proceed. To achieve this, we have implemented comprehensive multi-modal simulation tools which we have developed ourselves and have been comparing the results with external research studies and sources that correspond with our scope and timescale (e.g. IRENA, Fraunhofer, IHS, Agora Energiewende, IEA, Heatmap Europe, E3M Lab). For instance, a country with an ambitious decarbonization plan, we chose Germany to show what a transformation with a greenhouse gas emission reduction of at least 80% could look like and published the results of this research. The key findings of this research included: Reducing the greenhouse gas (GHG) emissions by a minimum of 80% by 2050 (relative to 1990) is technically feasible with existing technologies with a similar range to the current annual average system cost • Respective political measures needed to achieve the changes • Required technological shifts focus on the following four major levers: 1. Integration of fluctuating renewable energy with a >80% share of overall generation of electricity by 2050 requiring grid extension, reinforcement and refurbishment, grid service and storage solutions 2. Transformation of conventional electricity generation to flexible, low-carbon energy plants that ensure security of energy supply and stability of system 3. A "sector coupling" approach for heating, transport and the industry via a combination of the electrification and use of synthetic electricity 4. 4. Energy efficiency intensification to reduce the overall demand for primary and end energy across the entire value chain (https:/www.siemens.com/content/dam/webassetpool/mam/tag-siemens-com/smdb/corporate-core/sustainability/decarbonization/siemens-position-decarbonization-energy-transition-2017.pdf). The approach can be transferred to other countries, but the main levers of decarbonization and transition pathways remain the same. The results depend upon input parameters and assumptions. In addition to internal studies, we also contributed to the BDI "Klimapfade 2050" study conducted last year by BCG and Prognos, which aim of reducing greenhouse gas (GHG) emissions in Germany by 2050.
Nationally determined contributions (NDCs)	At Siemens, as a huge and diverse conglomerate, the usage of climate related scenarios has different facets and different scenarios are used for different purposes: 1) Corporate Strategy 2) Division Strategy 3) Decarbonization strategy (global or country-level) Decarbonization strategy (country-level): Within our Business to Society-methodology, we use NDCs for the outside-in analysis to assess a country's sustainable development goals and how they plan to reduce national emissions and adapt to the impacts of climate change. We then match what Siemens is already doing in the country to determine our contribution to their sustainable development on the basis of facts. One example is e.g. the contribution to CO2 emission reduction with Siemens technology on the basis of the NDCs.
Other, please specify (IHS Autonomy, BNEF, IEA NPS and IEA SDS)	1. Corporate Strategy: For our global strategic assumptions, we use mainly IHS Autonomy as our planning scenario, but also Bloomberg New Energy Finance New Economic Outlook and Greenpeace. We also use scenarios as part of our risk management (see C2). We identify the scenarios on the basis of consistency and plausibility. We use them mainly for energy- and mobility-related businesses, e.g. assumptions on fossil energy prices, costs for renewables, policies and regulation. The time horizon until 2050 reflects very long investment cycles. The results are used to inform (top) management about possible opportunities and threats if scenario compliance with climate goals materializes, e.g. driven by global policies. Results are used for corporate strategy development, the planning process, the sales targets for our regional managers and as basis for decisions of our Division management on an annual basis. 2. Division Strategy: Within our business we use (climate-related) scenarios to compare, challenge or complement our own strategic mid- and long-term related planning processes. Here, we are using IHS Autonomy, as well as IEA NPS und IEA SDS with the following rationale behind: IHS Autonomy for example is used for the Division Power and Gas with customized data of IHS for market planning. Scenarios are provided up to 2050. Data that are provided are: power generation (TWh), installed capacity (GW), retirements and gross capacity additions by technology and fuel type (GW). We use this also for our Energy Concepts/consultancy projects in countries we operate in. In FY 2018 our power and gas division shifted from the more conservative IHS rivalry scenario to IHS autonomy to account for the increasing renewable energy installed capacity in the market, which is among other related to climate change trend. • IEA NPS is used as base case scenario of IEA. It is intrinsically consistent but only few countries are available (e. g. USA, Canada, Japan, China, KSA). Scenario horizon is here is until 2040. • IEA SDS: Scenario on "what would be required to reach COP21 emission targets?"; So far it is a hypothetical scenario as it is not in line with policies, but intrinsically consistent. These scenarios are used as they generally incorporate a multitude of societal (e.g. push for decarbonization) and economic indicators (e.g., GDP, population growth) and power generation specific predictions (e.g., levelized costs of energy, fuel costs). Based on this market model, strategic business decisions (e.g. footprint, portfolio adaptations, marketing strategies) are deducted, e.g. to predict how the power generation market will evolve in the next 5-10 years, with regards to power generation fuel that is of relevance for our business mandate, installed capacity + outlook what might be added/retired by different countries. In order to do so, scenarios have to allow (i)a breakdown in fuel/technology for power generation (ii)per region / country and (iii)on a transparently disclosed set of indicators as we are doing this as a global exercise. Method-wise, TWh of power required per country and installed generation capacity is used per fuel type and under consideration of relevant technical parameters, market conditions and our internal market strategy we build a reference model how our addressable market will evolve. To test resiliency of this model-based planning, scenarios that are specifically "extreme", are used (e.g. very renewable-friendly, very coal / fossil fuel friendly) for each model parameter (e.g. utilization, installed capacity). We use external scenarios especially for the installed capacity / power consumption. We compare how the markets react to extreme parameters and adjust our strategic outlook/KPI monitoring and/or our deducted strategic rationales accordingly. One example for this is the internal scenario analysis in our Division PS that resulted in an adjustment of portfolio strategy and innovation investments.

C4. Targets and performance

C4.1

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

Absolute target

C4.1a

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

Target reference number

Abs 1

Scope

Scope 1 +2 (market-based)

% emissions in Scope

100

Targeted % reduction from base year

100

Base year

2014

Start year

2015

Base year emissions covered by target (metric tons CO2e)

2180000

Target year
2030

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

% of target achieved
33

Target status
Underway

Please explain
To address our own operations, we launched our CO2-neutral program in September 2015. Based on a positive business case, we plan to halve the footprint from our own operations (Scope 1+2) by 2020 and be carbon neutral by 2030 (baseline FY14, 2,180,000 t as reported) The CO2 reduction will be achieved through a series of ongoing activities in 4 levers: 1. Energy Efficiency Program - We accelerate proof points for our customers for carbon technologies by investing over €100 million in energy efficiency measures at our sites: most of the applied solutions are part of our portfolio and we expect a payback within five years and annual savings of €20 million. 2. Distributed Energy Systems - We will create showcases of distributed energy systems at our own sites (e.g. combining power generation, such as wind, PV with storage solutions and intelligent energy management technologies) 3. Car Fleet - Our car fleet (about 48,000 vehicles accounting for roughly 300,000 tons of annual CO2 emissions) is included in our CO2-neutral aspiration. We will continue to include CO2 emission factors as an integral part of our local car fleet policies around the world 4. Green Electricity: We are changing our power purchasing guidelines and move towards a significantly cleaner power mix with a focus on renewable energies and gas. We also aim at creating opportunities for further businesses as part of green electricity purchase (PPA) projects. We expect to achieve our interim target of 50% reduction by 2020 mainly without offsetting carbon emissions. As we focus on domestic measures to reduce our carbon footprint, it is too early to estimate to what extent carbon offsets will be needed beyond 2020. Our carbon neutral goal for 2030 is considered as science-based by the SBT initiative. However, it is not yet approved. Due to a disagreement on a scope 3 target, we decided not to join the SBT initiative. We consider our CO2-neutral program as a long-term target as we will remain carbon neutral post 2030. According to the CDP definition of a long-term target (post 2035), this target translates into a separate long-term absolute target – see next line. We do not consider intensity targets (i.e. emission figures that have been normalized to a business metric when compared to the same normalized business metric emissions in a base year) as we have ambitious absolute targets.

Target reference number
Abs 2

Scope
Scope 1 +2 (market-based)

% emissions in Scope
100

Targeted % reduction from base year
100

Base year
2014

Start year
2015

Base year emissions covered by target (metric tons CO2e)
2180000

Target year
2050

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

% of target achieved
33

Target status
Underway

Please explain
Also in the decades beyond 2030, we intend to support our customers with our low carbon technologies and to reduce our own footprint to contribute to the decarbonization of the global economy. Post 2030 (target year 2050) we will remain carbon neutral and will continue to utilize the same levers to manage our CO2 emissions through initiatives to increase energy efficiency, new models of distributed energy systems, increased incentives and models to reduce emissions of the car fleet and an increase in the purchase of green electricity to move towards a cleaner power mix. As explained above, we expect to achieve our interim target of 50% reduction by 2020 mainly without offsetting carbon emissions. As we focus on domestic measures to reduce our carbon footprint, it is too early to estimate to what extent carbon offsets will be needed beyond 2020 and 2030 until 2050. Therefore, at the current phase of implementation, we are not yet able to make a quantitative assessment.

C4.2

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

Target
Energy productivity

KPI – Metric numerator
Primary energy consumption

KPI – Metric denominator (intensity targets only)
Revenue

Base year
2014

Start year
2014

Target year
2018

KPI in baseline year
0.99

KPI in target year
1.49

% achieved in reporting year
12

Target Status
Achieved

Please explain
The primary energy efficiency KPI is a global KPI that is evaluated based on Siemens fiscal year on an annual basis. Compared to base year we could improve this efficiency by 49%

Part of emissions target
n.a.

Is this target part of an overarching initiative?
Other, please specify (KPI is part of Siemens Environmental Program "Serve the Environment," which helps drive resource conservation. The program defines goals and activities to reduce negative environmental impacts at all Siemens sites.)

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	313	0
To be implemented*	697	528351
Implementation commenced*	29	250
Implemented*	292	523322
Not to be implemented	0	0

C4.3b

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

Initiative type
Energy efficiency: Building fabric

Description of initiative
Insulation

Estimated annual CO2e savings (metric tonnes CO2e)
2122

Scope
Scope 1

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
601542

Investment required (unit currency – as specified in C0.4)
5811288

Payback period
4 - 10 years

Estimated lifetime of the initiative
21-30 years

Comment
Various projects in the activity type; Scope 1 (mainly impacted) and Scope 2; voluntary; e.g. replacement of concrete roof structure by isolation panels and renewal of windows.

Initiative type
Energy efficiency: Building services

Description of initiative
Other, please specify (Building controls, Lighting, Motors and drives and HVAC)

Estimated annual CO2e savings (metric tonnes CO2e)
6583

Scope
Scope 2 (location-based)

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
2329141

Investment required (unit currency – as specified in C0.4)
9824860

Payback period
4 - 10 years

Estimated lifetime of the initiative
11-15 years

Comment
Various projects in the activity type; Scope 1 and Scope 2 (mainly impacted); voluntary; e.g. Energy demand reduced by implementation of LED lighting systems in production halls or shut down during breaks.

Initiative type
Energy efficiency: Processes

Description of initiative
Other, please specify (Heat recovery, Cooling technology, Process optimization, Fuel switch, Compressed air and Machine replacement)

Estimated annual CO2e savings (metric tonnes CO2e)
2911

Scope
Scope 1

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
961786

Investment required (unit currency – as specified in C0.4)
2907125

Payback period
<1 year

Estimated lifetime of the initiative
11-15 years

Comment
Various projects in the activity type; impacted both Scopes: 1 and 2; voluntary; e.g. sites reduced their energy demand by improving the management of the air compressor. Implementation of air curtains at doors.

Initiative type
Low-carbon energy purchase

Description of initiative
Other, please specify (Hydro and Windpower)

Estimated annual CO2e savings (metric tonnes CO2e)
507281

Scope
Scope 2 (location-based)

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
0

Investment required (unit currency – as specified in C0.4)
700000

Payback period
<1 year

Estimated lifetime of the initiative
1-2 years

Comment
Various projects in this activity type; Scope 2; voluntary; e.g. increase of purchasing of green electricity for 88 European sites and 42 US sites.

Initiative type
Low-carbon energy installation

Description of initiative
Other, please specify (Biomass, Solar PV and Combined heat and power generation CHP)

Estimated annual CO2e savings (metric tonnes CO2e)
1979

Scope
Scope 1

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
1465178

Investment required (unit currency – as specified in C0.4)
3944170

Payback period
4 - 10 years

Estimated lifetime of the initiative
11-15 years

Comment
Various projects in the activity type; Scope 1 (mainly impacted) and Scope 2; e.g. installation of heat recovery systems.

Initiative type
Process emissions reductions

Description of initiative
Other, please specify (New equipment and Changes in operations)

Estimated annual CO2e savings (metric tonnes CO2e)
2447

Scope
Scope 1

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
311898

Investment required (unit currency – as specified in C0.4)
879892

Payback period
4 - 10 years

Estimated lifetime of the initiative
11-15 years

Comment
Various projects in the activity type; Impacted both Scopes: 1 and 2; voluntary; e.g. pre-heating of water by heat pumps and improvements of process control, and general process optimizations.

C4.3c

(C4.3c) What methods do you use to drive investment in emissions reduction activities?

Method	Comment
Compliance with regulatory requirements/standards	100% of sites in scope of our Environmental Management (260 sites) are certified according to ISO 14001 and 63 Siemens units operate Energy Management Systems according to ISO 50001 and several others are in implementation state. In order to establish the continual improvement process for energy efficiency a systematical target establishing process has been implemented. These targets are implemented within the local management systems and initialize investments in emissions reduction activities. Realized savings (Euro and CO2) are reported in our environmental reporting system SESIS.
Dedicated budget for energy efficiency	As part of the Carbon Neutral Program, a budget of €100 million is dedicated to an energy efficiency program at specified sites.
Internal price on carbon	As part of our supply-chain management, in 2017 we started to evaluate the potential impact of carbon pricing on our most important suppliers. Therefore, we apply the current carbon prices as well as projections for future carbon prices on our top 5000 suppliers. By doing so, we are increasing awareness that these emissions need active management in order to reduce the risk from increasing carbon prices on our supply chain. (details see section C.10).

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

Company-wide

Description of product/Group of products

The Siemens Environmental Portfolio (EP) is part of Siemens' response to global challenges such as climate change. The EP consists of products, systems, solutions and services (Environmental Portfolio elements) that meet one of our selection criteria, namely (1) energy efficiency and (2) renewable energy. These elements reduce the impact on the environment and emissions of carbon dioxide and other greenhouse gases (defined together as carbon dioxide emissions), which are responsible for climate change. The reduced level of impact is measured by carrying out comparisons with reference solutions (baselines). Our EP reflects the opportunities we identified to help third parties avoid emissions. To qualify for inclusion in the EP, an element must meet one of the following selection criteria: (1) Energy efficiency: The criterion for energy efficiency is an improvement in energy efficiency of 20% or more during the customer use phase compared to the applicable baseline, or a reduction of at least 100,000 metric tons of carbon dioxide equivalents per reporting period in the customer use phase compared to the applicable baseline. Examples of products and systems meeting the above-mentioned energy efficiency criterion are combined cycle power plants, intelligent building technology systems (both reduce carbon dioxide emissions by at least 100,000 metric tons per reporting period) or ELFA Hybrid Drives for buses (20% efficiency improvement). (2) Renewable energy: This criterion covers technologies in the field of renewable energy sources or smart grid applications and their respective core components. Examples of the respective EP elements are wind turbines as well as core components such as gearboxes for wind turbines. Emission factors and baselines are reviewed regularly. Avoided emissions & timescale: With our Siemens EP elements installed in FY 18, we helped our customers reduce their emissions by 609 million metric tons. In 2018 Siemens reported total revenue of €83,044 million. R&D spending was reported as €5.6 bn. With 46% of the portfolio in the EP, we estimated the % of R&D in low carbon product/s in the reporting year to be more than 40% but less than or equal to 60%.

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 (We mainly use three different methods to determine emission reduction: 1) Direct before - and-after comparison of emissions, 2)Direct comparison with reference technology 3) Comparison with the base installed.)

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

46

Comment

Additional information methodology: 1) e.g. power plant modernizations or optimizing the energy consumption of buildings through energy performance contracting. 2) e.g. the reduction of emissions through the use of low-loss, high-voltage DC (HVDC) power transmission instead of conventional AC power transmission. 3) e.g. Combined Cycle Power Plants (CCPPs) and frequency inverters. The CO2 emissions from the manufacture of the individual products are part of our own carbon footprint and are not included in the emission calculations of the Siemens EP. Emission factors for calculating the annual reduction of CO2 emissions: For some emission reduction calculations, the baseline reference for the installed base is determined using known global emission factors such as those for power production. The baselines used for our calculations are mainly based on data from the International Energy Agency (IEA) for gross power production and for grid losses, on data from the Intergovernmental Panel on Climate Change (IPCC) for fuel-based emission factors, and our own assessments of power production efficiency. Most relevant emissions factors applied in 2018 are (IEA World Energy Outlook 2017): Global power generation all primary energy carriers (Basis for comparison in EP for power generation) 554 g/kWh; Global power generation fossil energy carriers (Basis for comparison in EP for Renewables) 835 g/kWh; Utilization of electricity (including transmission losses) (Basis for comparison in EP for all types of utilization of electricity apart from trains) 600 g/kWh. For power production and electrical applications, we consider the only relevant GHG to be carbon dioxide. If other GHG occur in technical applications, they are included in our calculations. Thus, the reported CO2 abatement of 609 million metric tons equals CO2e in terms of GWP. Calculations: We calculate the annual avoided emissions. According to this approach, a product/solution sold in one fiscal year contributes to GHG emission reduction in the following years as well. The contribution to GHG abatement either ends at the end of the product's life or if there is no longer a significant positive GHG abatement effect compared to the baseline.

C5. Emissions methodology

C5.1

(C5.1) Provide your base year and base year emissions (Scopes 1 and 2).

Scope 1

Base year start
October 1 2013

Base year end
September 30 2014

Base year emissions (metric tons CO2e)
887098

Comment
We report our greenhouse gas emissions based on the Corporate Standard of the Greenhouse Gas Protocol of the World Resource Institute (WRI) and of the World Business Council for Sustainable Development (WBCSD). Figures given are portfolio-adjusted.

Scope 2 (location-based)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 2 (market-based)

Base year start
October 1 2013

Base year end
September 30 2014

Base year emissions (metric tons CO2e)
1158595

Comment
We report our greenhouse gas emissions based on the Corporate Standard of the Greenhouse Gas Protocol of the World Resource Institute (WRI) and of the World Business Council for Sustainable Development (WBCSD). Figures given are portfolio-adjusted

C5.2

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

C6. Emissions data

C6.1

(C6.1) What were your organization's gross global Scope 1 emissions in metric tons CO2e?

Reporting year

Gross global Scope 1 emissions (metric tons CO2e)
820527

Start date
October 1 2017

End date
September 30 2018

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

C6.3

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

Reporting year

Scope 2, location-based
1041209

Scope 2, market-based (if applicable)
636752

Start date
October 1 2017

End date
September 30 2018

Comment
Explanation on diverging figures: The location-based method reflects the average emission intensity of grids in which the energy consumption occurs by using the national grid emission factors. The marked-based method reflects emissions from electricity that Siemens purposefully chose by our purchasing strategy. Emissions are calculated on the basis of contractual instruments utilizing the actual emission factors of a particular energy provider.

C6.4

(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure?
No

C6.5

(C6.5) Account for your organization's Scope 3 emissions, disclosing and explaining any exclusions.

Purchased goods and services

Evaluation status
Relevant, calculated

Metric tonnes CO2e
13523508

Emissions calculation methodology
To calculate scope 3 upstream emissions, which includes purchase goods & services, a methodology and tool called "Estell 4" by the consulting firm Systain was applied. Systain is a global CSR strategy consulting firm and an expert in global and complex value chains. Systain's methodology is scientifically accepted and transparently understandable data as well as CDP's recognized method.
The methodology uses a detailed multi-regional Environmentally Extended Input-Output database based on EXIOBASE data (which contains 43 countries / 5 rest of the world regions, 83 sectors, funded by the EU Commission (7th Framework Programme)), WIOD data (which contains 43 countries / 1 rest of the world region; 56 sectors; time series available: 2000-2014; funded by the EU Commission (7th Framework Programme)) and BEA data (which contains 1 country (USA); 391 sectors; time series available: 1997-2015; US Bureau of Economic Analysis Tables).
Activity data were taken from Siemens' procurement system as purchasing volume (PVO) in Euro differentiated by cost types and country of origin. To determine supply chain emissions, procurement volumes by cost type and country were allocated to economic sectors and multiplied with Estell's emission factors for each unit of demand in every economic sector and region. The calculation considers the "Purchased goods and services" as a significant Siemens' Scope 3 CO2 emissions category.

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Explanation
As a result of the "Carbon Emissions @ Suppliers" survey, the first primary data provided by suppliers were added to the "Estell" tool. We are currently repeating the 2017/18 survey in summer 2019 with extended content and increased number of pilot suppliers. We want to report not only calculated secondary data in the coming years but verify them step-by-step with primary data.

Capital goods

Evaluation status
Relevant, calculated

Metric tonnes CO2e
351520

Emissions calculation methodology
To calculate scope 3 upstream emissions, which includes capital goods, a methodology and tool called “Estell 4” by the consulting firm Systain was applied. Systain is a global CSR strategy consulting firm and an expert in global and complex value chains. Systain's methodology is scientifically accepted and transparently understandable data as well as CDP's recognized method.
The methodology uses a detailed multi-regional Environmentally Extended Input-Output database based on EXIOBASE data (which contains 43 countries / 5 rest of the world regions, 83 sectors, Funded by the EU Commission (7th Framework Programme)), WIOD data (which contains 43 countries / 1 rest of the world region; 56 sectors; time series available: 2000-2014; Funded by the EU Commission (7th Framework Programme)) and BEA data (which contains 1 country (USA); 391 sectors; time series available: 1997-2015; US Bureau of Economic Analysis Tables).
Activity data were taken from the procurement system of Siemens as purchase volume (PVO) in Euro differentiated by cost types and country of origin. To determine supply chain emissions, procurement volumes by cost type and country were allocated to economic sectors and multiplied with the emission factors of Estell for each demand unit in each economic sector and region. The category "Capital goods" is calculated by the expenditure of the Siemens and financially allocated according to the depreciation allowance rules. On this basis, Estell calculates the respective CO2 emissions.

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Explanation
We are currently in the process of repeating the 2017/18 survey in summer 2019 with an extended content and extended number of pilot suppliers. In the upcoming years we want to report not only calculated secondary data but verify them step-by-step with primary data.

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

Evaluation status
Relevant, calculated

Metric tonnes CO2e
247154

Emissions calculation methodology
To calculate scope 3 upstream emissions, which includes fuel-and-energy-related activities, a methodology and tool called “Estell 4” by the consulting firm Systain was applied. Systain is a global CSR strategy consulting firm and an expert in global and complex value chains. Systain's methodology is scientifically accepted and transparently understandable data as well as CDP's recognized method.
The methodology uses a detailed multi-regional Environmentally Extended Input-Output database based on EXIOBASE data (which contains 43 countries / 5 rest of the world regions, 83 sectors, Funded by the EU Commission (7th Framework Programme)), WIOD data (which contains 43 countries / 1 rest of the world region; 56 sectors; time series available: 2000-2014; Funded by the EU Commission (7th Framework Programme)) and BEA data (which contains 1 country (USA); 391 sectors; time series available: 1997-2015; US Bureau of Economic Analysis Tables).
Activity data were taken from the procurement system of Siemens as purchase volume (PVO) in Euro differentiated by cost types and country of origin. To determine supply chain emissions, procurement volumes by cost type and country were allocated to economic sectors and multiplied with the emission factors of Estell for each demand unit in each economic sector and region. Consequently, the category "fuel-and-energy-related activities" is calculated using the same Estell methodology to ensure consistency of data.

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Explanation
We are currently in the process of repeating the 2017/18 survey in summer 2019 with an extended content and extended number of pilot suppliers. In the upcoming years we want to report not only calculated secondary data but verify them step-by-step with primary data.

Upstream transportation and distribution

Evaluation status
Relevant, calculated

Metric tonnes CO2e
959345

Emissions calculation methodology
To calculate scope 3 upstream emissions, which includes upstream transportation and distribution activities, a methodology and tool called “Estell 4” by the consulting firm Systain was applied. Systain is a global CSR strategy consulting firm and an expert in global and complex value chains. Systain's methodology is scientifically accepted and transparently understandable data as well as CDP's recognized method.
The methodology uses a detailed multi-regional Environmentally Extended Input-Output database based on EXIOBASE data (which contains 43 countries / 5 rest of the world regions, 83 sectors, Funded by the EU Commission (7th Framework Programme)), WIOD data (which contains 43 countries / 1 rest of the world region; 56 sectors; time series available: 2000-2014; Funded by the EU Commission (7th Framework Programme)) and BEA data (which contains 1 country (USA); 391 sectors; time series available: 1997-2015; US Bureau of Economic Analysis Tables). Activity data were taken from the procurement system of Siemens as purchase volume (PVO) in Euro differentiated by cost types and country of origin. To determine supply chain emissions, procurement volumes by cost type and country were allocated to economic sectors and multiplied with the emission factors of Estell for each demand unit in each economic sector and region. The Upstream Transportation and Distribution category has been calculated in recent years using a methodology confirmed by TU Berlin (ICTL). In 2018, after carefully comparing both systems, we decided to synchronize the methodologies and change from ICTL to the "Estell" methodology. We found only minimal differences, for example. ICTL considered only our 1st-tier transportation companies ' CO2 emissions, while "Estell" also includes the following levels.

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Explanation
We are currently in the process of repeating the 2017/18 survey in summer 2019 with an extended content and extended number of pilot suppliers. In the upcoming years we want to report not only calculated secondary data but verify them step-by-step with primary data.

Waste generated in operations

Evaluation status
Relevant, calculated

Metric tonnes CO2e
38872

Emissions calculation methodology
To calculate scope 3 upstream emissions, which includes waste generated in operations, a methodology and tool developed called “Estell 4” by the consulting firm Systain was applied. Systain is a global CSR strategy consulting firm and an expert in global and complex value chains. Systain's methodology is scientifically accepted and transparently understandable data as well as CDP's recognized method.
The methodology uses a detailed multi-regional Environmentally Extended Input-Output database based on EXIOBASE data (which contains 43 countries / 5 rest of the world regions, 83 sectors, Funded by the EU Commission (7th Framework Programme)), WIOD data (which contains 43 countries / 1 rest of the world region; 56 sectors; time series available: 2000-2014; Funded by the EU Commission (7th Framework Programme)) and BEA data (which contains 1 country (USA); 391 sectors; time series available: 1997-2015; US Bureau of Economic Analysis Tables). Activity data were taken from the procurement system of Siemens as purchase volume (PVO) in Euro, differentiated by cost types and country of origin. To determine supply chain emissions, procurement volumes by cost type and country were allocated to economic sectors and multiplied with the emission factors of Estell for each demand unit in each economic sector and region.

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Explanation

Business travel

Evaluation status
Relevant, calculated

Metric tonnes CO2e
365365

Emissions calculation methodology
Flight emissions are calculated using flown distances and average consumptions (~
310416 tonnes of CO2e) Railway travel emissions are provided by Deutsche Bahn (~2648 tonnes of CO2e). Rental car emissions are delivered by the rental car companies in CO2e released per kilometer (~37040 tonnes of CO2e). Business jets: ~1454 tonnes of CO2e

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Explanation
We reduced business travel by 10% in comparison with last year (FY17 411.000). Mainly due to corporate travel restrictions to employees without direct customer interaction.

Employee commuting

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Explanation
Overall employee commuting emissions are insignificant compared to our upstream emissions. Nevertheless, our company cars emissions are covered by our Scope 1. Our company cars ' emissions are covered by our Scope 1 emissions. We include in our CO2-neutral aspiration (see 4.1a) the Siemens Car Fleet (around 47,000 cars), which accounts for around 300,000 tons of CO2 emissions per year. Therefore, currently we are not considering relevant compared with upstream emissions of scope 3. In addition, we encourage our employees to take carbon emission reduction / energy efficiency initiative through our annual Werner von Siemens Award. This corporate award contributes greatly in driving our business and inspiring people-in line with Vision 2020+ and Siemens ' Culture of Ownership priorities and objectives. In FY18, there were over 765 projects coming from our employees in Werner von Siemens Award. For more information please see C1.3a.

Upstream leased assets

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Explanation
Upstream leased assets are mainly office sites. Our SESIS tool includes our main sites and reports. These emissions are in our reporting of scope 1 and 2. However, we do not distinguish between leased and unleased sites. Besides, we do not include these emissions for small sites which do not form part of SESIS in our reporting by taking 2 tons of GHG emissions per employee.

Downstream transportation and distribution

Evaluation status
Relevant, not yet calculated

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Explanation
Emission arising through transportation and distribution of products sold by Siemens in 2018 between Siemens operations and the end consumer that were paid by Siemens are included in the upstream transportation and distribution scope 3 category. The emission arising from transportation and distribution that are paid by our customers are insignificant in comparison to e.g. emission arising from purchased goods and services.

Processing of sold products

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Explanation
The processing of sold products is not relevant to our business as most of our products are not further processes but are used directly by our customers such as trains, wind turbines and computer tomography.

Use of sold products

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Explanation
We calculate annual CO2 emission reductions at customers for the products and solutions of our Environmental Portfolio compared to reference solutions. The emission reductions for our customers in FY18 amounted to 609 million tons of CO2. However, in our view, the current GHG 3 protocol standard does not seem to be entirely appropriate with regard to the calculation of lifetime use emissions in capital goods and services. Among others, the methodology in question would lead, for instance, to double counting or to an increase in footprint as a result of longer lasting products. In addition, there are huge uncertainties arise with the lifetime of capital goods that can be in the range of 20-40 years. A calculation would not produce meaningful results or might lead to misleading interpretations of the figures communicated. Therefore, we do not calculate or disclose this category, either for stakeholders or for internal management.

End of life treatment of sold products

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Explanation
Based on the life cycle assessment of our products, this category is not relevant as most emissions occur during the use phase.

Downstream leased assets

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Explanation
Not material – Siemens doesn’t offer Downstream Leasing.

Franchises

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Explanation
Not material – Siemens does not have Franchises

Investments

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Explanation
Emissions of non-consolidated equity investments are reported by these entities in order to avoid double counting.

Other (upstream)

Evaluation status

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Explanation

Other (downstream)

Evaluation status

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Explanation

C6.7

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

C6.7a

(C6.7a) Provide the emissions from biologically sequestered carbon relevant to your organization in metric tons CO2.

Row 1

Emissions from biologically sequestered carbon (metric tons CO2)
48

Comment

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
0.0000175

Metric numerator (Gross global combined Scope 1 and 2 emissions)
1457279

Metric denominator
unit total revenue

Metric denominator: Unit total
83044000000

Scope 2 figure used
Market-based

% change from previous year
9

Direction of change
Decreased

Reason for change
The intensity figure is calculated based on Scope 1 and 2.
1457279 t of CO2) emissions in FY18 divided by revenue (FY18) of €83044 million. There was a decrease in the combined Scope 1 and 2 emissions in FY18 (1457279 t of CO2) compared to Scope 1 and 2 in FY17 (1604000 t of CO2). This decrease is due to effects of emission reduction initiatives.

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	683967	IPCC Fourth Assessment Report (AR4 - 100 year)
CH4	5	IPCC Fourth Assessment Report (AR4 - 100 year)
N2O	937	IPCC Fourth Assessment Report (AR4 - 100 year)
SF6	100787	IPCC Fourth Assessment Report (AR4 - 100 year)
HFCs	34830	IPCC Fourth Assessment Report (AR4 - 100 year)
NF3	0	IPCC Fourth Assessment Report (AR4 - 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)
Europe	444100
Other, please specify (Asia, Australasia)	97987
Other, please specify (Americas)	250819
Other, please specify (Rest of world)	27621

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)
Mobility	59388
Building Technology	47545
Digital Factory	62735
Energy Management	160327
Healthcare	96290
Process Industries and Drives	73834
Power and Gas	124535
Power Generation Services	48308
Regional Companies and Siemens Real Estate	79700
SGRE (Siemens Gamesa Renewable Energies)	22865
Siemens Real Estate	45000

C7.5

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

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low-carbon electricity, heat, steam or cooling accounted in market-based approach (MWh)
Europe		196670	1877807	1112961
Other, please specify (Asia, Australasia)		306934	479878	0
Other, please specify (Americas)		114732	599901	262773
Other, please specify (Rest of world)		18417	67373	0

C7.6

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

C7.6a

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

Business division	Scope 2, location-based emissions (metric tons CO2e)	Scope 2, market-based emissions (metric tons CO2e)
MO		6418
BT		7597
DF		32330
EM		87861
SHS		126021
PD		117313
PG		52169
PS		3198
RCs and SRE		165342
SGRE		38502

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	89953	Decreased	6	In FY18, 89953t CO2 were reduced by a change on our renewable energy consumption. We increased purchase of green electricity and avoided in FY 17 415443 t CO2 and in FY 18 505396. This increase in consumption of green electricity results in 6 % decrease of CO2 emissions based on the following calculation [(505396 – 415443)/1.601.577]*100.
Other emissions reduction activities	144298	Decreased	9	In FY18 144.298t CO2 were reduced by emission reduction activities at our production and offices sites globally. Our total S1 and S2 emissions in FY18 were 1.457279 t CO2e and in FY 17 1604.117 CO2e. Therefore we arrived at 9% decrease: (1.601.577-1457279/1.601.577)*100= 9%. We report our greenhouse gas emissions on the basis of the Corporate Standard of the Greenhouse Gas Protocol of the World Resource Institute (WRI) and of the World Business Council for Sustainable Development (WBCSD). Direct greenhouse gas emissions (Scope 1) arise from sources in the Company's ownership or under its control. Indirect greenhouse gas emissions (Scope 2) refer to the consumption of purchased electrical energy and district heating. Various activities had a positive effect on our scope 1 and 2 emissions: Direct GHG emissions could be reduced by the further improved handling of SF6, the positive effects of our target to reduce fleet emissions, electricity emissions reduced due to lower emissions in generation and the procurement of green electricity for the United Kingdom, Switzerland and Denmark, Czech Republic, Germany, Austria, Poland, Italy and the US in FY18.
Divestment		<Not Applicable>		
Acquisitions	7011	Increased	0.4	Emission increase by 7011 t (0,4% compared to emission values of FY 2017). This increase was over compensated by the emission reduction activities as described in column above.
Mergers		<Not Applicable>		
Change in output		<Not Applicable>		
Change in methodology		<Not Applicable>		
Change in boundary		<Not Applicable>		
Change in physical operating conditions		<Not Applicable>		
Unidentified		<Not Applicable>		
Other		<Not Applicable>		

C7.9b

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

Market-based

C8. Energy

C8.1

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

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

C8.2

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

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

C8.2a

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

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total MWh
Consumption of fuel (excluding feedstock)	LHV (lower heating value)	0	1800859	1800859
Consumption of purchased or acquired electricity	<Not Applicable>	1375734	1106635	2482470
Consumption of purchased or acquired heat	<Not Applicable>	0	542490	542490
Consumption of purchased or acquired steam	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	4290	<Not Applicable>	4290
Total energy consumption	<Not Applicable>	1380124	3449984	4830108

C8.2b

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

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

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
LHV (lower heating value)

Total fuel MWh consumed by the organization
1633700

MWh fuel consumed for self-generation of electricity
17157

MWh fuel consumed for self-generation of heat
1633700

MWh fuel consumed for self-generation of steam
<Not Applicable>

MWh fuel consumed for self-generation of cooling
0

MWh fuel consumed for self-cogeneration or self-trigeneration
0

Comment
Natural gas is consumed for self generation of heat in heating systems and for self co generation. The figure given for co-generation is included in 1633700 MWh.

Fuels (excluding feedstocks)
Liquefied Natural Gas (LNG)

Heating value
LHV (lower heating value)

Total fuel MWh consumed by the organization
33341

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
33341

MWh fuel consumed for self-generation of steam
<Not Applicable>

MWh fuel consumed for self-generation of cooling
0

MWh fuel consumed for self-cogeneration or self-trigeneration
0

Comment
LNG is utilized for heating.

Fuels (excluding feedstocks)
Other, please specify (Heating Oil)

Heating value
LHV (lower heating value)

Total fuel MWh consumed by the organization
95575

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
95575

MWh fuel consumed for self-generation of steam
<Not Applicable>

MWh fuel consumed for self-generation of cooling
0

MWh fuel consumed for self-cogeneration or self-trigeneration
0

Comment
Heating oil is utilized for heating.

Fuels (excluding feedstocks)
Wood Chips

Heating value
LHV (lower heating value)

Total fuel MWh consumed by the organization
4290

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
4290

MWh fuel consumed for self-generation of steam
<Not Applicable>

MWh fuel consumed for self-generation of cooling
0

MWh fuel consumed for self-cogeneration or self-trigeneration
0

Comment
Wood chips utilized for heating in SHS site Kemnath.

Fuels (excluding feedstocks)
Other, please specify (Diesel and gasoline)

Heating value
LHV (lower heating value)

Total fuel MWh consumed by the organization
38243

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
<Not Applicable>

MWh fuel consumed for self-generation of cooling
0

MWh fuel consumed for self-cogeneration or self-trigeneration
0

Comment
Diesel and gasoline utilized for transportation only.

C8.2d

(C8.2d) List the average emission factors of the fuels reported in C8.2c.

Liquefied Natural Gas (LNG)

Emission factor
1.61

Unit
kg CO2e per liter

Emission factor source
Federal Office for the Environment (FOEN); Switzerland.

Comment

Natural Gas

Emission factor
2

Unit
kg CO2e per m3

Emission factor source
Federal Office for the Environment (FOEN); Switzerland. The given factor 2 kg CO2e per m3 is only applied, if the SESIS* sites do not use specific factors from their gas suppliers, however, this is mostly done. See "Further Information" in comments.

Comment
The methodology applied within Siemens for our GHG inventory fulfils the requirement of “The Greenhouse Gas Protocol”. The methodology and the procedure for its implementation at Siemens have been fixed in a guideline and evaluated by our financial auditor Ernst&Young. For the further development of this methodology, we carefully evaluate and consider the verification recommendations of our auditor. The reporting system for the GHG Emissions-related data is SESIS (Siemens Environmental and Technical Safety Information System). SESIS is an intranet-based system. All environmentally relevant units of the company are requested to report into SESIS. In FY18, 305 sites worldwide were obliged to report. SESIS encompasses the Scope 1 emissions (natural gas, heating oil, coal, vehicle fuels for vehicles owned by a factory, HFCs, PFCs, CO2-technical, methane, N2O and sulfur hexafluoride, NF3) and Scope 2 emissions (electricity, district heat). Greenhouse Gas volumes from fossil fuels are calculated on the basis of CO2 emissions, while the incineration related CH4 and N2O emissions are considered in form of an average factor of 1% in alignment with the GHG protocol.

Wood Chips

Emission factor
0.001

Unit
kg CO2 per Mg

Emission factor source
Emission factors from their own local suppliers

Comment

Other

Emission factor
2.34

Unit
kg CO2 per liter

Emission factor source
Federal Office for the Environment (FOEN); Switzerland

Comment

C8.2e

(C8.2e) Provide details on the electricity, heat, steam, and cooling your organization has generated and consumed in the reporting year.

	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)
Electricity	17157	17157	0	0
Heat	4290	4290	4290	4290
Steam	0	0	0	0
Cooling	0	0	0	0

C8.2f

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

Basis for applying a low-carbon emission factor
Power Purchase Agreement (PPA) with energy attribute certificates

Low-carbon technology type
Wind
Hydropower

Region of consumption of low-carbon electricity, heat, steam or cooling
Europe

MWh consumed associated with low-carbon electricity, heat, steam or cooling
760754

Emission factor (in units of metric tons CO2e per MWh)
0

Comment
German production and office cites

Basis for applying a low-carbon emission factor
Power Purchase Agreement (PPA) with energy attribute certificates

Low-carbon technology type
Wind
Hydropower

Region of consumption of low-carbon electricity, heat, steam or cooling
North America

MWh consumed associated with low-carbon electricity, heat, steam or cooling
374707

Emission factor (in units of metric tons CO2e per MWh)
0

Comment

Basis for applying a low-carbon emission factor
Power Purchase Agreement (PPA) with energy attribute certificates

Low-carbon technology type
Wind
Hydropower

Region of consumption of low-carbon electricity, heat, steam or cooling
Europe

MWh consumed associated with low-carbon electricity, heat, steam or cooling
240274

Emission factor (in units of metric tons CO2e per MWh)
0

Comment
Production and office cites in ES, GB, AT, It, Fr, CH.

Basis for applying a low-carbon emission factor
Contract with suppliers or utilities (e.g. green tariff), not supported by energy attribute certificates

Low-carbon technology type
Biomass (including biogas)

Region of consumption of low-carbon electricity, heat, steam or cooling
Europe

MWh consumed associated with low-carbon electricity, heat, steam or cooling
4290

Emission factor (in units of metric tons CO2e per MWh)
0.01112

Comment

C9. Additional metrics

C9.1

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

Description
Energy usage

Metric value
22244537

Metric numerator
Energy Efficiency KPI in primary energy units

Metric denominator (intensity metric only)
Revenue

% change from previous year
12

Direction of change
Decreased

Please explain
We have been able to significantly improve efficiency in primary energy by 12% on a portfolio-adjusted basis compared to FY 2017. The KPI rates the input of energy in primary energy in relation the Siemens revenue.

Description
Other, please specify (Implemented Energy management systems)

Metric value
65

Metric numerator
Number of implemented management systems

Metric denominator (intensity metric only)
n.a.

% change from previous year
2

Direction of change
Increased

Please explain
The number of sites with energy management systems according to ISO 50001 could be increased from 64 to 65 during FY 2018.

C10. Verification

C10.1

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

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

C10.1a

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

Scope
Scope 1

Verification or assurance cycle in place
Annual process

Status in the current reporting year
Complete

Type of verification or assurance
Limited assurance

Attach the statement
siemenssustainabilityinformation2018.pdf

Page/ section reference
- Page 56 : Independent auditor´s limited assurance report
- Page 27: Scope 1,2,3 emission numbers

Relevant standard
ISAE3000

Proportion of reported emissions verified (%)
100

Scope
Scope 2 market-based

Verification or assurance cycle in place
Annual process

Status in the current reporting year
Complete

Type of verification or assurance
Limited assurance

Attach the statement
siemenssustainabilityinformation2018.pdf

Page/ section reference
- Page 56 : Independent auditor´s limited assurance report
- Page 27: Scope 1,2,3 emission numbers

Relevant standard
ISAE3000

Proportion of reported emissions verified (%)
100

C10.1b

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

Scope
Scope 3- all relevant categories

Verification or assurance cycle in place
Annual process

Status in the current reporting year
Complete

Attach the statement
siemenssustainabilityinformation2018.pdf

Page/section reference
- Page 56 : Independent auditor´s limited assurance report
- Page 27: Scope 1,2,3 emission numbers

Relevant standard
ISAE3000

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	ISAE 3000	The data we report here is also reported in our annual Sustainability Information (SI). This publication is audited by our external auditor Ernst & Young and the assurance statement covers all KPIs disclosed in the Sustainability Information 2018. The audit is annual and covers the whole organization as stated in the Assurance Statement, see p. 56 of Sustainability Information 2018. The figure is reported in question 4.1a. Reference: SI, page 24 - 25.
C4. Targets and performance	Emissions reduction activities	ISAE 3000	The data we report here is also reported in our annual Sustainability Information. This publication is audited by our external auditor Ernst & Young and the assurance statement covers all KPIs disclosed in the Sustainability Information 2018. The audit is annual and covers the whole organization as stated in the Assurance Statement, see p. 56 of Sustainability Information 2018 (attached). The figure is reported in questions 4.1. nd 4.2. Reference: SI, page 24-28.
C7. Emissions breakdown	Emissions reduction activities	ISAE 3000	The data we report here is also reported in our annual Sustainability Information. This publication is audited by our external auditor Erns t& Young and the assurance statement covers all KPIs disclosed in the Sustainability Information 2018. The audit is annual and covers the whole organization as stated in the Assurance Statement, see p. 56 of Sustainability Information 2018. The figure is reported in question 7.9a Reference: SI, page 33.
C7. Emissions breakdown	Year on year change in emissions (Scope 1)	ISAE 3000	The data we report here is also reported in our annual Sustainability Information. This publication is audited by our external auditor Ernst & Young and the assurance statement covers all KPIs disclosed in the Sustainability Information 2018. The audit is annual and covers the whole organization as stated in the Assurance Statement, see p. 56 of Sustainability Information 2018. The figure is reported in question 7.9a. Reference: SI, 32.
C7. Emissions breakdown	Year on year change in emissions (Scope 2)	ISAE 3000	The data we report here is also reported in our annual Sustainability Information. This publication is audited by our external auditor Ernst & Young and the assurance statement covers all KPIs disclosed in the Sustainability Information 2018. The audit is annual and covers the whole organization as stated in the Assurance Statement, see p. 56 of Sustainability Information 2018. The figure is reported in question 7.9a. Reference: SI, 32.
C8. Energy	Product footprint verification	ISAE 3000	The data we report here is also reported in our annual Sustainability Information. This publication is audited by our external auditor Ernst & Young and the assurance statement covers all KPIs disclosed in the Sustainability Information 2018. The audit is annual and covers the whole organization as stated in the Assurance Statement, see p. 56 of Sustainability Information 2018. The figure is reported in question 8.2, 8.2a. Reference to be found in Sustainability Information page 30f.

C11. Carbon pricing

C11.1

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

Yes

C11.1a

(C11.1a) Select the carbon pricing regulation(s) which impacts your operations.

EU ETS

C11.1b

(C11.1b) Complete the following table for each of the emissions trading systems in which you participate.

EU ETS

% of Scope 1 emissions covered by the ETS

1

Period start date

January 1 2018

Period end date

December 31 2018

Allowances allocated

3608

Allowances purchased

2000

Verified emissions in metric tons CO2e

12365

Details of ownership

Facilities we own and operate

Comment

C11.1d

(C11.1d) What is your strategy for complying with the systems in which you participate or anticipate participating?

Siemens follows an emission reduction strategy as described in the Siemens Carbon Neutral Program (see 1.1b). We follow a step-by-step approach to energy efficiency and GHG emission reductions. As a first step, we reduce inefficient processes within the existing installations and optimize equipment maintenance and fuel use. As a second step, we look for new and energy-efficient technologies to replace less efficient equipment. To comply with the EU ETS, we are purchasing additional Emission Certificates if needed. As an example, two of our facilities in Germany are subject to the EU ETS at the moment. We leave it open to purchase allowances if required.

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

Change internal behavior
Drive energy efficiency
Drive low-carbon investment
Other, please specify (Employee engagement & awareness)

GHG Scope

Scope 1
Scope 2

Application

Country: Siemens UK
Parts of the business: All Operating Companies (Smart Infrastructure, Digital Infrastructure, Generation & Power)

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

13

Variance of price(s) used

Siemens applies differentiated pricing which is currently applicable for Siemens UK. Evolutionary pricing is applied and the carbon price level is reviewed annually to increase ver otime.

Type of internal carbon price

Internal fee

Impact & implication

Siemens has made a commitment to becoming carbon neutral by 2030 and to reduce emissions by 50% by 2020 compared to 2014. To increase accountability of the different business units to reduce their emissions and to fund investments into low-carbon projects, Siemens UK established the UK Carbon Investment Fund. £13 per ton CO2 is collected from the businesses which fill the Carbon Investment Fund. Employees can propose projects which should receive funding out of the Investment Fund. The internal fee has a tangible impact as it reduces emissions via establishing a polluter-pays-principle across the businesses, increases employee engagement on combating climate change and supports investments into low-carbon technology.

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
Compliance & onboarding

Details of engagement
Included climate change in supplier selection / management mechanism

% of suppliers by number
14

% total procurement spend (direct and indirect)
43

% Scope 3 emissions as reported in C6.5
50

Rationale for the coverage of your engagement
Our Siemens Code of Conduct for Suppliers states mandatory environmental requirements (including ISO Certificates) to engage with us as supplier. Regarding to CO2 Emissions, our initiatives engage a total of 14% of suppliers, 43% of procurement spend and 50% of them accounts for our scope 3 emissions. These suppliers are approached in different ways throughout the Supplier Management process. The following supplier engagement initiatives were carried out: (2.1.) between 11/2017 and 03/2018, we sent an internet-based “Carbon Emissions @ Suppliers” survey to 5.440 suppliers in 75 countries who were found out to have the highest carbon emissions after an internal assessment. The survey was available in five languages: English, German, French, Chinese, and Spanish. Please see the details and results under "Information collection". This survey accounts for 6% of our suppliers spend 38% of our total procurement and 47% of our first-tier Scope 3 emissions.
(2.2.) Since 2014, we follow Aluminum Stewardship Initiative activities since 2014. Aluminum purchases (including products and alloys) affect approximately 6,000 suppliers: they represent approx. 7% of our suppliers (including medium and small suppliers) with 1% of our total purchasing volume.
(2.3.) In our "Center of Competence Transportation," we manage to optimize our spending with (downstream) transportation companies on fuel efficiency, transportation (e.g. hubs), allocation of train, street, sea, air freight. They represent roughly 1% of our suppliers and 3% of our total purchasing volume.
2.4) Siemens currently changes electricity contracts of all major sites. By 2020, we will finalize our 5 focus countries and continue the process for all remaining countries with remarkable consumption volume in the coming years. The goal is to buy 100% green energy by 2030. This represents only a small part of our suppliers / our total expenditure, but the largest amount of our reported scope 2 (and partly scope 3) emissions.

Impact of engagement, including measures of success
For 2.1) Survey results show that only a small percentage of our suppliers currently have detailed information on their CO2 emissions or general / per-product energy demand. The response rate after 9 weeks showed 47% of inquired suppliers (2522 suppliers) or 57% of inquired PVO, or 51% of inquired CO2. The response rate differs between countries: Scandinavian countries / Switzerland > 70 percent, Germany 66%, USA 46%, China 41%, India 17%–848 suppliers provided additional CO2 data via individual email that resulted in CO2 savings in our reporting (change from calculated data to primary CO2 data provided by our suppliers - approx. 2.5% CO2 reduction against the calculated Systain method).
In autumn 2018, we started a pilot project with some of our high CO2 triggering suppliers including target CO2 reduction. Within this process, we developed and conducted a training program for selected CO2 information buyers. Starting at 11.2018, the selected buyers approached 20 pilot suppliers for (1) first information and (2) a target commitment to encourage our suppliers to reduce CO2. The first results were very confident: all selected suppliers (all high expenditure and CO2 significance) cooperated and were open to assessing their own CO2 footprint. In each case specific measures (shifting supply of energy from fossil to green as well as relevant measures within the production process (from LED bulbs to investment in new manufacturing equipment), were defined We follow up on a half-year basis to track improvements. (3) All measures above show a 50% coverage of our scope 3 emission as reported in section C6.5. (double counts have already been consolidated: for instance, the transport company approached by the survey activities 2.1 and 2.3 at our "Center of Transport Competence").

Comment
In summer 2019, we are currently repeating the 2017-18 survey with extensive contents and a larger number of pilot suppliers. For 2.2. Siemens is buying most of its aluminum demand in low-carbon energy countries in Europe or OECD countries. Siemens is currently evaluating opportunities for further status optimization. For 2.4. The goal is to purchase green energy by 2030. For the five major countries where we operate, we will be able to buy green energy by 2020.

Type of engagement
Information collection (understanding supplier behavior)

Details of engagement
Collect climate change and carbon information at least annually from suppliers

% of suppliers by number
14

% total procurement spend (direct and indirect)
43

% Scope 3 emissions as reported in C6.5
50

Rationale for the coverage of your engagement
Our Siemens Code of Conduct for Suppliers states mandatory environmental requirements (including ISO Certificates) to engage with us as supplier. Regarding to CO2 Emissions, our initiatives engage a total of 14% of suppliers, 43% of procurement spend and 50% of them accounts for our scope 3 emissions. These suppliers are approached in different ways throughout the Supplier Management process. Follows our supplier engagement initiatives: (2.1.) between 11/2017 and 03/2018, we sent an internet-based “Carbon Emissions @ Suppliers” survey to 5.440 suppliers in 75 countries who were found out to have the highest carbon emissions after an internal assessment. The survey was available in five languages: English, German, French, Chinese, and Spanish. Please see the details and results under "Information collection". This survey accounts for 6% of our suppliers spend 38% of our total procurement and 47% of our first-tier Scope 3 emissions.
(2.2.) Since 2014, we follow Aluminum Stewardship Initiative activities since 2014. Aluminum purchases (including products and alloys) affect approximately 6,000 suppliers: they represent approx. 7% of our suppliers (including medium and small suppliers) with 1% of our total purchasing volume.
(2.3.) In our "Center of Competence Transportation," we manage to optimize our spending with (downstream) transportation companies on fuel efficiency, transportation (e.g. hubs), allocation of train, street, sea, air freight. They represent roughly 1% of our suppliers and 3% of our total purchasing volume.
2.4) Siemens currently changes electricity contracts of all major sites. By 2020, we will finalize our 5 focus countries and continue the process for all remaining countries with remarkable consumption volume in the coming years. The goal is to buy 100% green energy by 2030. This represents only a small part of our suppliers / our total expenditure, but the largest amount of our reported scope 2 (and partly scope 3) emissions.

Impact of engagement, including measures of success
For 2.1) The reason for conducting the survey was to receive a better understanding of the CO2 emission awareness in our value chain. The response rate after 9 weeks showed 47% of inquired suppliers (2522 suppliers) or 57% of inquired PVO, or 51% of inquired CO2. The response rate differs between countries: Scandinavian countries / Switzerland > 70 percent, Germany 66%, USA 46%, China 41%, India 17%–848 suppliers provided additional CO2 data via individual email that resulted in CO2 savings in our reporting (change from calculated data to primary CO2 data provided by our suppliers - approx. 2.5% CO2 reduction against the calculated Systain method).
In autumn 2018, we started a pilot project with some of our high CO2 triggering suppliers including target CO2 reduction. Within this process, we developed and conducted

a training program for selected CO2 information buyers. Starting at 11.2018, the selected buyers approached 20 pilot suppliers for (1) first information and (2) a target commitment to encourage our suppliers to reduce CO2. The first results were very confident: all selected suppliers (all high expenditure and CO2 significance) cooperated and were open to assessing their own CO2 footprint.
In each case specific measures (shifting supply of energy from fossil to green as well as relevant measures for the production process (from LED bulbs to investment in new manufacturing equipment), were defined We follow up on a half-year basis to track improvements. (3) All measures above show a 50% coverage of our scope 3 emission as reported in section C6.5.

Comment
In summer 2019, we are currently repeating the 2017-18 survey with extensive contents and a larger number of pilot suppliers. For 2.2. Siemens is buying most of its aluminum demand in low-carbon energy countries in Europe or OECD countries. Siemens is currently evaluating opportunities for further status optimization. For 2,4. The goal is to purchase green energy by 2030. For the five major countries where we operate, we will be able to buy green energy by 2020.

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

% Scope 3 emissions as reported in C6.5

Please explain the rationale for selecting this group of customers and scope of engagement
Since establishing our Environmental Portfolio, information sharing on our climate strategy, the emission-reduction potential of our portfolio at customers are part of our customer engagement strategy. The Siemens Environmental Portfolio is part of Siemens' response to global challenges such as climate change, scarcity of natural resources and environmental pollution. With our Environmental Portfolio we intend, among other things, to help our customers mitigate their carbon dioxide footprint, cut their energy costs and improve their profitability through an increase in their productivity In all customer contacts –whenever it makes sense) our sales force uses the potential to reduce emissions, save costs and thus combat climate change as a sales argument. Products, systems, solutions, and services from all consolidated Siemens companies may qualify for the Siemens Environmental Portfolio. Strict processes with clearly defined criteria govern which of these are added to the Environmental Portfolio and included in the report.
The entire Siemens portfolio is checked each year for possible classification in the Environmental Portfolio based on the criteria outlined above. This includes both newly developed elements and existing elements that were not qualified earlier because the evidence was not yet available. (see also section 2.4a)

Impact of engagement, including measures of success
Due to the size of the operation, Siemens cannot provide a percentage for the number of customers reached or for the % of Scope 3 emissions as this would only increase reporting efforts but not contribute to any of our strategic or climate-related goals. Our measure of success however is the growing revenue figure. Since establishing our Environmental Portfolio it has grown steadily accounting for 46% of Siemens revenue and today helping our customers to save 73 million tons of CO2 in comparison to 59 millions tons in FY17. This last years increase is mainly due to our Egyptian mega-project. In July 2018 this project concluded with an additional 14.4GW installation on Egypt's national grid, which is enough energy to meet the electricity needs of more than 40 million people and helps Egypt save more than 1 billion annual fuel costs.

Type of engagement
Other, please specify (Cities - We are running an engagement campaigns to educate cities and its stakeholders regarding the pollution source of health threatening emissions (PM10, PM2.5, NOx, CO2) and provide concepts how to reduce these in an efficient manner)

Details of engagement
<Not Applicable>

% of customers by number

% Scope 3 emissions as reported in C6.5

Please explain the rationale for selecting this group of customers and scope of engagement
Cities are very relevant in bringing down global CO2 emissions. Furthermore, there is a high health risk for citizens due to the NOx and PMx emissions. With our Center of Competence for Cities, we conduct several engagements with customers to educate the cities on climate change, impact and mitigation through our technology. Examples: publication of thought-leadership papers, consulting of city decision makers with regards to environmental goals and performance (with our CyPTAir Consulting Services) and its effects on jobs and infrastructure growth, offering solutions such as City Air Management (CyAM) System to monitor and predict air quality and simulate short-term measures to bring down emissions; Our city key account managers are first point of contact for over 100 cities and inform them on Siemens technologies to reduce impact of climate change.

Impact of engagement, including measures of success
Due to the size of the operation, Siemens cannot provide a percentage for the number of customers reached or for the % of Scope 3 emissions as this would only increase reporting efforts but not contribute to any of our strategic or climate-related goals. During the past years we have conducted more than 40 city specific studies, published more than 30 thought-leader reports, established a network of more than 100 city account managers. CyPTAir helps cities to derive a strategic roadmap in how to reduce the overall air pollution over the next year in implementing infrastructure solutions (70 solutions can be simulated) while CyAM support to monitor and predict Air Quality over the next 3-5 days and help cities to define appropriate measures (out of 17 Short Term Measures, eg Diesel Bann). CyAM is currently in the roll-out phase, the first pilot has been successfully implemented in Nuremberg and discussions are going on with many more cities worldwide as of today We do not have a detailed track recording which of the recommended levers have already been implemented or are under implementation. As our recommendations are often of significant infrastructural changes, it can take year until you have the final measurable outcome.

Type of engagement
Education/information sharing

Details of engagement
Run an engagement campaign to education customers about your climate change performance and strategy

% of customers by number

% Scope 3 emissions as reported in C6.5

Please explain the rationale for selecting this group of customers and scope of engagement
Customer workshops on becoming carbon neutral: Being the first major industrial conglomerate to pledge carbon neutrality until 2030, Siemens offers workshops to customers to inform them on the program, its goals and strategic levers and how Siemens can support our customers to reduce their emissions with our products and services.

Impact of engagement, including measures of success
Due to the size of the operation, Siemens cannot provide a percentage for the number of customers reached or for the % of Scope 3 emissions as this would only increase reporting efforts but not contribute to any of our strategic or climate-related goals. Several workshops have been conducted with diverse customers from several countries. Most resulted in close collaboration with our customers and increased engagement. We will not publish details on those confidential workshops or concrete outcomes.

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
88

% Scope 3 emissions as reported in C6.5

Please explain the rationale for selecting this group of customers and scope of engagement
Our portfolio, especially our environmental portfolio, represents our biggest contribution to climate change mitigation. We do not track all customer engagement and their respective scope, but the result speaks for itself. Today the environmental portfolio covers 46% of our revenue and achieves an accumulated annual customer reduction of 609 millions of metric tons of carbon dioxide emission. This achievement is a result of respective intensive customer engagement on the impact of our products, goods and/or services.

Impact of engagement, including measures of success
Due to the size of Siemens, we cannot track all customer contacts and the respective information sharing done related to climate change or energy efficiency. Nevertheless, for our customers, especially our industrial customers, energy efficiency is a must. As such, we have taken all active customer accounts from our operating companies (excl. Healthineers, mobility, SGRE) for the reporting year and subtracted all, where energy efficiency / climate change is not the first priority e.g. fire and safety; Siemens Financial Service that serve non-industrial customers.

C12.1c

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

There are of course several ways how we can engage with others partners to enhance social progress. One example is our Siemens “Megaproject” in Egypt. This project benefits the country in several ways at once by providing affordable, reliable energy for 40 million people as well as training 6,000 young Egyptians. The company has connected 14.4 gigawatts to the Egyptian national grid. With the help of Siemens Megaproject in Egypt, 40 million Egyptians have gained access to a stable and reliable energy supply. In the incredible time of a little over two years, Siemens boosted Egypt’s power generation capacity by more than 40%, connecting 14.4 gigawatts to the Egyptian national grid. The company built three highly efficient gas-fired power plants – the largest of their kind in the world. One huge benefit is the savings in fuel costs, which amount to about $1 million per year. Moreover, Siemens has set up a training center to provide quality education in advanced technical skills for almost 6,000 young Egyptians**.** In total, we create 32.000 jobs (directly, indirectly, induced), which was externally measured and verified by a global consultancy.

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
Other

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	Legislation concerned Energy Performance of Buildings Directive. Siemens engaged via trade associations (eu.bac, SmartEN, EU ASE) and individually. The main tools included bilateral meetings with decision makers at EU level and in key markets such as Germany, Austria or Belgium.	The EU adopted the Energy Performance of Buildings Directive. It is now up to Member States to implement it. Siemens engages with policy makers to ensure an ambitious implementation in particular with regards to building automation requirements. These are a prerequisite for the energy transition.
Other, please specify (Renewable energy directive)	Support with minor exceptions	Legislation concerned: Renewable Energy Directive, applicable in the European Union Member States now have to implement the directive. Siemens advocates for a quick and ambitious implementation. Key focus is on renewable hydrogen, a key factor to decarbonize the economy. Siemens engages via its trade association Hydrogen Europe and on individual basis. The main tools included position papers, bilateral meetings with European decision-makers (, DG ENER, Cabinet Sefcovic/ Canete,), representatives of Germany.	Siemens supports an early adoption of the directive, a higher ambition level for renewables in transport, and provisions that allow renewable hydrogen to replace fossil fuel-based hydrogen. Siemens also advocates for an early adoption of the delegated act managing the recognition of green electricity and support an approach friendly to renewable hydrogen.
Other, please specify (Electricity regulation)	Support	Legislation concerned: European Regulation for an internal electricity market. Applicable in the European Union Siemens supported with exceptions. Siemens engaged with trade associations (SmartEN, T&D Europe, BusinessEurope, BDI, EUTurbines, EASE, ZVEI) and individually. The main tools included bilateraly meetings with decision-makers (ITRE Committee, DG ENER, Cabinet Sefcovic/ Canete, German Ministry of the Economy, German, Estonian, Austrian, Dutch, Romanian and other Perm Reps), assistant briefings, and co-initiating the campaign www.makepowerclean.eu, which promotes the energy transition and enhances the significance of developing a consistent EU-climate commitment to tackle climate change.	Siemens proposed to move trading closer to real-time, to allow for smaller trading units, aggregated or individual, better access to ancillary and balancing services for RES and demand response; Siemens also supported the proposal to exclude CO2 intensive generation assets from capacity mechanisms by setting an emission performance standard of 550gCO2/KWh. Siemens was active to ensure a good outcome in the trialogue negotiations and the final adoption of the regulation in April 2019. Siemens will now follow up on implementation, however, no active outreach has been done so far.
Other, please specify (Power-to-X Sectoral coupling)	Support	Siemens engaged with governments and associations to ensure an ambitious programme for Power-to-X Projects (Reallabore), giving industry the opportunity to invest in new energy transition technologies at industrial scale.	Together with partners, Siemens drew up concrete proposal how to produce and use renewable hydrogen in industrial and mobility applications. Proposals were submitted to the government in April 2019.
Other, please specify (2050 Climate Strategy)	Support	Siemens engages actively with member state representatives in Brussels. Main Tool are bilateral meetings and a position paper.	Siemens fully supports the European Commission's call for urgency to act on climate and proposes 10 concrete points what needs to happen to meet the climate ambition.
Other, please specify (Gas Package (expected for 2020))	Neutral	Siemens engages on the gas package to turn it into an opportunity for CO2 reductions in liquid and gaseous energy carriers. Siemens actively promotes power-to-X technologies and launched a campaign driven by the association EU Turbines to make its gas turbines H2 capable.	Power-to-X technologies should be supported as a key technology to reduce CO2 emissions in industry and transport, and as long-term storage. Sectorial integration, with renewable energy at its heart, should become a horizontal principal in future energy legislation to reduce CO2 emissions effectively and swiftly.
Other, please specify (International Energy Transitions)	Support	Siemens is creating Energy Transitions Roadmaps suggesting countries to sustainably transform their energy systems e.g. in Iraq https://www.siemens.com/press/en/pressrelease/?press=/en/pressrelease/2019/corporate/pr2019040254coen.htm&content[]=Corp Speech of CEO Joe Kaeser on International Energy Transitions at the Berlin Energy Transition Dialogue, a Conference on invitation by the German Federal Government with over 2000 participants from 90 countries, including 50 energy ministers and state secretaries https://www.youtube.com/watch?v=0ie7uBoig8A	As a technology and market leader in almost all energy sectors, we are in an excellent position to offer technological solutions for an ever faster-changing energy system. But that alone is no longer enough. Strong and reliable partners must take on new responsibilities and deliver added value. And it is precisely for this reason that we are creating the conditions with the Energy Value Charter. It combines our expertise in delivering the necessary technological solutions with concrete recommendations on how energy systems must be further developed in order to keep pace with technological innovations. Together with convincing financing and development concepts, we create tailor-made energy roadmaps to make energy systems more sustainable and thus more value-enhancing – for countries all over the world, for societies and, above all, for people. Three levers: 1. Secure flexible energy supply: Reliable access to sustainable electricity is the basis for economic growth today and in the future. To achieve this, we need a mix of renewable energies such as wind or other sources, efficient and highly flexible power plant technologies, storage facilities and optimized demand management systems. 2. Deliver future-oriented infrastructure: Transporting and integrating sustainable electricity into our economy requires intelligent and cross-sector solutions. Electricity, gas and digital infrastructures must be purposeful and fully integrated. Power-to-X is becoming the critical link in sector integration. 3. Empower energy users: More diversity, falling costs and new technologies are making consumers the creators of the energy system. This creates new possibilities around the meter as well as the conditions for decentralized efficient energy systems.
Other, please specify (Other: German Energy Transition (Energiewende) covering clean energy and energy efficiency)	Support with minor exceptions	Siemens is involved in the German discussion on the Energy Transition – both in the discussion on energy generation, energy transmission and distribution as well as on energy efficiency. Siemens is inter alia involved in the discussion of the following legislations and political measures: Amendment of Germany's Renewable Energy Sources Act (EEG), the Power Market Design, the implementation of several measures of Germany's National Action Plan on Energy Efficiency (NAPE) including the political framework to push energy efficiency in buildings, the green paper Energy Efficiency as well as the Climate Action Plan 2050. Siemens executives, experts and our liaison offices are involved in direct talks with national (e.g. German government, ministries, etc.) and international policy makers (e.g. EU Commission and Parliament). • Additionally, Siemens is involved in informing the political decision-making process via our membership in several business associations and initiatives. • Siemens' role is primarily seen as trusted advisor as we offer most of the technologies needed to make the Energy Transition happen.	• We support the German Energy Transition. However, we address areas that should be optimized and offer our advice on technological possibilities. We stress the relevance of Hydrogen to become a new main energy carrier in the systems besides power. Power-to-X and sector coupling are necessary to decarbonize not only the power sector but also transport, heat, buildings and industry. • We stress the importance to implement the Energy Transition and to achieve the political GHG emission reduction goal at the lowest possible costs. E.g. we are involved in discussions and proposals for a new power market design for better coordination of renewable and conventional power generation. • We stress the importance not only of low-carbon power generation and efficient power transmission and distribution, but also energy efficiency in all sectors. – We published a study on the effects of decarbonization (80-95% GHG emission reduction in Germany by 2050 compared to 1990). The Sustainability Office, the Government Affairs department and our Divisions are coordinating on external political communication measures. We push for stronger targets in Offshore wind and ask for a roadmap to reach the target of 65% renewables in 2030 Exception (power market design): Due to the increasing share of decentralized self-generated electricity the allocation of grid costs will become uneven. Therefore, Siemens advocates for a change of the grid cost allocation. From our perspective, the allocation of grid infrastructure costs should not be based on the energy demand (kWh) but on the maximum connected power load (kW).

C12.3b

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

Yes

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

Trade association
EU Turbines

Is your position on climate change consistent with theirs?
Consistent

Please explain the trade association's position
EU Turbines now supports the shift from fossil fuels to green hydrogen and initiated a campaign whereby Siemens commits to make its gas turbines ready for H2.

How have you influenced, or are you attempting to influence their position?
Siemens was a key driver and initiator of the campaign and advocating an ambitious commitment towards renewable fuels by the sector.

Trade association
Hydrogen Europe

Is your position on climate change consistent with theirs?
Consistent

Please explain the trade association's position
Hydrogen Europe is a strong advocate for Power2X technologies and supports legislation in that regard.

How have you influenced, or are you attempting to influence their position?
Siemens is actively contributing to the positioning, in particular with regard to the implementation of the renewable energy directive.

Trade association
Eu.bac

Is your position on climate change consistent with theirs?
Consistent

Please explain the trade association's position
Eu.bac elaborated the above-mentioned position on the energy performance of building directive

How have you influenced, or are you attempting to influence their position?
Yes, key demands on mandatory requirements for building automation and control systems – current discussion focuses on the implementation of the directive.

Trade association
SmartEN

Is your position on climate change consistent with theirs?
Consistent

Please explain the trade association's position
SmartEN drove the agenda for demand response and digital solutions, including smart grids, in the electricity system to integrate renewables and make the electricity system more efficient.

How have you influenced, or are you attempting to influence their position?
Siemens key asks as regards the electricity regulation and as regards data issues were discussed during working group meetings and at Board level.

Trade association
ZVEI

Is your position on climate change consistent with theirs?
Consistent

Please explain the trade association's position
ZVEI is advocating for a number of measures helping to make the German Energiewende as efficient and ambitious as possible

How have you influenced, or are you attempting to influence their position?
Siemens is leading several working groups such as one for power market design

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Trade association
VDMA

Is your position on climate change consistent with theirs?
Consistent

Please explain the trade association's position
VDMA is advocating (amongst many other things) to further decarbonize the conventional power sector.

How have you influenced, or are you attempting to influence their position?
Siemens is very actively contributing towards association position papers such on power-to-X. Siemens is an active member of the VDMA Power-to-X platform.

Trade association
BDI

Is your position on climate change consistent with theirs?
Mixed

Please explain the trade association's position
BDI conducted a large study on industrial climate paths 2050.

How have you influenced, or are you attempting to influence their position?
Siemens has been actively contributing towards this study.
Mixed: whereas BDI used the study results to mainly address the challenges of CO2-reduction pathways, Siemens interpreted the results of ambitious climate paths as opportunity for the German industry.

Trade association
Performing Energy / DWV

Is your position on climate change consistent with theirs?
Consistent

Please explain the trade association's position
Performing Energy is advocating for Hydrogen and Power-to-X.

How have you influenced, or are you attempting to influence their position?
Advocating for a speedy implementation of the EU RED II Directive into national law.

C12.3d

(C12.3d) Do you publicly disclose a list of all research organizations that you fund?
No

C12.3e

(C12.3e) Provide details of the other engagement activities that you undertake.

i. Description of the method of engagement

Siemens executives, experts and our liaison offices are involved in direct talks with national (e.g. German government, ministries, etc.) and international policy makers (e.g. EU Commission and Parliament) in terms of climate and energy policy issues and legislation. Additionally, Siemens is engaged in several trade associations to push our positions. Siemens also participates in panel debates on climate issues and co-initiated the campaign www.makepowerclean.eu to ensure that Europe's secure electricity supply comes from clean technologies.

Position papers and general communication on climate and energy transition-related issues were drafted and distributed broadly, and joint letters with industry and NGOs on climate-relevant issues were supported. Ongoing dialogues with political stakeholders and NGOs have been initiated to align the goals of industry and society.

ii. / iii. Topic and nature of Engagement

Siemens is a leading provider of e.g. infrastructure solutions for sustainable city development, energy efficiency and climate protection technologies, storage, power-to-X, or highly efficient gas turbines, H2-capable gas turbines, as well as environmental technologies. Siemens also holds the majority share of Siemens Gamesa Renewable Energy. Therefore, Siemens' primary role in addressing climate change is to provide innovative products and solutions over the entire energy conversion chain, which will contribute to reducing GHG emissions (mitigation). Politicians expect us to give primarily answers on mitigation technologies and green growth as well as indications on the political mitigation framework – globally and on a national level.

Siemens participated in all recent UNFCCC conferences since Poznan (COP 14 – 23). The personal engagement of our CEO and Chief Sustainability Officer (also CTO and COO) as well as other Siemens employees, played a major role in bringing the economic potential of green solutions to the top of the agenda. Siemens additionally showcased what can be done with today's available technologies and promotes Siemens' Environmental Portfolio as a best practice example to show that climate protection is a triple win: higher quality of life for society, increased economic benefits for our customers, and superior growth for our investors.

In 2019, Siemens launched the Energy Value Charter. The charter recognizes that every energy is a unique challenge but identifies three global levers that governments need to tackle to build sustainable and future-proof energy systems: securing sustainable energy supply, delivering future-proof infrastructure and empowering the energy users. On this basis, Siemens offers governments worldwide a dialogue to build to build tailor-made energy roadmaps for sustainable and future-proof energy systems. The roadmaps bring together Siemens technologies with advice on the political/ regulatory framework and development / financing programmes – and hence bring business to society. More information can be found at www.siemens.com/evc

iv. Actions advocated as part of engagement

Siemens is leading by example in addressing the megatrend climate change. With our Environmental Portfolio, we generated revenues of ~ €38 billion in FY 2018, accounting for about 46% of total revenue – and actively helped our customers save 609 million tons of CO2 emissions. We position ourselves as an icon of green growth. With our Carbon Neutral Program, we have set ourselves the ambitious target to cut our own CO2 emissions by 50% by 2020 and to be carbon neutral by 2030.

Siemens supports the German Energy Transition and the European climate policy in general. However, Siemens also provides advice on technological possibilities and policy advice on how to achieve the political goals (e.g. roll-out of renewable energies; reduction of greenhouse gas emissions; increase of energy efficiency) at the lowest possible costs.

Additionally, Siemens supports the German government's international conference "Berlin Energy Transition Dialogue" as a sponsor as well as with key note speakers. In 2019, Joe Kaeser gave a key note speech launching the energy value charter.

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?

To coordinate all communications and policy advocacy activities relating to political leaders, policy-making institutions and authorities, Siemens has an internal Government Affairs organization.

With respect to climate change issues, there is a close coordination between the Government Affairs department and the Sustainability Office to ensure consistency in our strategy and our political as well as general communication.

Siemens has finalized an internal study on the effects of decarbonization (80-95% GHG emission reduction in Germany by 2050 compared to 1990). This study is used to become a leading and trusted partner for decision makers, customers and society on how to advance the decarbonization of our economies. Consequently, the study is also a major resource for climate-related engagement strategies. Siemens is currently extending the study to further European countries (see also 3.1d). Most recently, Siemens did an internal study to analyze the German governments decision to phase-out coal.

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
SiemensAR2018.pdf

Page/Section reference

Content elements
Governance
Strategy
Risks & opportunities

Comment

Publication
In voluntary sustainability report

Status
Complete

Attach the document
siemenssustainabilityinformation2018.pdf

Page/Section reference

Content elements
Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics

Comment

C14. Signoff

C-FI

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

C14.1