CDP Climate Change Response 2017 of thyssenkrupp AG

CDP's scoring system assesses whether companies have formulated a coherent strategy on how to further improve their own environmental performance as well as that of customers and suppliers. thyssenkrupp once again achieved the highest score possible and was placed on CDP's global "A List". The list includes roughly 100 businesses worldwide and only three DAX companies.

Several thousand companies worldwide took part in the program, which CDP conducts on behalf of more than 800 investors with assets worth USD100 trillion. The organization holds the world's largest collection of corporate climate data.

Please keep in mind that the following answer was submitted in June 2017.
Any formatting as well as options on how to answer are predefined by the CDP

Module: Introduction

Page: Introduction

CC0.1 Introduction

Please give a general description and introduction to your organization.

thyssenkrupp is a diversified industrial which combines engineering expertise with strong materials capabilities. thyssenkrupp creates value for customers worldwide and can utilize the wide-ranging opportunities in the markets of the future. Engineering expertise, group synergies, diversity and global reach define thyssenkrupp.

More than 156,000 employees in nearly 80 countries work to develop high-quality products and intelligent industrial processes and services for sustainable progress. Their skills and commitment are the basis of our success.

In fiscal year 2015/2016 thyssenkrupp generated sales of around 39 Bn. €.

Together with its customers, thyssenkrupp develops competitive solutions to the challenges of the future in their individual sectors. In our capital goods businesses we develop and manufacture high-quality components for the automotive, machinery, and energy sectors. We also produce innovation technological goods and service solutions for our customers, such as modern elevator systems and electric power assisted steering systems. Our plant engineering portfolio extends from the engineering and construction of complete industrial facilities and maintenance through our global service network to advanced naval technology. Our materials businesses offer custom material solutions, efficient materials manufacturing and processing, and materials services.

thyssenkrupp has five business areas with continued operations, which include the following businesses:
(1) Components Technology supplies a range of high-tech components for general engineering, construction equipment and wind turbines. In the auto sector our activities are focused on crankshafts, camshafts, steering systems, dampers, springs, stabilizers and the assembly of axle modules.
(2) The Elevator Technology business area delivers innovative technology for efficient urban mobility. It supplies passenger and freight elevators, escalators and moving walks, passenger boarding bridges, stair and platform lifts as well as providing service for the entire product range. Elevator Technology maintains a tight-knit service network with competent employees at over 900 locations worldwide.
(3) The product portfolio of Industrial Solutions encompasses chemical plants and refineries, equipment for the mining and cement industry and innovative solutions for the mining and processing of raw materials, naval shipbuilding, and production systems for the auto industry.
(4) With around 480 branches in 40 countries, Materials Services specializes in materials processing and distribution including technical services.
(5) Steel Europe, with a steel mill in Germany, produces and supplies premium flat products to customers in the auto industry and other steel-using sectors. The range also includes products for attractive specialist markets such as the packaging industry.

Discontinued operation: The Steel Americas business area includes a steel mill in Brazil and supplies in particular the US and Brazilian market with high-quality

slabs. thyssenkrupp reached an agreement with Ternium in February 2017 on the sale of the Brazilian steel mill CSA. The sale is subject to the approval of the competition authorities and is planned to be completed by September 30, 2017.

CC0.2 Reporting Year

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

Enter Periods that will be disclosed
Thu 01 Oct 2015 - Fri 30 Sep 2016

CC0.3 Country list configuration

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

Select country
Germany
Rest of world

CC0.4 Currency selection

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

EUR(€)

Module: Management

Page: CC1. Governance

CC1.1 Where is the highest level of direct responsibility for climate change within your organization?

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

CC1.1a Please identify the position of the individual or name of the committee with this responsibility

The highest level of responsibility for climate change strategy and management within thyssenkrupp is our CEO Dr. Heinrich Hiesinger (Chief Executive Officer / Chairman of the Executive Board). Amongst other issues he is responsible for the corporate strategy, the innovation strategy and the sustainability strategy which all include climate change as a major issue.

The climate change management within the combined Corporate Function of Technology, Innovation & Sustainability (TIS) is located in his executive portfolio.

Furthermore, thyssenkrupp's Sustainability Committee, which meets once a year, decides about the indirect financial targets and the sustainability strategy including climate change issues. Climate change data, risks and opportunities are a regular agenda topic. The Sustainability Committee is composed of the Executive Board, CEOs of the Business Areas and Heads of Corporate Functions.

CC1.2 Do you provide incentives for the management of climate change issues, including the attainment of targets?

Yes

CC1.2a Please provide further details on the incentives provided for the management of climate change issues

Who is entitled to benefit from these incentives?	The type of incentives	Incentivized performance indicator	Comment
Board/Executive board	Monetary reward	Efficiency target	The performance bonus is a one-year variable element of compensation. In addition to the three core weighted financial performance indicators (EBIT, FCF, TKVA), there is also a multiplicative correction factor. This allows the Supervisory Board to adapt and individually differentiate the overall target achievement calculated from the aforementioned performance indicators in a range of +/–20%. The correction factor is based equally on a sustainability multiplier and a discretionary factor. The sustainability multiplier is also based on the annual progress towards thyssenkrupp’s indirect financial targets, which also include our targets on energy efficiency and energy management (3.5 TWh efficiency gains until 2020, 100% of relevant operations covered by ISO 50001).

Who is entitled to benefit from these incentives?	The type of incentives	Incentivized performance indicator	Comment
Board/Executive board	Monetary reward	Supply chain engagement	The performance bonus is a one-year variable element of compensation. In addition to the three core weighted financial performance indicators (EBIT, FCF, TKVA), there is also a multiplicative correction factor. This allows the Supervisory Board to adapt and individually differentiate the overall target achievement calculated from the aforementioned performance indicators in a range of +/–20%. The correction factor is based equally on a sustainability multiplier and a discretionary factor. The sustainability multiplier is also based on the annual progress towards thyssenkrupp's indirect financial targets, which include the target on a sustainable supply chain (min. 100 audits p.a.).
Energy managers	Monetary reward	Efficiency project	Energy efficiency projects reported within CDP are subject to the compensation of responsible managers for these projects (in most cases to the annual bonus).
Environment/Sustainability managers	Monetary reward	Efficiency target	A part of the annual bonus is related to the achievement of sustainability projects (including climate change).
All employees	Monetary reward	Emissions reduction project Energy reduction project Efficiency project	The "we innovate" award is awarded to employees who develop ideas and translate them into successful products and solutions. The jury has to judge entries on the basis of a predefined set of criteria. Since 2016, the criterion of environmental relevance is now an indispensable part of all innovation projects and as such has been added as a mandatory sixth criterion for the "we innovate" awards alongside customer benefit, customer retention, innovativeness, market potential and savings in in-house production. In the past, ideas with focus on energy and environment have been awarded separately. This change underlines that environmental protection and climate change play a key role in the product development of thyssenkrupp. In 2016, the "we innovate" award has attracted around 40 entries, of which 5 ideas are then chosen by the jury.

Page: CC2. Strategy

CC2.1 Please select the option that best describes your risk management procedures with regard to climate change risks and opportunities

Integrated into multi-disciplinary company wide risk management processes

CC2.1a Please provide further details on your risk management procedures with regard to climate change risks and opportunities

Frequency of monitoring	To whom are results reported?	Geographical areas considered	How far into the future are risks considered?	Comment
Six-monthly or more frequently	Board or individual/sub-set of the Board or committee appointed by the Board	Worldwide (Europe, Middle East & Africa, Asia-Pacific, China, India, North America, South America)	> 6 years	In principle, our risk management does not limit the considered time frame. Usually risks are considered from 1 up to 3 years but depending on the nature of risks the timeframe is extended. Especially climate change risks have longer perspectives and are therefore assessed accordingly.

CC2.1b Please describe how your risk and opportunity identification processes are applied at both company and asset level

The risk management covers all operations worldwide with focus where tk holds the financial control. Risks related to climate change are fully integrated in this combined top-down/bottom-up process: Binding system standards are formulated by the Group, responsibility for measuring and controlling risks lies with the operating entities.

i) Risk assessment process on Group level (“company”): Risks are analyzed on the basis of groupwide risk scenarios. The BAs carry out SWOT analyses to identify the relevant strengths, weaknesses, opportunities and threats for their operating units. Risk maps are documented in a web-based reporting tool. Financial thresholds are defined on different levels. Risks reported to the CDP as material always refer to the threshold values of the Group level. They are subject to the Risk Committee, the Executive Board and the Supervisory Board Audit Committee. There are two reporting cycles - a quarterly one and an annual one.

ii) Risk assessment process on Group company level (“assets”): All GCs have dedicated risk managers responsible for assessing and reporting risks. They are supported by various processes and guidelines. E.g. a risk catalogue defines the scope of risks including environmental and climate risks related to licenses, regulations, natural disasters and others. The documented risks are fed into the risk map on Group level.

The management of our opportunities (both company & asset level) is a task shared by all decision makers. Opportunities are assessed on the basis of the existing portfolio and strategic framework, which explicitly names climate change as a business driver. Main formalized processes for tangible opportunity management are the "Strategic Dialogue" and the "Innovation Dialogue".

In addition to the financially tangible risks and opportunities, strategic, long-term and more intangible risks and opportunities are considered especially within our Sustainability Committee and the innovation dialogue.

CC2.1c How do you prioritize the risks and opportunities identified?

Process regarding tangible risks:
In a first step, the prioritization of risk and opportunities management depends on the magnitude of risks. Risks are classified according to their impact (Very slight to High) and their probability (very slight to high). Impacts are quantified between a given range of /= 500 Mio. €. The probability is set in a given range of /= 50% probability of occurrence.

The material Group risks identified in the risk maps as well as the results of the analyses of risk scenarios and risk provisions are discussed, validated and prioritized in meetings of the interdisciplinary Risk and Internal Control Committee (RICC) held once every quarter and chaired by the CFO.

Process regarding intangible risks: The processes of the Sustainability Committee and innovation dialogue both rely on a combination of top-down and bottom-up approaches. Hence the prioritization of considered risks and opportunities is based on numerous factors like scenarios, business strategies, market analyses, external roadmaps or other factors like technology trends.

CC2.2 Is climate change integrated into your business strategy?

Yes

CC2.2a Please describe the process of how climate change is integrated into your business strategy and any outcomes of this process

Climate change is fully integrated into thyssenkrupp's business strategy which explicitly names it as a business driver. The strategy wants to gain opportunities from customer demand & regulation calling for "better" solutions by significantly increasing efficiency already today and up to zero net emissions beyond 2050.

(i) How the business strategy has been influenced by climate change:
There are three major channels how the business strategy is influenced. Firstly, the overall business strategy already defines to consider opportunities from climate change. Secondly, the Sustainability Committee deals with strategic, long-term and more intangible risks and opportunities related to climate change. It consists of the Executive Board, CEOs of the business areas and Heads of Corporate Functions. It decides on the Group's Indirect Financial Targets which are part of the board's compensation scheme. Third, the Innovation Dialogue is a dedicated management process to drive innovations within our businesses. Here, climate change is a key pillar. The process involves executive level and feeds into the business strategy in a formalized way. All three channels to influence the business strategy are based on respective data collection processes, including data from carbon footprinting of own operations (Scope 1+2), value chains (Scope 3) and from analyses considering scenarios, business strategies, market analyses, external roadmaps or other factors like technology trends. Results serve as a basis for business decisions on the level of business areas or on group level.

(ii) Examples of how the business strategy has been influenced:
Two concrete major examples. Firstly: our Indirect Financial Target on energy aims for 3.5 TWh energy efficiency gains in our own operations until FY 19/20 to reduce costs and emissions. This is equivalent to more than 1 Mio. t of avoided emissions. It is based on numerous concrete measures all around the world like heat recovery at furnaces for steelmaking in Duisburg or Terni up to downsizing cars in our elevator service fleet in the U.S.. It is combined with a target to have energy management (ISO 50001) in place at all relevant operations (~30 already implemented equaling ~2/3 of total energy consumption). Second example: with a joint cross-industry demonstration project for our steel production (Carbon2Chem) tk tackles the major share of our steel production's emissions which are related to reduction processes. Here fossil carbon is currently essential. The construction of the pilot installations in Duisburg was started in 2016 with numerous partners to bring Carbon, Capture & Use (CCU) to industry scale for the steel industry from 2030 onwards. The project has a high two-digit Mio. € volume. It is considered to contribute to game-changing solutions in one of the most relevant industry sectors being under strong regulatory pressure.

(iii) Major aspects of climate change which have influenced the strategy:
- Business opportunities from CO2 efficiency: One driver for our efficiency target is a cost reduction. But in general the opportunity to create new business and extend existing business with our products is the key focus. Our innovation portfolio is explicitly focused on CO2 efficient solutions. In all business areas we provide a wide range of highly efficient solutions that enable our customers to improve their energy and resource efficiency and therefore to reduce carbon emissions. With

our innovation strategies we aim to constantly extend this portfolio. For example, tk has developed innovative solutions for customers in the cement industry, such as the energy-efficient grinding system QUADROPOL® RD mill or the PREPOL® SC combustion chamber, which increases CO2 efficiency by using alternative fuels for the clinker and cement production.
- Regulatory changes: Risks & costs from regulation are a significant driver influencing the short-term as well as long-term strategy (as described in the risks section) especially for our own operations. Our steel activities and other energy-intensive activities are characterized by industry-specific high CO2 emissions. Therefore they face risks from regulation especially when it does not consider regulatory differences between different countries and it is distorting competition (carbon leakage).

(iv) How the short term strategy has been influenced:
The strategic response in the short-term is a deeper integration of CO2 considerations in management decision processes (as described above) Further focus is energy management and efficiency projects, political dialogue, risk & cost management, but also product development and solutions based on customer needs. This includes a significantly extended assessment of the full value-chain impacts of products.

(v) and (vi) How the long term strategy has been influenced by climate change, incl. Paris Agreement:
The global climate change goals (2°, zero net carbon), outlaid by the Paris Agreement, increasingly frame any kind of long-term future business and CO2 roadmapping processes. With more than 90% of our total footprint being related to the use of products by customers and their customers, reducing the footprint of products to a minimum is the key challenge that we want to tackle in our long term strategy. Therefore our strategy, especially for innovation, has defined climate change as a key pillar. In our sector specific innovation strategies we comprehensively included issues like e-mobility, alternative fuels, CCU and storage technologies for renewable energy and address them with concrete projects and technologies.

(vii) How this is gaining you strategic advantage over our competitors:
tk is conducting constant analysis of business opportunities and sector pathways related to climate change. With the described processes we have already implemented the management structure to quickly translate these findings into innovation and business strategies: improve efficiency of own operations and products, enable transition towards the global goals and anticipate business opportunities early. Here we can build on two key pillars of competitive advantages: our outstanding engineering competence, technological leadership and our diversified portfolio with expertise in many sectors. There are only a few companies worldwide with a comparable range of expertise on tackling climate change in different sectors. For our key sectors, which in total stand for 1/3 of global emissions, we have identified to be addressing a significant share of discussed levers with high reduction potential directly or indirectly with our technology and innovation portfolio.

(viii) Use of forward-looking scenario analyses:
tk has already established an Innovation Foresight Process which gives impulses for long-term research and innovation activities of our businesses. In 2017, tk started such a forward-looking scenario analyses concretely focused on energy and climate change.

CC2.2c Does your company use an internal price on carbon?

Yes

CC2.2d Please provide details and examples of how your company uses an internal price on carbon

thyssenkrupp considers all relevant influences when making managerial decisions on all levels – tactical or strategic. Potential costs or revenues are hence adequately pictured in our decision processes, controlling processes and other. In some relevant cases this requires the consideration of a “price of carbon” (in the sense of pricing GHG emissions) internally set and included into the considerations. It should be clarified that there is not one universal internal “price of carbon”.

Given that thyssenkrupp operates globally and in many different industries, it is essential to readjust any internal price of carbon to the relevant circumstances like external carbon prices. The underlying assumptions are always checked against ongoing external developments; but even with the Paris Agreement we do not see one global price for GHG emissions emerging.

CC2.3 Do you engage in activities that could either directly or indirectly influence public policy on climate change through any of the following? (tick all that apply)

Direct engagement with policy makers
Trade associations

CC2.3a On what issues have you been engaging directly with policy makers?

Focus of legislation	Corporate Position	Details of engagement	Proposed legislative solution
Cap and trade	Support with major exceptions	Position papers, consultations in associations, participation in conferences, direct engagement with policy makers: Position refers in particular to consultation on the development of the EU ETS post 2020 but also international discussions on cap & trade schemes (e.g. under UNFCCC umbrella).	thyssenkrupp is in constant dialogue for a fair emission trading scheme that considers the global markets of sectors, the technological possibilities and the relevant timeframes for transitions. Especially regarding the phase after 2020 of European ETS thyssenkrupp promotes fair conditions for the steel industry in Europe. For international cap & trade schemes thyssenkrupp especially supports a robust rule book under the Paris Agreement as a solid foundation for setting up and linking systems globally. (Position as of June 2017)
Energy efficiency	Support with minor exceptions	Discussions and contributions regarding the revision of the EU Energy Efficiency Directive (and national implementations).	thyssenkrupp is in dialogue with various stakeholders to prevent the bureaucratic overburdens similar to those of the first directive especially with regard to (article 8) audits at sites with neglectable energy consumption. (Position as of June 2017)
Other: Carbon Capture & Use (CCU)	Support	Position papers, consultations in associations, participation in conferences, direct engagement with policy makers	thyssenkrupp promotes the concept of CCU worldwide as an upcoming major option to reduce emissions by substituting fossil carbon with carbon from CO2. Specific rules for this new concept need to be developed and existing regulation needs to be adjusted. CCU is basically about using CO2 as a valuable product instead of releasing it to the air or storing it away. Thus closing the carbon cycle can be a valid alternative to avoiding carbon in certain specific applications. (Position as of June 2017)

CC2.3b Are you on the Board of any trade associations or provide funding beyond membership?

Yes

CC2.3c Please enter the details of those trade associations that are likely to take a position on climate change legislation

Trade association	Is your position on climate change consistent with theirs?	Please explain the trade association's position	How have you, or are you attempting to, influence the position?
ICC - International Chamber of Commerce	Consistent	Private sector innovation, investment and expertise will be vital for a successful tackling of climate change.	thyssenkrupp is represented in the relevant commission and contributes to position papers. (Position as of June 2017)
worldsteel and Eurofer	Mixed	In key messages thyssenkrupp is consistent with their positions but given the heterogeneous nature of the European and especially global steel industry the numerous positions on concrete policies or the general climate policy agenda do not always reflect the positions of all members in all regions.	thyssenkrupp and its subsidiaries are a member of the relevant working groups, expert panels and policy dialogues. We are represented in the governing bodies of these associations. (Position as of June 2017)
BDI (Federation of German Industries)	Consistent	The global and regional goals require a consistent and aligned approach of the different governmental levels. Contradictory regulations need to be prevented.	thyssenkrupp is part of the relevant working groups, expert panels, policy dialogues and partially provided funding for the campaigning. Our CEO is on the board of the association. (Position as of June 2017)

CC2.3f What processes do you have in place to ensure that all of your direct and indirect activities that influence policy are consistent with your overall climate change strategy?

The coordination of the climate change strategy and climate policies lies within the same department - Technology, Innovation & Sustainability. Regarding climate policies, a group coordinator for energy, environment and climate policies (within this department) coordinates a consistent political positioning based on the positions of our companies (assets) and regions. He supports the alignment of political positions with our group climate strategy and related issues (e.g. energy). Furthermore, strategy and general policy approach are aligned with the board.

Page: CC3. Targets and Initiatives

CC3.1 Did you have an emissions reduction or renewable energy consumption or production target that was active (ongoing or reached completion) in the reporting year?

Absolute target

CC3.1a Please provide details of your absolute target

ID	Scope	% of emissions in scope	% reduction from base year	Base year	Base year emissions covered by target (metric tonnes CO2e)	Target year	Is this a science-based target?	Comment
Abs1	Scope 1+2 (location-based)	100%	4%	2013	29090000	2020	No, but we anticipate setting one in the next 2 years	The absolute reduction target is primarily an energy efficiency target which has been translated into CO2. In fiscal year 2013/2014, we launched a group-wide energy efficiency program (GEEP) aimed at achieving sustainable efficiency gains of 3.5 TWh by fiscal 2019/2020. The program is being implemented through concrete projects at the individual sites, e.g. through improved utilization of waste heat, reduction of stand-by times, and replacement of plant components. In addition, efficiency and benchmark analyses and expert workshops are carried out on an ongoing basis. With regard to scope 1+2 emissions the target would already be in line with the ambitions of the sectoral decarbonization approach as laid out by the SBTi. For targets with a medium and long time frame, thyssenkrupp is currently evaluating approaches for a company specific reduction target, which would also take into account long-term contribution in relation to the Paris Agreement. Regarding scope 3 emissions and here especially with view on “use of sold products”, we currently do not see feasible methodologies to set and track Scope 3 targets in the same manner as Scope 1+2 targets. In order to develop a sound target approach, we have committed to work on such methodologies and are open for any kind of dialogue.

ID	Scope	% of emissions in scope	% reduction from base year	Base year	Base year emissions covered by target (metric tonnes CO2e)	Target year	Is this a science-based target?	Comment
Abs2	Scope 3: Fuel- and energy-related activities (not included in Scopes 1 or 2)	100%	4%	2013	4800000	2020	No, but we anticipate setting one in the next 2 years	The absolute reduction target is primarily an energy efficiency target which has been translated into CO2. In fiscal year 2013/2014, we launched a group-wide energy efficiency program (GEEP) aimed at achieving sustainable efficiency gains of 3.5 TWh by fiscal 2019/2020. The program is being implemented through concrete projects at the individual sites, e.g. through improved utilization of waste heat, reduction of stand-by times, and replacement of plant components. In addition, efficiency and benchmark analyses and expert workshops are carried out on an ongoing basis. With regard to scope 1+2 emissions the target would already be in line with the ambitions of the sectoral decarbonization approach as laid out by the SBTi. For targets with a medium and long time frame, thyssenkrupp is currently evaluating approaches for a company specific reduction target, which would also take into account long-term contribution in relation to the Paris Agreement. Regarding scope 3 emissions and here especially with view on “use of sold products”, we currently do not see feasible methodologies to set and track Scope 3 targets in the same manner as Scope 1+2 targets. In order to develop a sound target approach, we have committed to work on such methodologies and are open for any kind of dialogue.

CC3.1e For all of your targets, please provide details on the progress made in the reporting year

ID	% complete (time)	% complete (emissions or renewable energy)	Comment
Abs1	43%	79%	
Abs2	43%	79%	

CC3.2 Do you classify any of your existing goods and/or services as low carbon products or do they enable a third party to avoid GHG emissions?

Yes

CC3.2a Please provide details of your products and/or services that you classify as low carbon products or that enable a third party to avoid GHG emissions

Level of aggregation	Description of product/Group of products	Are you reporting low carbon product/s or avoided emissions?	Taxonomy, project or methodology used to classify product/s as low carbon or to calculate avoided emissions	% revenue from low carbon product/s in the reporting year	% R&D in low carbon product/s in the reporting year	Comment
Group of products	InCar®plus comprises 40 new components and solutions for the automotive industry (powertrain, chassis & steering as well as body) that boost CO2 efficiency. For instance, the powertrain subproject is concentrating on the further development of the valve train, with the objective to increase the efficiency of the combustion engine and significantly reduce fuel consumption and therefore emissions.	Low carbon product	Other: Product specific calculation based on GWP potentials and avoided GHGs		Less than or equal to 10%	
Product	Another product among our various product lines which saves emissions for our customers from thyssenkrupp's Business Area Industrial Solutions is EnviNOx®. It is not only the most efficient currently available de-N2O® process for nitric acid, it has also resulted in European emission limits for N2O being corrected downward. The process uses a special catalyst to convert the laughing gas (N2O) and NOx generated during the production of nitric acid into nitrogen, oxygen and water. EnviNOx® units have been installed for numerous clients around the world. An exemplary complex comprises a 1,200 t/day nitric acid plant and a UAN plant with a daily capacity of 3,395 t/day liquid urea ammonium nitrate solution with a nitrogen content of 32%. The EnviNOx® reactor consistently achieves very high abatement for N2O (up to 99%). An additional advantage is that NOx emissions are reduced to effectively zero (< 1ppm) making for an extremely clean tail gas.	Avoided emissions	Other: Installation specific calculation based on GWP potentials and avoided GHGs		Less than or equal to 10%	

Level of aggregation	Description of product/Group of products	Are you reporting low carbon product/s or avoided emissions?	Taxonomy, project or methodology used to classify product/s as low carbon or to calculate avoided emissions	% revenue from low carbon product/s in the reporting year	% R&D in low carbon product/s in the reporting year	Comment
Group of products	Our Elevator Technology innovations MULTI, ACCEL and MAX provide game-changing modes of transport for future cities aiming at a zero net ready urban mobility. The MULTI for example is an elevator without a rope which can run sidewards. It allows completely new types of architecture and mobility concepts. All of these solutions do not rely on fossil fuels but on electricity which can be sourced from renewables.	Avoided emissions	Other: Product specific calculations currently underway		Less than or equal to 10%	
Product	The PREPOL® SC combustion chamber increases the CO2 efficiency of cement plants by enabling to use alternative fuels for the clinker and cement production.	Low carbon product	Other: Product specific calculations currently underway		Less than or equal to 10%	

CC3.3 Did you have emissions reduction initiatives that were active within the reporting year (this can include those in the planning and/or implementation phases)

Yes

CC3.3a Please identify the total number of projects at each stage of development, and for those in the implementation stages, the estimated CO2e savings

Stage of development	Number of projects	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	0	0
To be implemented*	201	125000
Implementation commenced*	0	0
Implemented*	202	190000
Not to be implemented	0	0

CC3.3b For those initiatives implemented in the reporting year, please provide details in the table below

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/ Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
Energy efficiency: Processes	The activities are primarily energy efficiency activities which have been translated into CO2 (Scope 1+2). In fiscal year 2013/2014, we launched a group-wide energy efficiency program (GEEP) aimed at achieving sustainable efficiency gains of 3.5 TWh by fiscal year 2019/2020. The program is being implemented through concrete projects at the individual sites, e.g. through improved utilization of waste heat, reduction of stand-by times, and replacement of plant components. In addition, efficiency and benchmark analyses and expert workshops are carried out on an ongoing basis.	190000	Scope 1 Scope 2 (location-based)	Voluntary	43000000	2100000	1-3 years	3-5 years	Data as of June 2017. The reported monetary savings and invests refer to savings of measures that contain energy (efficiency) related activities. This might contain several other effects as well. All considered projects are documented in a database base which contains only concrete projects. Therefore the projects "to be implemented" are updated daily. The category "implementation commenced" is not considered in this documentation logic as all effects and sub-projects are counted as "implemented" when effects have already been recorded. Also "not to be implemented" is not considered directly as most measures which are not to be implemented are under continuous investigation.

CC3.3c What methods do you use to drive investment in emissions reduction activities?

Method	Comment
Internal incentives/recognition programs	Energy efficiency measures are part of individual target achievement of responsible employees. Also, as it is part of thyssenkrupp's indirect financial targets, it is also incorporated into our board's compensation scheme.
Financial optimization calculations	Focus of energy efficiency measures is to reduce operational costs. All measures are therefore based on financial optimization calculations.
Compliance with regulatory requirements/standards	Emissions reduction activities can be driven e.g. by Energy Efficiency Directive in countries of the EU.

Page: CC4. Communication

CC4.1 Have you published information about your organization's response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s)

Publication	Status	Page/Section reference	Attach the document	Comment
In mainstream reports (including an integrated report) but have not used the CDSB Framework	Complete	P. 35-41, p.83-86, p. 87, p.115-116, p. I.09	https://www.cdp.net/sites/2017/80/19080/Climate Change 2017/Shared Documents/Attachments/CC4.1/thyssenkrupp_gb_en_2015_2016.pdf	
In voluntary communications	Complete	GHG emissions graph	https://www.cdp.net/sites/2017/80/19080/Climate Change 2017/Shared Documents/Attachments/CC4.1/Climate protection and CO2 information graph_thyssenkrupp AG.pdf	reported on our Corporate Website as of May 2017
In voluntary communications	Complete	P. 24-27, p. 42-47	https://www.cdp.net/sites/2017/80/19080/Climate Change 2017/Shared Documents/Attachments/CC4.1/Technology Forum 2017.pdf	TechForum Magazine

Module: Risks and Opportunities

Page: CC5. Climate Change Risks

CC5.1 Have you identified any inherent climate change risks that have the potential to generate a substantive change in your business operations, revenue or expenditure? Tick all that apply

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

CC5.1a Please describe your inherent risks that are driven by changes in regulation

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Cap and trade schemes	thyssenkrupp's European steel production facilities fall under the European Emission Trading Scheme (EU ETS). Our carbon intensity is already very low as also confirmed by the CDP in its sector study 2016. Despite this good performance, the EU ETS presents a significant risk for increased regulatory costs. The carbon market of the EU ETS after 2020 has not been fully defined in all details yet and it is always at risk to be changed by policy makers at any time. Potential risks include increased unfair benchmarking bases, artificial costs for certificates, changing allocation rules, the questioning of the protection against so called "carbon leakage" or even a completely new set-up. The dynamics of the upcoming design of regulation might lead to cost burdens which do not leave enough resources nor give enough time and support to initiate comprehensive transformations. (risk description, calculations, etc. as of June 2017)	Increased operational cost	>6 years	Direct	Likely	High	Risks are estimated to amount up to about 1.6 (best case) to 3 Bn. € (worst case) for the period EU ETS phase of 2021-2030 in preliminary scenarios based on the current status of EU ETS revision discussion. The financial implications are nearly exclusively related to thyssenkrupp's German steel production. (as of June 2017)	The management method to encounter these risks is based on a multifold approach. The long-term measures to reduce the EU ETS related risks focus on developing alternative solutions. The key example is the cross-industry demonstration project Carbon2Chem which seeks to bring carbon, capture and use (CCU) to industry scale for the steel production in Duisburg (Germany) with the long-term potential to reduce emissions significantly and thus the regulatory risks associated with ETS. During the timeframe required to bridge transformational changes, the major focus to mitigate the risks for thyssenkrupp is based on an intense dialogue with relevant decision-makers, technical experts and in cross-industry collaboration. Examples are position papers on the EU ETS phase for 2021-2030 regarding detailed rules for the steel industry and concrete dialogue meetings in Berlin and Brussels addressing the conditions for a fair carbon market. Additionally, EU steel producers on a regular basis jointly draw attention to these risks. For example thyssenkrupp participated in the "Stahl Aktionstag" on April 11th 2016 with about 15000 steel workers participating at a manifestation in Duisburg claiming for fair regulatory conditions within the ETS. Internally a dedicated expert group is in place to manage the different activities and processes.	Besides the Carbon2Chem project with a two-digit million Euro budget, the associated cost for dialogue are mainly staff costs for (<10 employees). The total annual costs of this staff refer only partially to this specific risk and they amount up to well below <1% of the projected max. potential gross risk.

CC5.1b Please describe your inherent risks that are driven by changes in physical climate parameters

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Change in precipitation pattern	The supply chain for the production of our steel mill in Duisburg, Germany, relies on different modes of transport, including shipping via the Rhine river. By changes in precipitation patterns, there is a risk that the river level is either too high or too low for shipping activities which could potentially lead to an interruption of supplies for our steel mill. Currently it is not fully clear whether the risk is related to a long-term physical climate change, one-time events or dominated by other effects. Nevertheless within CDP reporting rules the risk has to be attributed to this risk category.	Reduction/disruption in production capacity	Up to 1 year	Indirect (Supply chain)	Very unlikely	Medium-high	If the supply of raw materials was fully interrupted, the steel mill would need to shut down. The financial implications would be related to the duration of such event. So the estimated financial implications put at risk the turnover of this time period from the annual turnover of >7 Bn € plus additional costs related to shut down (e.g. related to delivery performance or reduced power generation). The potential net risk is well below these figures considering counter measures.	thyssenkrupp developed a multi-step management plan to mitigate the impacts in case of such an event with concrete measures. So the net risk is well-below the gross risk. Concrete examples of measures of this management approach which are in place and taken whenever necessary are (1) regular exchange with the authority overseeing shipping on the Rhine river and (2) review and monitoring of long-term weather forecasts by the department for logistics and supply chain at our steel business. (3) In case of too low or high water levels, supplies, especially of iron ore and coal are transferred to land based transport, e.g. by rail or road. Normally they are shipped from the coastal ports via the river.	The costs for managing this risk are mainly due to the usage of alternative modes of transport, such as rail or road. All of these measures sum up to a volume of less than <1% of the max. potential gross risk.

Change in precipitation extremes and droughts	Our Brazilian steel operations (accounted as a discontinued operation since 2017) are exposed to a gross risk in water supply related to extreme weathers and draughts in the relevant river basin. The availability of water at such events is not only related to precipitation but also to allocation of water resources by governments. Currently it is not fully clear whether the risk is related to a long-term physical climate change, one-time events or dominated by other effects. Nevertheless within CDP reporting rules the risk has to be attributed to this risk category.	Reduction/disruption in production capacity	Up to 1 year	Direct	Likely	High	If the water supply was fully interrupted the steel mill would need to shut down. The financial implications would be related to the duration of such event. So the estimated financial implications put at risk the turnover of this time period from the annual turnover of around 1.5 Bn € plus additional costs related to shut down (e.g. related to delivery performance or reduced power generation). The potential net risk is well below considering counter measures.	thyssenkrupp developed a multi-step management plan to mitigate the impacts in case of such an event with concrete measures. So the net risk is well-below the gross risk. As concrete examples, thyssenkrupp (1) is building reservoirs, (2) has been building dams to prevent salination of the relevant river and (3) has defined and tested concrete emergency measures including e.g. water supply with trucks. As another continuous measure (4) the river basin and the conductivity at the intake point are monitored and measured constantly to predict such events and therefore increase preparedness.	The costs of these different measures include one-time CAPEX, e.g. for building reservoirs and a dam, as well as potential costs for emergency measures. All of these measures sum up to a volume of less than <1% of the max. potential gross risk.

CC5.1c Please describe your inherent risks that are driven by changes in other climate-related developments

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Changing consumer behavior	thyssenkrupp is a global engineering company active in many sectors with a variety of technology trends regarding mitigating climate change. Therefore addressing a key trend or technology not early enough is an inherent risk for our business models. For example our Business Area Industrial Solutions is a full-range supplier in the cement industry (including solutions for e.g. raw material preparation, clinker production, and automation solutions). Furthermore, Industrial Solutions also supplies numerous customers in the chemical industry with solutions for e.g. fertilizers, base chemicals, or electrolysis. In the light of climate change, our customers from these and other industries will constantly seek for the most promising pathways to achieve low carbon solutions or even zero net emissions. A potential risk in this regard could arise from e.g. missing relevant technology for producing low carbon cement or market trends regarding chemical products leading to significant losses in market shares.	Reduced demand for goods/ services	>6 years	Direct	Exceptionally unlikely	High	In the unlikely event of fully missing technology or market trends in key sectors, the company could lose its current market position. Subsequently, the ultimate financial implication could result in different ranges of losses in turnover, which could theoretically sum up to the total turnover of currently about 39 Bn € by cumulated effects in a worst case scenario.	Our management approach is based on constant investment in solution development via research and development (R&D) in a close dialogue with our customers on their needs, visions and technology trends. thyssenkrupp has set the target to constantly invest 2.5% of adjusted annual turnover in R&D. An example how thyssenkrupp incorporates new trends and requirements, is the comprehensive formal process called Innovation Dialogue (see strategy description) which directly feeds into innovation strategy and business strategy. It is an annual process involving the R&D departments from all businesses. It focuses on a thorough assessment and scouting of technological trends and market potentials per sector as well as concrete development projects to bring innovation to market. Findings are incorporated in the development of new products and solutions via a standardized Product Lifecycle Management (PLM). Additionally, our Innovation Foresight process helps us to make decisions today that set us in the right long-term direction. One concrete measure for encountering the potential risks of mid-/long-term market shifts is our TechCenter Carbon Composites based in Dresden. It develops new light-weight components from carbon fibers (CFK) e.g. for the automotive industry with innovational production processes. A product already ready for the market is wheel rims for motor bikes.	The costs of these measures are incorporated in our R&D budget, which results in a total amount of more than 750 Mio. € in fiscal year 2015/2016.

Page: CC6. Climate Change Opportunities

CC6.1 Have you identified any inherent climate change opportunities that have the potential to generate a substantive change in your business operations, revenue or expenditure? Tick all that apply

Opportunities driven by changes in regulation
Opportunities driven by changes in other climate-related developments

CC6.1a Please describe your inherent opportunities that are driven by changes in regulation

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Other regulatory drivers	The set of regulatory opportunity drivers are composed of a basket of different possible regulation, often in a combination of regulation with funding, incentives and other governmental action. thyssenkrupp is active in many sectors all around the globe. It is therefore company-specific to look at opportunities from regulation with a very wide view. A key goal of the Paris Agreement is to achieve overall net zero emissions in the second half of the century. As a consequence, regions and countries worldwide will need to develop approaches and roadmaps to realize this overall goal- ranging from product efficiency regulations (e.g. CO2 limits for cars), energy efficiency regulations, innovation funds with regard to CO2, local climate action plans and voluntary governmental initiatives up to certification schemes (e.g. LEED). For thyssenkrupp, as a solution partner for many sectors (including CO2 intensive sectors such as the cement industry), this development may offer new business opportunities and extend existing businesses to contribute with tailored products and solutions. For our key sectors, which in total stand for a major share of global emissions, we have identified to be addressing a major share of discussed levers with high reduction potential directly or indirectly with our technology and innovation portfolio. The timeframe of opportunities varies by market and sector from <1 year up to more than 6 years but increasing by time.	New products/ business services	>6 years	Indirect (Client)	Virtually certain	High	Most of the opportunities for us are directly or indirectly induced by regulation. For example a new regulation on CO2 limits for the automotive industry can lead to an increased demand for light-weight materials to fulfill these limits. Looking at these opportunities from regulation, we cannot see anything of our portfolio not to be possibly positively affected by such regulations. Looking at the goals of the Paris Agreement we therefore consider, at least in the long run, close to 100% of our portfolio to be relevant with regard to this opportunity. So the opportunity can be quantified with thyssenkrupp's overall turnover of 39 Bn € and most of its future growth. These opportunities are not considered as an add-on business but future core business. Usually regulatory drivers and changing customer behaviour go hand in hand. The related financial opportunities are therefore overlapping each other.	For thyssenkrupp climate change is considered to be a core differentiator in all our markets. Technology, Innovation & Sustainability are organized within the same department to ensure that sustainability and climate change aspects are systematically integrated in relevant decision-making, especially with regard to our innovation portfolio. CO2 efficiency, customer demands and relevant climate change regulations are considered in the early stages of the product lifecycle management and product development. As a key method thyssenkrupp has implemented a strategic innovation management which analyses the opportunities for our portfolio and future products with regard to e.g. customer demands driven by regulation like emission trading or CO2 limits. CO2 plays a crucial role in most of these aspects. One concrete example for an outcome is the cross-industry demonstration project Carbon2Chem which seeks to bring carbon, capture and use (CCU) to industry scale for the steel production in Duisburg (Germany) with the long-term potential to reduce emissions significantly. It not only reduces regulatory risks for own operations. It is a promising business opportunity. thyssenkrupp engineers key installations of the project (e.g. the crucial water electrolysis). The project therefore is also envisaged to create a new market for our solutions enabling transformations especially in the steel sector and other sectors where fossil carbon is indispensable.	Major costs of this management approach which is focused on innovation is subsequently associated with our R&D expenditures. The total expenditure on R&D of the Group was more than 750 million Euros in FY 2015/2016. The referred project Carbon2Chem is additionally funded with a two-digit million Euro budget from the German government as a lighthouse project for CO2 innovations.

CC6.1c Please describe your inherent opportunities that are driven by changes in other climate-related developments

Opportunity driver	Description	Potential impact	Time-frame	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Changing consumer behavior	Many of thyssenkrupp's existing as well as future customers have set their own targets to increase their CO2 efficiency or to support their customers to reduce their carbon footprint (e.g. within the cement industry or the automotive industry). These developments have been accelerated by the Paris Agreement and initiatives like CDP, SBTi or TCFD. Therefore, we consider CO2 to become a major competitive differentiator. Subsequently, our customers demand for more CO2 efficient products will constantly grow. The motivation of our customers for this demand is a combination of changing consumer behaviour, energy cost reductions, reputational issues and stronger climate change regulations (e.g. EU ETS, product efficiency regulations, energy efficiency regulations, innovation funds with regard to CO2, local climate action plans, voluntary governmental initiatives, mandatory certification schemes like LEED). As thyssenkrupp is active in so many sectors and all around the world, the full basket of possible drivers is relevant. Each single opportunity is therefore very specific to the thousands of different products in the different markets. The timeframe of opportunities varies by market and sector from <1 year up to more than 6 years but increasing by time.	Other: Impacts on all aspects of our business, starting from increased demand for existing products to premium prices and opportuniti es for new markets	Up to 1 year	Indirect (Client)	Virtually certain	High	thyssenkrupp has put CO2 in the core of the business strategy as we consider climate change to be a core differentiator in all our markets. Besides regulation also changing customer demands may present such a driver. This can be observed in cases where consumers drive markets towards low carbon or companies set own targets. Looking at these opportunities, we cannot see anything of our portfolio not to be possibly positively affected by such changes in consumer demands. Looking at the goals of the Paris Agreement we therefore consider, at least in the long run, close to 100% of our portfolio to be relevant with regard to this opportunity. So the opportunity can be quantified with thyssenkrupp’s overall turnover of 39 Bn € and most of its future growth. These opportunities are not considered as an add-on business but future core business. Usually changing customer behaviour and regulatory drivers go hand in hand. The related financial opportunities are therefore overlapping each other.	Climate change is considered to be a core differentiator in all our markets. Technology, Innovation & Sustainability are organized within the same department to ensure that sustainability and climate change aspects are systematically integrated in relevant decision-making, especially with regard to our innovation portfolio. CO2 efficiency, customer demands and relevant climate change regulations are considered in the early stages of the product lifecycle management and product development. As a key method thyssenkrupp has implemented a strategic innovation management which analyses the opportunities for our portfolio and future products with regard to e.g. customers seeking to be leaders in efficiency. CO2 plays a crucial role in most of these aspects. One concrete example for an outcome also here is the cross-industry demonstration project Carbon2Chem which seeks to bring carbon, capture and use (CCU) to industry scale for the steel production in Duisburg (Germany) with the long-term potential to reduce emissions significantly. It not only reduces regulatory risks for own operations. It is a promising business opportunity. We engineer key installations of the project (e.g. the crucial water electrolysis). The project therefore is also envisaged to create a new market for our solutions enabling transformations especially in the steel sector and other sectors where fossil carbon is indispensable. Other examples are light weight materials or efficient cement plants.	Major costs of this management approach which is focused on innovation is subsequently associated with our R&D expenditures. The total expenditure on R&D of the Group was more than 750 million Euros in FY 2015/2016. The referred project Carbon2Chem is additionally funded with a two-digit million Euro budget from the German government as a lighthouse project for CO2 innovations.

CC6.1e Please explain why you do not consider your company to be exposed to inherent opportunities driven by changes in physical climate parameters that have the potential to generate a substantive change in your business operations, revenue or expenditure

Of course it is impossible to exclude opportunities from physical climate change. But with the current portfolio set-up we do not see any sufficient basis for qualifying them as significant. This judgement of course might change in the future.

i) Impacts evaluated: Impacts are evaluated within our own processes and along our value chains. The following opportunities are, both in total and on a Group level, not considered to be substantive yet: For some products we see an increasing demand from physical changes. For example, heavy plates, some special grades of steel and steel piling are required for water supply as they reduce the losses in the water supply systems. They are also used to protect against floods. Mining and industrial productions in regions with higher temperatures might require less fossil power to achieve certain temperature levels in production processes and the material input might be of superior quality in warm environments (e.g. less moisture). Higher temperatures could also lead to less energy consumption for heating. But we currently see only minor effects for single operations/products. These aspects present only minor additional market opportunities or reduced costs for thyssenkrupp.

ii) The process for how those impacts have been evaluated: Market opportunities from changes in physical climate parameters (e.g. for steel piling) are being assessed among other processes in our innovation dialogue. Currently neither the existing portfolio nor future innovation fields have been directly associated with physical climate change. Potentials for cost reduction in operations are tracked e.g. in our energy management and within our data collection on an annual basis.

iii) Why impacts have been considered as not relevant: For our own operations we can track these effects on a sufficient data base. The relevant indicators and projections do not show any significant opportunities. For some single companies within our value chain rising temperatures might present opportunities: e.g. the geographical regions may change where we sell e.g. a fertilizer plant, new suppliers and routes may appear or new geographies where mining is possible. But in total our product portfolio is not focused on sectors with high sensitivity on physical changes. In the end we currently do not see physical climate change to change the market in general.

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

Page: CC7. Emissions Methodology

CC7.1 Please provide your base year and base year emissions (Scopes 1 and 2)

Scope	Base year	Base year emissions (metric tonnes CO2e)
Scope 1	Mon 01 Oct 2012 - Mon 30 Sep 2013	27050000
Scope 2 (location-based)	Mon 01 Oct 2012 - Mon 30 Sep 2013	2040000
Scope 2 (market-based)	Mon 01 Oct 2012 - Mon 30 Sep 2013	2040000

CC7.2 Please give the name of the standard, protocol or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions

Please select the published methodologies that you use
The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

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

Gas	Reference
CO2	IPCC Fourth Assessment Report (AR4 - 100 year)

CC7.4 Please give the emissions factors you have applied and their origin; alternatively, please attach an Excel spreadsheet with this data at the bottom of this page

Fuel/Material/Energy	Emission Factor	Unit	Reference
Natural gas	0.202	metric tonnes CO2e per MWh	IPCC 2006 Stationary Combustion
Coke oven coke	0.385	metric tonnes CO2e per MWh	IPCC 2006 Stationary Combustion (+local measurements)
Coke oven gas	0.160	metric tonnes CO2e per MWh	IPCC 2006 Stationary Combustion
Coking coal	0.341	metric tonnes CO2e per MWh	IPCC 2006 Stationary Combustion (+local measurements)

Further Information

Please consider that in general thyssenkrupp follows the advice of audit companies to display any figures as rounded figures (e.g. 32.6 Mio t of CO2 of Scope 1) especially where these figures are in dimension millions or hundred thousands. To be consistent with our financial reporting this approach has been transferred to the CDP as well.

Page: CC8. Emissions Data - (1 Oct 2015 - 30 Sep 2016)

CC8.1 Please select the boundary you are using for your Scope 1 and 2 greenhouse gas inventory

Financial control

CC8.2 Please provide your gross global Scope 1 emissions figures in metric tonnes CO2e

32600000

CC8.3 Please describe your approach to reporting Scope 2 emissions

Scope 2, location-based	Scope 2, market-based	Comment
We are reporting a Scope 2, location-based figure	We are reporting a Scope 2, market-based figure	In its GHG management thyssenkrupp focuses on the location-based figure as it is the major driver to globally reduce emissions and not only within the boundary of single companies. With the location-based figure we are also able to consider the effects of storage, flexible consumers, peak shaving, cross-industry networks and other instruments to push renewables significantly at large scale. Nevertheless for disclosure purposes we also track a market-based figure in line with the standards. Please also keep in mind that Scope is less than 5% of "own emissions" and only around 0.1% of the total carbon footprint. Therefore the focus of GHG management lies strongly on Scope 3 (especially use of sold products) and Scope 1.

CC8.3a Please provide your gross global Scope 2 emissions figures in metric tonnes CO2e

Scope 2, location-based	Scope 2, market-based (if applicable)	Comment
1200000	1200000	The complexity of thyssenkrupp's global energy consumption creates challenges on the interfaces of the relevant GHG Protocol standards regarding Scope 1, 2 and 3, CDP guidance e.g. on low carbon energy as well as relevant financial accounting rules. Cross-effects of the standards create the uncommon outcome that at thyssenkrupp we do not account any relevant difference between the location and market-based approach in the rounded figure. Also please keep in mind the minor relevance of Scope 2 for thyssenkrupp with regard to the considered energy sources: About 80% of our total gross consumption of electricity, steam, heat & cooling is based on own production (e.g. from heat recovery and the energy complex at steel mills) at the relevant sites and therefore included in Scope 1 and not in Scope 2.

CC8.4 Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure?

No

CC8.5 Please estimate the level of uncertainty of the total gross global Scope 1 and 2 emissions figures that you have supplied and specify the sources of uncertainty in your data gathering, handling and calculations

Scope	Uncertainty range	Main sources of uncertainty	Please expand on the uncertainty in your data
Scope 1	Less than or equal to 2%	Extrapolation	For smaller group companies with far below 1% of emissions estimations have been made.
Scope 2 (location-based)	Less than or equal to 2%	Extrapolation	For smaller group companies with far below 1% of emissions estimations have been made.
Scope 2 (market-based)	Less than or equal to 2%	Extrapolation	For smaller group companies with far below 1% of emissions estimations have been made.

CC8.6 Please indicate the verification/assurance status that applies to your reported Scope 1 emissions

Third party verification or assurance process in place

CC8.6a Please provide further details of the verification/assurance undertaken for your Scope 1 emissions, and attach the relevant statements

Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/section reference	Relevant standard	Proportion of reported Scope 1 emissions verified (%)
Annual process	Complete	Limited assurance	https://www.cdp.net/sites/2017/80/19080/Climate Change 2017/Shared Documents/Attachments/CC8.6a/CDP Verification Template thyssenkrupp.pdf	Pages 1-2	ISAE3000	100

CC8.7 Please indicate the verification/assurance status that applies to at least one of your reported Scope 2 emissions figures

Third party verification or assurance process in place

CC8.7a Please provide further details of the verification/assurance undertaken for your location-based and/or market-based Scope 2 emissions, and attach the relevant statements

Location-based or market-based figure?	Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/Section reference	Relevant standard	Proportion of reported Scope 2 emissions verified (%)
Location-based	Annual process	Complete	Limited assurance	https://www.cdp.net/sites/2017/80/19080/Climate Change 2017/Shared Documents/Attachments/CC8.7a/CDP Verification Template thyssenkrupp.pdf	Pages 1-2	ISAE3000	100

CC8.8 Please identify if any data points have been verified as part of the third party verification work undertaken, other than the verification of emissions figures reported in CC8.6, CC8.7 and CC14.2

Additional data points verified	Comment
Emissions reduction activities	Assurance of achievements in the frame of our group-wide energy efficiency program (GEEP), where progress is reported in our annual report. The verification is fully included in the verification statement of the annual report. (see document attached under "Communication", p. 87)

CC8.9 Are carbon dioxide emissions from biologically sequestered carbon relevant to your organization?

No

Page: CC9. Scope 1 Emissions Breakdown - (1 Oct 2015 - 30 Sep 2016)

CC9.1 Do you have Scope 1 emissions sources in more than one country?

Yes

CC9.1a Please break down your total gross global Scope 1 emissions by country/region

Country/Region	Scope 1 metric tonnes CO2e
Europe	22300000
Rest of world	10300000

Page: CC10. Scope 2 Emissions Breakdown - (1 Oct 2015 - 30 Sep 2016)

CC10.1 Do you have Scope 2 emissions sources in more than one country?

Yes

CC10.1a Please break down your total gross global Scope 2 emissions and energy consumption by country/region

Country/Region	Scope 2, location-based (metric tonnes CO2e)	Scope 2, market-based (metric tonnes CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low carbon electricity, heat, steam or cooling accounted in market-based approach (MWh)
Europe	800000	800000	2660000	1500000
Rest of world	400000	400000	800000	320000

Further Information

see comments on Scope 2 under "Emissions Data"

Page: CC11. Energy

CC11.1 What percentage of your total operational spend in the reporting year was on energy?

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

CC11.2 Please state how much heat, steam, and cooling in MWh your organization has purchased and consumed during the reporting year

Energy type	MWh
Heat	0
Steam	160000
Cooling	0

CC11.3 Please state how much fuel in MWh your organization has consumed (for energy purposes) during the reporting year

96000000

CC11.3a Please complete the table by breaking down the total "Fuel" figure entered above by fuel type

Fuels	MWh
Other: Reduction agents (coke+coal)	86000000
Other: Different other fuels (e.g. natural gas)	10000000

CC11.4 Please provide details of the electricity, heat, steam or cooling amounts that were accounted at a low carbon emission factor in the market-based Scope 2 figure reported in CC8.3a

Basis for applying a low carbon emission factor	MWh consumed associated with low carbon electricity, heat, steam or cooling	Emissions factor (in units of metric tonnes CO2e per MWh)	Comment
Off-grid energy consumption from an on-site installation or through a direct line to an off-site generator owned by another company	1820000	0	The shown figure presents only purchased electrical power which is accounted using an interlaced model with the low carbon factor "0" in line with the GHG Protocol standard. The model follows the hierarchy of accounting defined by GHG Protocol and quoted within the CDP guidance "Accounting of Scope 2 emissions" under 2.2 and also considers cross-effects. Therefore the model is in line with the CDP methodology and scoring in general. Off-grid purchased low carbon electricity presents a significant share of this contractually purchased electricity (~20%). At thyssenkrupp off-grid related electricity is related to alternative sources mainly from power generation from by-product gases (CO, H2) of industrial processes. Being a very specific case these gases are explicitly considered low carbon under German law and fulfill the low carbon criteria of CDP as well: The emission factor is considered 0 as these gases would be sent to flares otherwise and therefore their usage for power generation does not present a net CO2 emission. This accounting also follows the accounting rules of the EU Emissions Trading Scheme. As stated under 8.3a the complexity of thyssenkrupp's global energy consumption creates challenges on the interfaces of the relevant GHG Protocol standards regarding Scope 1, 2 and 3, CDP guidance e.g. on low carbon energy as well as relevant financial accounting rules. So we encourage CDP to further align examples within the guidance documents with the GHG Protocol standards. Currently some formulations and examples may lead to different forms of interpretations and should be aligned to improve comparability of low carbon accounting among companies. As discussed with the CDP staff in advance we are open for dialogue to improve the methodology and guidance.

CC11.5 Please report how much electricity you produce in MWh, and how much electricity you consume in MWh

Total electricity consumed (MWh)	Consumed electricity that is purchased (MWh)	Total electricity produced (MWh)	Total renewable electricity produced (MWh)	Consumed renewable electricity that is produced by company (MWh)	Comment
8400000	3300000	5100000	100	100	

Page: CC12. Emissions Performance

CC12.1 How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to the previous year?

No change

CC12.1a Please identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined) and for each of them specify how your emissions compare to the previous year

Reason	Emissions value (percentage)	Direction of change	Please explain and include calculation
Emissions reduction activities	0.6	Decrease	In the reporting year, we reduced our scope 1 and 2 emissions by 190,000 t CO2 with efficiency projects. Therefore, we arrive at a reduction of 0.6% to previous year (2015) emissions of 33.8 Mio. t CO2 (0.19/33.8 = 0.6%) related to "emission reduction activities" of our GEEP initiative (energy efficiency/ CO2 target).
Divestment	0	No change	
Acquisitions	0	No change	
Mergers	0	No change	
Change in output	0.2	Increase	Change in output mainly due to production increase in our steel business. The difference to the previous year (2015) is 61,000 t CO2 related to production increase. Therefore, this increase amounts to 0.2% compared to previous year emissions of 33.8 Mio. t CO2 (0.06/33.8 = 0.2%).
Change in methodology	0	No change	
Change in boundary	0	No change	
Change in physical operating conditions	0	No change	
Unidentified	0	No change	
Other	0.5	Increase	Other changes are mostly related to mixed reasons and cross-effects of the categories above. The difference to the previous year (2015) is 160,000 t CO2. Therefore, this increase amounts to 0.5% compared to previous year emissions of 33.8 Mio. t CO2 (0.16/33.8 = 0.5%)

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

Location-based

CC12.2 Please describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tonnes CO2e per unit currency total revenue

Intensity figure =	Metric numerator (Gross global combined Scope 1 and 2 emissions)	Metric denominator: Unit total revenue	Scope 2 figure used	% change from previous year	Direction of change from previous year	Reason for change
0.0009	metric tonnes CO2e	39000000000	Location-based	9	Increase	Price-related effects: Absolute scope 1 & 2 emissions figures have been maintained on a stable level in comparison to fiscal year 2014/2015 and compared to production levels. However, the difficult market surroundings especially of our materials businesses led to an overall decrease in revenues, resulting in a higher intensity figure. The increase is therefore purely related to a price effect.

CC12.3 Please provide any additional intensity (normalized) metrics that are appropriate to your business operations

Intensity figure =	Metric numerator (Gross global combined Scope 1 and 2 emissions)	Metric denominator	Metric denominator: Unit total	Scope 2 figure used	% change from previous year	Direction of change from previous year	Reason for change
1.8	metric tonnes CO2e	tonne of steel	19000000	Location-based	1	Decrease	Change is mainly due to emission reduction activities. Please note that change is smaller than displayed in the reported decimals places of the intensity figure.

Page: CC13. Emissions Trading

CC13.1 Do you participate in any emissions trading schemes?

Yes

CC13.1a Please complete the following table for each of the emission trading schemes in which you participate

Scheme name	Period for which data is supplied	Allowances allocated	Allowances purchased	Verified emissions in metric tonnes CO2e	Details of ownership
European Union ETS	Fri 01 Jan 2016 - Sat 31 Dec 2016	17852664	2795369	18100236	Facilities we own and operate
European Union ETS	Fri 01 Jan 2016 - Sat 31 Dec 2016	11648	0	2559445	Facilities we operate but do not own

CC13.1b What is your strategy for complying with the schemes in which you participate or anticipate participating?

As part of the European Emissions Trading System that started in 2005, involved group companies have installed monitoring systems to measure and calculate their relevant CO2 emissions which are covered by the legislation. Furthermore, thyssenkrupp has an operational emissions trading strategy in place which aims to cover “short” positions at the least possible costs and at controllable risks. Speculative and "trading" activities are not part of the strategy. thyssenkrupp AG has established a viable market access, including membership at the Intercontinental Exchange (ICE) and the European Energy Exchange (EEX). A central department of thyssenkrupp Steel Europe AG is in charge of emissions trading (globally) creating synergies in the related trading of emissions and energy.

CC13.2 Has your organization originated any project-based carbon credits or purchased any within the reporting period?

Yes

CC13.2a Please provide details on the project-based carbon credits originated or purchased by your organization in the reporting period

Credit origination or credit purchase	Project type	Project identification	Verified to which standard	Number of credits (metric tonnes CO2e)	Number of credits (metric tonnes CO2e): Risk adjusted volume	Credits canceled	Purpose, e.g. compliance
Credit origination	N20	Credits and EUAs generated for installing EnviNOx at customers. EnviNOx® process uses a special catalyst to convert the pollutant nitrogen oxides, i.e. nitrous oxide (N2O) and NOx, in the tail gas streams of nitric acid plants into the naturally occurring substances nitrogen, oxygen and water vapour.	CDM (Clean Development Mechanism)	7800	7800	No	Compliance

Further Information

"Allowances purchased" (13.1a) cannot be reported in absolute figures for compliance reasons. The shown figure is a calculated net figure. Any detailed disclosure would reveal market positions or trading strategies, and could be interpreted as signaling.

Page: CC14. Scope 3 Emissions

CC14.1 Please account for your organization's Scope 3 emissions, disclosing and explaining any exclusions

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
Purchased goods and services	Relevant, calculated	34000000	Calculation has been performed in line with the Corporate Value Chain (Scope 3) Accounting and Reporting Standard of GHG Protocol. Purchased goods and services have been based on the vast variety of components and materials used in our products in combination with supplier and industry data (e.g. volume of procured steel multiplied by average CO2 in t per t of steel).		
Capital goods	Not relevant, explanation provided				There have not been purchased or acquired any significant capital goods by the reporting company in the reporting year. In the process of calculating a total carbon footprint this category was excluded from deeper calculation as it was estimated to contribute with less than 1% to total scope 3 emissions.
Fuel-and-energy-related activities (not included in Scope 1 or 2)	Relevant, calculated	5300000	According to the GHG protocol corporate value chain standard fuel- and energy-related emissions are calculated for all material fuel-and-energy sources which contribute >1% to the total energy consumption. The considered energy sources sum up to more than 99% of the total energy consumption. This is especially coke, coal, electricity and natural gas. The data of the energy consumption from these sources comes from the environmental data collection. It is the same verified energy data as being used for calculating the Scope 1+2 emissions. Also this category of Scope 3 was part of the verification of emissions (incl. a plausibility check of the applied factors). So the quality of the data and the data collection process is very high. The fuel- and energy-related Scope 3 emissions (which are not already included in Scope 1 or 2) are already calculated automatically for each Group Company within the IT system of the environmental data collection. The IT system uses standard emissions factors for this category of Scope 3.		Energy-related related Scope 3 emissions are indirectly managed through our energy efficiency program. Reduction activities contribute to Scope 1, Scope 2 as well as this specific Scope 3 category.

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
Upstream transportation and distribution	Relevant, calculated	5400000	The calculation has been performed in line with the Corporate Value Chain (Scope 3) Accounting and Reporting Standard of GHG Protocol. The calculations were conducted with sourcing data of our businesses. It considers the different modes and distances of transportation and it is based on modelled average factors for transport.		
Waste generated in operations	Not relevant, explanation provided				Waste generation in operations does not present a significant source of scope 3 emissions. In the process of calculating a total carbon footprint this category was excluded from deeper calculation as most of the waste is metallic or mineral based. This category is estimated to contribute far less than 1% to total scope 3 emissions.
Business travel	Not relevant, calculated	61000	Calculation has been performed in line with the Corporate Value Chain (Scope 3) Accounting and Reporting Standard of GHG Protocol. The calculations were based on the number of employees per country and average factors for business travel.		Scope 3 from business travel is not considered relevant from a management perspective. A major part of business travel is related to service operations with own vehicles which are included in the Scope 1 figures. Furthermore in Germany all business travel with trains is already CO2 neutral. Also public transport for short distances is supported in several programs. Though the category is not considered relevant it is a matter of awareness.

Employee commuting	Not relevant, calculated	56000	Calculation has been performed in line with the Corporate Value Chain (Scope 3) Accounting and Reporting Standard of GHG Protocol. Similar to business travel the calculations were based on the number of employees per country and average factors for commuting.		Scope 3 from employee commuting is not considered relevant from a management perspective. Nevertheless for some group companies, e.g. in China and Brazil, nevertheless the CO2-intensity of commuting is reduced by providing transport capacities (mainly busses). Furthermore public transport for commuting is supported in several programs (e.g. with job tickets). Though the category is not considered relevant it is a matter of awareness.
Upstream leased assets	Not relevant, explanation provided				In the process of calculating a total carbon footprint this category was excluded from deeper calculation as the relevant upstream emissions related to leased assets are already included in Scope 1 and Scope 2 emissions of thyssenkrupp as reported to the CDP aligned with the financial reporting according to IFRS and the GHG protocol. This category is estimated to contribute less than 1% to total scope 3 emissions.
Downstream transportation and distribution	Relevant, calculated	4200000	Calculation has been performed in line with the Corporate Value Chain (Scope 3) Accounting and Reporting Standard of GHG Protocol. The calculations were conducted with customer data of our business. It considers the different modes and distances of transportation and it is based on modelled average factors for transport.		
Processing of sold products	Relevant, calculated	8100000	Calculation has been performed in line with the Corporate Value Chain (Scope 3) Accounting and Reporting Standard of GHG Protocol. Products with relevant steps of processing have been identified and the associated emissions were modelled based on industry data (e.g. coating of steel).		

Use of sold products	Relevant, calculated	860000000	Calculation has been performed in line with the Corporate Value Chain (Scope 3) Accounting and Reporting Standard of GHG Protocol. In an intense process the entire portfolio was analyzed and grouped into different types of calculations: 1. based on their weight shares (e.g. steel in a car use-phase), 2. energy consumptions (e.g. an elevator in a building) and 3. CO2 relevant processes (e.g. process emissions of cement plants).In line with the GHG standard the whole lifetime has been considered (e.g. up to 30 years for some installations). The calculations were based on numerous data bases, models, measured data, sector data and other data sources. The process has been supported by a leading climate change organization and partially even discussed with the standard-owner.		The product portfolio of thyssenkrupp includes numerous long-lasting products and solutions (e.g. cement plants) which dominate this emission category as well as the entire footprint (>90%). The emissions in this category are the Scope 1+2 emissions of customers and their customers. As stated in our strategy description this category is a key focus area.
End of life treatment of sold products	Not relevant, explanation provided				In the process of calculating a total carbon footprint this category was excluded from deeper calculation as most products of thyssenkrupp are either directly materials which can be recycled (like steel) easily or products with a high content of materials which can be recycled (steel and other metals), e.g. installations or elevators. In line with the GHG protocol the recycling process of metals is accounted as being part of the next lifecycle. This accounting rule was cross-checked with the standard-owner. The remaining emissions of the category are estimated to contribute to far less than 1% to total scope 3 emissions.

Downstream leased assets	Not relevant, explanation provided				In the process of calculating a total carbon footprint this category was excluded from deeper calculation as material downstream emissions related to leased assets are already included in Scope 1 and Scope 2 emissions of thyssenkrupp as reported to the CDP aligned with the financial reporting according to IFRS. Therefore no Scope 3 emissions can be associated with these assets. thyssenkrupp is continuously monitoring the relevance of the different categories of Scope 3 emissions.
Franchises	Not relevant, explanation provided				thyssenkrupp does not license relevant franchise operations. Therefore these emissions are considered to be 0.
Investments	Not relevant, explanation provided				thyssenkrupp did not have any significant investments in the reporting year with relevance for Scope 3. This category is estimated to contribute to far less than 1% to total scope 3 emissions.
Other (upstream)					
Other (downstream)					

CC14.2 Please indicate the verification/assurance status that applies to your reported Scope 3 emissions

Third party verification or assurance process in place

CC14.2a Please provide further details of the verification/assurance undertaken, and attach the relevant statements

Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/Section reference	Relevant standard	Proportion of reported Scope 3 emissions verified (%)
Annual process	Complete	Limited assurance	https://www.cdp.net/sites/2017/80/19080/Climate Change 2017/Shared Documents/Attachments/CC14.2a/CDP Verification Template thyssenkrupp.pdf	Pages 1-2	ISAE3000	1

CC14.3 Are you able to compare your Scope 3 emissions for the reporting year with those for the previous year for any sources?

Yes

CC14.3a Please identify the reasons for any change in your Scope 3 emissions and for each of them specify how your emissions compare to the previous year

Sources of Scope 3 emissions	Reason for change	Emissions value (percentage)	Direction of change	Comment
Fuel- and energy-related activities (not included in Scopes 1 or 2)	Emissions reduction activities	0.6	Decrease	Reduction activities led to a decrease on comparable basis. But of course other effects like production figures, etc. also had an effect which resulted in an increase in total considering absolute figures. (calculated according to CDP question cc12 where a change is broken down by different reasons)

CC14.4 Do you engage with any of the elements of your value chain on GHG emissions and climate change strategies? (Tick all that apply)

Yes, our suppliers
Yes, our customers

CC14.4a Please give details of methods of engagement, your strategy for prioritizing engagements and measures of success

i) Method of engagement
thyssenkrupp engages with customers in collaborative projects and dialogues for designing the most suitable and innovative solutions for them. For example, in our InCar Plus project (with CO2 efficient solutions), we conducted a global roadshow involving various customers. Furthermore we provide relevant CO2 data to our customers, e.g. for lifecycle inventories or within the CDP Supply Chain Program. The performance measurement of these activities includes different aspects

ranging from order intake to supplier ratings of our customers. Besides a strong cooperation with key suppliers in innovation projects, the main formal engagement with suppliers regarding sustainability issues is within the Supplier Code of Conduct process which includes climate change in general (not focused on reduction but general climate change management and efficiency). Focus of the process is risk management based on three key elements:
- thyssenkrupp Supplier Code of Conduct outlining our expectations
- Risk analysis: Early risk identification is supported by risk analyses, self-assessments and event-related audits. This also allows us to monitor compliance with the principles and requirements laid out in the thyssenkrupp Supplier Code of Conduct.
- Supplier development: To us, supplier development is a process together with our suppliers.
Findings from a risk analysis may lead to a mutual action plan with a supplier to address specific risk areas.

ii) Strategy for prioritization
Firstly, thyssenkrupp engages with customers who have significant impact with their products on markets and end-consumers. Hereby, the use of more CO2 efficient components or solutions can be triggered. Secondly, in key sectors, identified based on a total carbon footprint, thyssenkrupp is involved in innovation projects of customers and customer industries with regard to climate change. Regarding suppliers, the priority are suppliers where we have a high procurement volume or which show a high risk profile related to the Code of Conduct (which includes climate change issues) based on the risk assessments.

iii) Measure of success
CO2 efficiency plays an important role in the development of new products and solutions and in creating a competitive advantage for thyssenkrupp. A successful development and marketing of such innovative products is seen as one important measure of success for such engagements. As stated in our brand “engineering.tomorrow.together”, our ultimate measurement of success is whether we managed to advance our customers on their pathways towards mitigating climate change. For the engagement with suppliers, the current measurement is more technical: thyssenkrupp has set the indirect financial target of conducting at least 100 sustainability audits at suppliers each fiscal year. In fiscal year 2015/2016, we overachieved this target with a total of 185 sustainability audits.

CC14.4b To give a sense of scale of this engagement, please give the number of suppliers with whom you are engaging and the proportion of your total spend that they represent

Type of engagement	Number of suppliers	% of total spend (direct and indirect)	Impact of engagement
Compliance	5000	90%	As stated above the Supplier Code of Conduct lays out our expectations regarding sustainability, which is based on a functioning environmental management for an increased environmental protection (and also climate change management). It needs to be signed by the supplier. Of these suppliers, there were also carried out more than (cum.) 300 supplier audits with focus on sustainability aspects. The CDP system only accepts a number up to 5,000. Please note that the actual number of suppliers covered here is a five-digit number.

Further Information

For calculating scope 3 emissions, thyssenkrupp uses a multi-year approach to balance out booking/ cut-off effects of single fiscal years (e.g. if a plant is commissioned on the first day of a new fiscal year instead of the last day in the old fiscal year). Nevetheless, the scope 3 categories are reviewed annually whether figures need to be adjusted (e.g. due to significant portfolio, output or other effects). For the reported year, no such changes applied besides the category "Fuel- and energy-related activities".

Module: Sign Off

Page: CC15. Sign Off

CC15.1 Please provide the following information for the person that has signed off (approved) your CDP climate change response

Name	Job title	Corresponding job category
Dr. Heinrich Hiesinger	CEO	Chief Executive Officer (CEO)

Further Information

CDP 2017 Climate Change 2017 Information Request