

## C0. Introduction

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### C0.1

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

Established in 1956, Tekfen Group of Companies operates in three core business areas: Contracting, Agri-Industry and Real Estate Development. The Group has 40 companies and 12 subsidiaries. Tekfen Holding, which owns all the companies and subsidiaries of Tekfen Group, is listed on Borsa Istanbul's BIST 30 Index. In 2017, the Group had TRY7,487 million in revenues and assets of TRY9,367 million. With 18,296 skilled employees and more than 60 years of experience, it is exemplary within the business world in terms of quality standards and ways of doing business.

The Contracting Group, which includes Tekfen Construction, is a solution partner preferred by leading employers around the world. Tekfen Construction is an internationally recognized leader of the Turkish contracting sector, operating in many countries. To date, it has completed over 350 projects, demonstrating its accumulated expertise. It is a sector leader for its capacity to deliver the most challenging projects and it has established a brand recognition through its commitment to maintaining global standards of quality, its ways of doing business, its experience, and the importance it places on health, safety and environment. Tekfen Construction is the preferred partner of many international companies.

The group's extensive experience is concentrated, first and foremost, on constructing oil, gas and petrochemical facilities. It offers engineering, procurement, construction (EPC) turn-key solutions for pipe lines, land and sea terminals, tank farms, oil refineries, offshore platforms, pumping and compressor stations, power stations, industrial facilities, highways and metros, sports complexes, infrastructure projects and superstructures. Tekfen Manufacturing's Derince Plant as well as Ceyhan Steel Structure Fabrication Plant and Bayıl Steel Structure Fabrication Plant within Tekfen Construction, specialize in steel fabrication and process equipment, and the construction of storage tanks. With US\$3.4 billion in active backlog, Tekfen Construction is ranked 112nd on Engineering News Record's list of the 250 largest international contracting companies. Directly under the Contracting Group, Tekfen Engineering provides engineering design, procurement and project management services for group and non-group projects. The company undertakes technologically challenging projects requiring great know-how and it is one of Turkey's leading engineering companies in its sector.

Tekfen Agri-Industry Group is the sector's largest private corporation in terms of business volume, product and service portfolio, and market share. Operating as Toros Tarım, it is Turkey's 59th largest industrial company. While principally a producer and marketer of fertilizer, Toros Tarım also engages in yield-raising, quality-improving agricultural inputs, seed production, techno-agriculture, and seedling production. Toros holds the highest share of installed production capacity for fertilizer in Turkey. It has 1,246 dealers and authorized sales points throughout Turkey, enabling it to distribute its products to every corner of the country. Terminal services is an important non-agricultural area of business for Toros Tarım. The company manages two terminals, in Ceyhan and Samsun, and it provides additional services such as pilotage, tugboat, and shipping agency services as well. Built in 1981 alongside Toros Tarım's Ceyhan Production Plant, the Toros Ceyhan Terminal is the second largest port in the Iskenderun Gulf. Toros Tarım's other business areas are free zone and gas station management. The Adana Yumurtalık Free Zone (TAYSEB), founded as an industrial facility in Ceyhan in 1998, covers an area 4.6 million m2, making it one of Turkey's largest free zones.

Tekfen Real Estate Group engages in investment, project development, construction management and facility management in the real estate sector. The group's commitment to design behoves it to work with the best architects and ensures the projects in its portfolio are conspicuous not only for their functionality and construction quality, but also for their unique design. Tekfen Real Estate Development projects have won many prestigious prizes. Tekfen Real Estate Development aims at customer satisfaction in every detail. Within the group, Tekfen Real Estate Development& Investment provides project development and management services, while Tekfen Tourism& Facilities Management (Tekfen Services) handles facility management services. As the author of the first green building projects in Turkey, the Real Estate Group is also founding member of the Turkish Green Building Council (ÇEDBİK). Aside from its Contracting, Agri-Industry and Real Estate areas of business, Tekfen Group is involved in insurance, through Tekfen Insurance.

## C0.2

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

	Start date	End date	Indicate if you are providing emissions data for past reporting years	Select the number of past reporting years you will be providing emissions data for
Row 1	January 1 2017	December 31 2017	No	<Not Applicable>
Row 2	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Row 3	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Row 4	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>

## C0.3

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

Turkey

## C0.4

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

USD

## C0.5

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

Operational control

## C-CH0.7

(C-CH0.7) Which part of the chemicals value chain does your organization operate in?

Row 1

**Bulk organic chemicals**

Please select

**Bulk inorganic chemicals**

Ammonia

Fertilizers

Nitric acid

**Other chemicals**

Please select

## C1. Governance

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### C1.1

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

Yes

### C1.1a

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

Position of individual(s)	Please explain
Board Chair	Climate-related issues including reporting are monitored by Tekfen Holding's Chairman of the Board. Board Members are directly informed on climate issues in Tekfen Holding Board meetings. Chairman of the Board states Tekfen's values and one of the values of Tekfen is "the protection of nature and the environment". The Chairman of the Board follows climate-related issues closely. Therefore we can say that our Chairman of the Board is the highest responsible person for climate-related issues. Chairman of Board states Tekfen's values and one of the values of Tekfen is "the protection of nature and the environment". The Chairman of Board follows climate related issues closely. Therefore we can say that our Chairman of the Board is the highest responsible person for climate-related issues.

### C1.1b

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

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Please explain
Scheduled – some meetings	Reviewing and guiding strategy Reviewing and guiding major plans of action Reviewing and guiding risk management policies Reviewing and guiding annual budgets Reviewing and guiding business plans Setting performance objectives Monitoring implementation and performance of objectives Overseeing major capital expenditures, acquisitions and divestitures Monitoring and overseeing progress against goals and targets for addressing climate-related issues	Board members are informed regularly on climate-related issues. CEO has the executive power for important issues such as strategy, risks/ opportunities, targets and etc. In September 2017, the Sustainability Committee (SC) was established and is being chaired by Vice President of Corporate Affairs. The committee is also a subcommittee of the Corporate Governance Committee. Sustainability Committee reports critical issues at least once a year to the Corporate Governance Committee. The Corporate Governance Committee reviews the reports and recommendations presented by the Sustainability Committee and notifies the Board of Directors for reviewing and guiding strategy, major action plans, policies etc. The Board of Directors reviews and guides business plans and approves annual budgets. Sustainability Committee sets performance objectives for climate change and water security and Sustainability Committee also monitors the realization of climate change and water-related objectives on behalf of the Board of Directors. Changes in emission data are also reported to the Board of Directors annually.

**C1.2**

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

Name of the position(s) and/or committee(s)	Responsibility	Frequency of reporting to the board on climate-related issues
Chief Executive Officer (CEO)	Both assessing and managing climate-related risks and opportunities	More frequently than quarterly
Other C-Suite Officer, please specify (Vice President of Corporate Affairs)	Both assessing and managing climate-related risks and opportunities	More frequently than quarterly
Sustainability committee	Both assessing and managing climate-related risks and opportunities	More frequently than quarterly

## C1.2a

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

CEO is the chairman of the Executive Board. There are bi-weekly Executive Board Meetings. At these meetings, critical issues including climate change-related risks and opportunities are also discussed by Executive Board members.

Material issues, risks, and opportunities related to climate change are identified by Health, Safety, Environment and Quality Group that consists of Group Company HSE representatives. The Sustainability Committee is notified from issues deemed most important by the Holding HSE and Quality Coordinator who is also a member of the Sustainability Committee. Vice President (VP) of Corporate Affairs is the chairman of the Sustainability Committee and also the member of Executive Board. VP of Corporate Affairs notifies the Executive Board that consists of CEO and Group Vice Presidents on the material risks and opportunities related to climate change.

Climate-related issues are monitored by the Sustainability Committee. The results are being reported to Executive Board via Sustainability Committee Chairman who is also a member of Executive Board. In addition, the Board of Directors is also informed by the Corporate Governance Committee and/ or CEO.

## C1.3

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

## C1.3a

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

**Who is entitled to benefit from these incentives?**

All employees

**Types of incentives**

Recognition (non-monetary)

**Activity incentivized**

Behavior change related indicator

**Comment**

Every month, Tekfen Agri-Industry picks an employee as Health, Safety, and Environment (HSE) Employee of the month for their HSE performance. Selection criteria include environmentally friendly initiatives. Tekfen Construction also rewards employees based on HSE performance including environmental performance.

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## C2. Risks and opportunities

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### C2.1

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

	From (years)	To (years)	Comment
Short-term	0	1	We base our time horizons on Turkish Government's Medium Term Plans which are always up to 3 years. We consider only up to 1 year as short term.
Medium-term	1	3	We base our time horizons on Turkish Government's Medium Term Plans which are always up to 3 years. Therefore 1-3 years is considered as medium-term in our company.
Long-term	3	10	We base our time horizons on Turkish Government's Medium Term Plans which are always up to 3 years. Therefore anything more than 3 years is generally accepted as long term in our company.

**C2.2**

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

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

**C2.2a**

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

	Frequency of monitoring	How far into the future are risks considered?	Comment
Row 1	Six-monthly or more frequently	>6 years	In Tekfen Holding, companies' upper management and all employees are responsible for the effective management of risks. Risks are managed by companies and are monitored by the Holding. All companies are responsible for determining, monitoring and making decisions and periodically report the risks to upper management. Corporate Risk Management specifically documents risks as strategic, operational, financial, compliance and reputational risks. Climate Change Risks (Climate Change and Water Stress Risk) are considered under operational and compliance risks. Activity related environmental impacts at asset levels are also considered during environmental risk assessment processes under the scope of ISO 14001 Environmental Management System Standard. Therefore we identify and assess short, medium and long-term climate-related risks. Long-term climate-related risks are assessed up to the year 2050 based on scenario analysis conducted by NGOs, companies, governmental institutions.

**C2.2b**

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

In Tekfen Holding, companies' upper management and all employees are responsible for the effective management of risks. Climate related risks are identified, assessed and managed by companies and are also monitored by the Holding. All companies are responsible for determining, monitoring and making decisions and periodically report the risks (including environmental aspects) to the upper management.

Tekfen Holding Strategic Planning and Risk Management Directorate determines the risk model that is going to be utilized in the Corporate Risk Management (CRM) process which is parallel to ISO 31001 Risk Management Standard. Corporate Risk Management specifically documents risks as strategic, operational, financial, compliance and reputational risks.

The first step of risk management is to identify risks. At this step we define risk, determine root causes of the risk, define risk type (financial, operational, reputational, strategic, compliance), determine related risks and the responsible owner of the risks. Identification includes risks whether or not their source is under the control of the organization, even though the risk source or cause may not be evident. Risk identification includes an examination of the knock-on effects of particular consequences, including cascade

and cumulative effects. It also considers a wide range of consequences even if the risk source or cause may not be evident. As well as identifying what might happen, it is necessary to consider possible causes and scenarios that show what consequences can occur. All significant causes and consequences are be considered.

The assessment of the risk is carried out in the second stage. In this stage, the risk's gross impact, gross probability and the gross risk score is calculated by multiplying gross impact and gross probability. Current controls and the efficacy of the current controls reveal the net risk score and the net financial impact of the risk. Risk analysis involves consideration of the causes and sources of risk, their positive and negative consequences, and the likelihood that those consequences can occur. Risk is analyzed by determining consequences and their likelihood, and other attributes of the risk. An event can have multiple consequences and can affect multiple objectives. Existing controls and their effectiveness and efficiency are also taken into account.

The third stage consists of the determination of how to address the risk (reduction, transfer, abstention, and acceptance). Actions and the costs of actions are determined in the fourth stage by root cause analyses and detailed risk reduction methods/improvement of controls. The tracking of these actions make up the fifth step. The responsible owner identified in stage one is responsible for tracking and notifies the Risk Department Manager in due time. All risk management operations including actions and status tracking are followed by individual company Risk Managers with the help of Company/ Site HSE Managers when it comes to climate related risks.

Risks are graded based on a portfolio approach. Risk portfolio including risks with grades more than a certain threshold is reported to the Board of Directors every two months. Therefore these risks are also monitored and followed upon by the Board of Directors as well.

#### Company Level:

Upper management of individual companies use risk management actively in the decision making processes. CRM program is integrated into main planning processes such as strategic planning, business planning and operational management. Risks related to important decisions of the companies are identified and graded. In addition, upper management of companies make sure proper precautions are designed, said precautions are applied and the process is run effectively for risks identified. Tekfen Group Companies do regular risk assessments in every 2 months and report to the Holding. Risk assessment of high risk projects, activities, locations, tasks and operational areas are done at shorter intervals.

#### Projects/ Workplaces (Site):

Each project/ workplaces has its own risk assessments. Site HSE Management identifies/assesses climate related risks and reports to Project/ Workplace Manager who notifies site specific critical risks to Company Risk Manager. Projects/ workplaces also use CRM methods defined above.

For activity type risk assessments, Site HSE Management complies with EMS in parallel to ISO14001. Critical climate risks are reported to Site Manager. Site Manager notifies these kinds of climate change related critical risks to Company Risk Manager and Corporate HSE Manager.

We identify, assess and respond to our short-term climate related risks (Up to 1 year) through ISO 14001 EMS. Our medium (1-3) and long term (3-10 years) climate related risks are covered by our CRM.

If impact of the risk is more than >5% of EBITDA (singular impact) or >2.5% of EBITDA (continuous impact), we call this "Substantive Financial Impact".

## C2.2c

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

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	Doing business in-line with current regulations are paramount for Tekfen Holding. All laws and regulations related to our activities are identified, monitored and our compliance is constantly assessed by internal auditors, third-party auditors, and local authorities. As an example, we are considering Turkish GHG MRV regulation and other applicable legal requirements in our climate-related risk assessments.
Emerging regulation	Relevant, always included	We closely monitor the emerging regulations. We especially give regard to the emerging potential Emission Trading System (ETS) and potential Carbon Tax in Turkey. Toros Tarım regularly attends meetings on ETS and Low Carbon Development (Technical Support Project for Solution Based Strategy and Action Development for Low Carbon Development) and the ETS Sectors' meeting that helped in the scope of EU ETS Directive's Regulatory Impact Analysis project. We are considering ETS and/or Carbon Taxes in our climate-related risk assessments. We have determined an approximate cost of released carbon and calculated our climate-related financial impact.
Technology	Relevant, sometimes included	Reducing emissions by using correct and efficient technology is important to us. We are actively planning on installing a state of the art catalyzer system in our fertilizer operations to reduce our N2O emissions. We also use technology to benefit the environment through our value chain. Our Agri-Industry company Toros Tarım has developed a free app for farmers that gives fertilizing advice based on weather, soil and plant data available. This app allows farmers to analyze data for all their fields and get the most efficient fertilizing advice that will enable the best water and crop efficiency. We closely monitor technological applications used at the industry to reduce our N2O related GHGs.
Legal	Relevant, always included	Legal compliance is paramount to Tekfen Holding. Emerging ETS regulation has legal repercussions and we are actively managing our emissions reporting system. We closely monitor technological applications used at the industry to reduce our N2O related GHGs.
Market	Relevant, sometimes included	Sectoral risks are closely monitored. In the context of climate change, N2O emissions from the production of nitric acid are extremely important to us and can present considerable risk to the fertilizer market. We closely monitor technological applications used at the industry to reduce our N2O related GHGs.
Reputation	Relevant, always included	Our brand image and reputation is very important both locally and internationally. We expect some pressure due to climate-related issues on our companies that can affect our brand image. Oil and gas contracting and high N2O emitting fertilizer operations are specifically considered in the context of our reputation. Reputation is an important risk and opportunity for us. Therefore we care about climate-related issues very much.
Acute physical	Relevant, sometimes included	Acute physical risks, especially flooding due to excessive rainfall are among the risks we take into consideration for the continuity of our operations. Excess rainfall and flooding have been especially apparent in recent years in the geographies we operate in. We are considering the acute and chronic physical impacts of climate change on our assets.
Chronic physical	Relevant, always included	Chronic physical risks, especially water stress due to climate change is a very important risk for us as it can badly affect agricultural activities and reduce the demand for Toros Agri's fertilizers. We are considering the acute and chronic physical impacts of climate change on our assets.
Upstream	Relevant, sometimes included	Due to the effect of N2O emissions on climate change, the pressure is increasing on both us as producer and suppliers as raw material producers. In addition, we monitor our electricity purchases, especially in our Building Services operations. We are considering the effects of business travel and are using video conferencing actively to reduce unnecessary travel. We provide employee commuting buses/ minibuses to our employees so that they do not use their own personal cars for traveling to work.
Downstream	Relevant, sometimes included	Due to issues such as chemical fertilizer use, N2O emissions during fertilizer production etc., NGOs and other stakeholders are increasing pressures for less chemical fertilizer use in agriculture. Water stress due to climate change is a very important risk for us as it can badly affect agricultural activities and reduce the demand for Toros Tarım's fertilizers. We are considering environmental issues in our investments. We take great care to separate our waste and recycle or reuse our waste to limit our downstream emissions.

## C2.2d



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

Tekfen Holding Strategic Planning and Risk Management Directorate determines the risk model that is going to be utilized in the Corporate Risk Management (CRM) process in parallel to ISO 31000 Risk Management Standard. Besides Strategic Planning and Risk Management Directorate, there is also a Risk Committee under the Board of Directors. Tekfen Holding Strategic Planning and Risk Management Directorate and Risk Committee manage critical risks by considering risk-opportunity levels via a risk portfolio approach.

Risks are identified and assessed according to the CRM. The first step of CRM System is to identify risks (define risk, determine root causes of the risk, define risk type (financial, operational, reputational, strategic, compliance), determine related risks and the responsible owner of the risks). The assessment of the risk is carried out in the second stage. Gross impact, gross probability and gross risk score is determined by multiplying gross impact and gross probability. Current controls and the efficacy of the current controls reveal the net risk score and the net financial impact of the risk. The third stage consists of determination of how to address the risk (reduction, transfer, abstention, or acceptance). Actions and the costs of actions are determined in the fourth stage by root cause analyses and detailed risk reduction methods/improvement of controls. The tracking of these actions make up the fifth step. The responsible owner identified in stage one is responsible for tracking and notifies the Risk Department Manager in due time.

During selection of the most appropriate risk treatment option, Tekfen evaluates the costs and efforts of implementation against the benefits derived, with regard to legal, regulatory, and other requirements such as social responsibility and the protection of the environment. As per WEF Global Risks Report-2018, climate related risks and water security risks are amongst top 10 risks in terms of likelihood and impact. Therefore, Tekfen has chosen "reduction" as risk treatment option for both climate and water related risks.

Climate related risks are identified by HSE Department Managers of Companies and reported to each Company's Risk Committee and Risk Manager. The Company Risk Report that includes climate risks are reported to the Tekfen Holding Strategic Planning and Risk Management Directorate after approval from Company Board. Strategic Planning and Risk Management Directorate consolidates all Tekfen Companies' risk inventories and presents all risks to the Tekfen Holding Board through Tekfen Risk Committee. Additionally, Tekfen HSEQ Coordinatorship assesses Tekfen's climate and water risks in the Holding Solo Risk Inventory. Risk portfolio including risks with grades more than a certain threshold is reported to the Board of Directors every two months. These risks are also monitored and followed upon by the Board of Directors as well. All risk management operations including actions and status tracking are followed by individual company Risk Managers with the help of HSE Managers when it comes to climate risks.

### Physical risks :

Water crises brought on by climate change may affect our production and our sites. We have production facilities near the sea and a significant rise in sea levels due to the effects of climate change may force us to take drastic actions such as relocation. Acute physical risks such as flooding, and chronic physical risks such as increase in sea water levels, changing wind patterns etc. are other examples of physical risks that are being considered . As water stress is especially apparent in Turkey, a potential increase in fresh water prices may affect our bottom line as well. To manage climate related risks, we have launched our Water Security Program. We have prepared our Water Policy, signed by our CEO and shared with our Companies. Holding has started to determine water management strategy and monitor Companies' efforts. Climate change and water stress were also put into Holding Risk Inventory, mitigation measures, responsible persons for the mitigation activities and due dates of the activities were determined. We have invested in alternative water sources and more water efficient machinery in our production facilities. One example is we opened new deep wells to diversify our freshwater sources in some of our locations as we had issues obtaining water from reservoirs near our facilities. We have also invested in new membranes and compressors to increase our water efficiency.

### Transitional risks

There are many transitional risks we face especially due to the geography we operate in. Turkey is going through the EU membership process that brings in potential ETS regulation and/or additional carbon taxes that poses great risks especially to our N2O emitting fertilizer operations. We got in contact with Nitric Acid Climate Action Group (NACAG) for investment options to reduce our N2O related potential liabilities.

## C2.3

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

Yes

### C2.3a

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

**Identifier**

Risk 1

**Where in the value chain does the risk driver occur?**

Direct operations

**Risk type**

Transition risk

**Primary climate-related risk driver**

Market: Changing customer behavior

**Type of financial impact driver**

Market: Reduced demand for goods and/or services due to shift in consumer preferences

**Company- specific description**

The Contracting Group undertakes projects mainly in the oil and gas industry. However, fossil fuel projects are expected to contract due to the impact of international agreements. This can create a serious impact in the Contracting Group's turnover.

**Time horizon**

Long-term

**Likelihood**

Likely

**Magnitude of impact**

Medium

**Potential financial impact**

60000000

**Explanation of financial impact**

Approximately 30% of the Contracting Group's business volume is in the oil and gas industry. This reflects a USD 600 million revenue from oil and gas projects. A 10% reduction in business volume means USD 60 million revenue would be lost.

**Management method**

Due to the expected contraction in the sector, Tekfen Construction has started preparations to enter renewable energy contracting sector. We have established a new renewable energy department with relevant specializations.

**Cost of management**

412500

**Comment**

The cost of management includes employment of new specialist personnel, memberships, business development activities and outsourced services for proposal.

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**Identifier**

Risk 2

**Where in the value chain does the risk driver occur?**

Direct operations

**Risk type**

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Transition risk

**Primary climate-related risk driver**

Policy and legal: Enhanced emissions-reporting obligations

**Type of financial impact driver**

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

**Company- specific description**

In Tekfen Agri-Industry; CO<sub>2</sub>, N<sub>2</sub>O and PFCs are required to be reported in accordance with the "Regulation on Monitoring and Reporting of Greenhouse Gas Emissions" concerning reporting of greenhouse gas emissions in Turkey. Toros Tarım Fertilizer Production Facility monitors and measures greenhouse gases and reports to the Ministry of Environment and Urbanization. The reports are verified by the third party authorized by the Ministry of Environment and Urbanization. The regulation requires some facilities to be equipped with CEMS (Continuous Emissions Monitoring Systems) and others to submit verified CO<sub>2</sub> reports from accredited laboratories.

**Time horizon**

Medium-term

**Likelihood**

Likely

**Magnitude of impact**

Medium-low

**Potential financial impact**

165000

**Explanation of financial impact**

There could be a necessity of establishing Continuous Emission Monitoring Systems (CEMS) in chimneys of other units on the request of the Provincial Environment Board. There is a high probability that such a demand will occur due to the location of the plant (new stadium, indoor sports venue, exhibition center, new hotels and proximity to the district center). Potential financial impact reported is for 3 new CEMS installations.

**Management method**

Continuous emission monitoring measurement systems have been established Toros Agriculture Fertilizer Production Plants in regulated chimneys and data is monitored both by the facility and by the Provincial Environment Directorate continuously. If there are deviations from the emission limits, the system notifies and problems can be resolved very quickly. In addition, process-induced steam is used in electricity generation with a STG ( Steam Turbine Generator), thus the use of electricity from the grid has been reduced. Currently, the Sulfuric acid plant's main chimney, Gas Turbine Generator, DENOX and Start-up kilns has CEMS installed.

**Cost of management**

18000

**Comment**

Annual maintenance of CEMS. We also have to measure our emissions through accredited laboratories every two years including in plants that do not have CEMS and these measurements cost approximately USD 25,000 every two years. So the given cost of management is yearly and annual maintenance of CEMS and half of the biennial cost of accredited laboratories.

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**Identifier**

Risk 3

**Where in the value chain does the risk driver occur?**

Direct operations

**Risk type**

Transition risk

**Primary climate-related risk driver**

Reputation: Stigmatization of sector

**Type of financial impact driver**

Reputation: Reduced revenue from decreased demand for goods/services

**Company- specific description**

Fertilizer production is a risky sector in terms of emissions of greenhouse gases. In particular, nitric acid production is causing a serious amount of N<sub>2</sub>O emissions with high global warming potential. Increasing demand for climate change for communities and NGOs can increase pressures in fertilizer production facilities.

**Time horizon**

Medium-term

**Likelihood**

About as likely as not

**Magnitude of impact**

Medium

**Potential financial impact**

71500000

**Explanation of financial impact**

We calculate this impact by considering a 10% loss from our sales revenues in our Agri-Industry business line. Tekfen Agri-Industry sales revenues were USD 715 million in 2017. A 10% decrease in sales revenue will result in a decrease in turnover of USD 71.5 million according to 2017 figures

**Management method**

There are technologies that offer around 80% reduction in N2O emitting plants nitric acid plants. We started to contact firms that can supply the necessary catalysers and getting offers. The most appropriate technology will be selected after feasibility studies are finished. Nitric Acid Climate Action Group is providing technical consultancy in this investment.

**Cost of management**

1125000

**Comment**

Approximate cost of installing a new catalyser system to reduce N2O emisisions.

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**Identifier**

Risk 4

**Where in the value chain does the risk driver occur?**

Direct operations

**Risk type**

Transition risk

**Primary climate-related risk driver**

Policy and legal: Increased pricing of GHG emissions

**Type of financial impact driver**

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

**Company- specific description**

Turkey is in process of bringing an Emissions Trading System. The background for this regulation is already present (The Turkish Regulation on Monitoring, Reporting and Verifying of Greenhouse Gas Emissions) and brings on requirements such as installation of Continuous Emissions Monitoring Systems to sectors with high GHG impact. Our N2O emitting fertilizer operations are among these sectors and we have CEMS installed. While currently not priced, a potential pricing of CO2 will have an impact on our bottom line.

**Time horizon**

Medium-term

**Likelihood**

Likely

**Magnitude of impact**

Medium

**Potential financial impact**

700000

**Explanation of financial impact**

We considered the price of carbon at 1 USD/tCO2e, Tekfen Holding's N2O related emissions that are in scope of MRV regulation and can bring on additional liabilities were around 0.7 mtCO2e.

**Management method**

There are technologies that offer around 80% reduction in N2O emitting plants nitric acid plants. We started to contact firms that can supply the necessary catalysers and getting offers. The most appropriate technology will be selected after feasibility studies

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are finished. Nitric Acid Climate Action Group is providing technical consultancy in this investment.

**Cost of management**

1125000

**Comment**

Approximate cost of installing a new catalyser system to reduce N2O emisissions.

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C2.4

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

Yes

C2.4a

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

**Identifier**

Opp1

**Where in the value chain does the opportunity occur?**

Direct operations

**Opportunity type**

Products and services

**Primary climate-related opportunity driver**

Development of new products or services through R&D and innovation

**Type of financial impact driver**

Increased revenue through new solutions to adaptation needs (e.g., insurance risk transfer products and services)

**Company- specific description**

Global warming is expected to increase droughts especially in Turkey. Traditional solid fertilizers are going to be rendered ineffective. We are working on new types of liquid fertilizers that could increase our potential sales in a new market.

**Time horizon**

Medium-term

**Likelihood**

Likely

**Magnitude of impact**

Medium

**Potential financial impact**

35000000

**Explanation of financial impact**

We calculate this impact by considering a 5% increase from our sales revenues in our Agri-Industry business line. Tekfen Agri-Industry sales revenues were USD 715 million in 2017. A 10% increase in sales revenue will result in additional turnover of approximately USD 35 million according to 2017 figures

**Strategy to realize opportunity**

We have started to establish Turkey's first fertilizer R&D Center in Mersin. In this R&D center, we will focus on coming up with new products that will increase efficiency in plant nutrition.

**Cost to realize opportunity**

716000

**Comment**

Initial investment cost of R&D center and annual operational costs

---

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**Identifier**

Opp2

**Where in the value chain does the opportunity occur?**

Direct operations

**Opportunity type**

Products and services

**Primary climate-related opportunity driver**

Development and/or expansion of low emission goods and services

**Type of financial impact driver**

Better competitive position to reflect shifting consumer preferences, resulting in increased revenues

**Company- specific description**

It is expected that Tekfen Real Estate's residential and office projects will continue to increase because of Turkey's population growth, migration to major cities, etc. In Turkey, buildings and settlements are responsible for 40% of CO2 emissions. We expect that smart cities, smart homes / offices, green building concepts will continue to be an emerging trend of the sector in the near future. Tekfen Real Estate, a pioneer in LEED certified projects in Turkey will increase its competitive advantage through offering low carbon solutions.

**Time horizon**

Long-term

**Likelihood**

About as likely as not

**Magnitude of impact**

Medium

**Potential financial impact**

3200000

**Explanation of financial impact**

We estimate an impact on our future turnover around 10% of our revenues. Tekfen Real Estate's 2017 turnover was USD 32 million. We expect an approximate 10% increase with green project preferences. This will result in an increase of approximately USD 3.2 million based on 2017 figures.

**Strategy to realize opportunity**

The concept of "environmental friendly / sustainable building" is becoming more and more important everyday as the awareness and consciousness for energy use and environment increases. Tekfen Real Estate, as in its all other projects, is aiming LEED-CS (core&shell) of The U.S. Green Building Association (USGBC) for its new projects, such as: Tekfen-OZ Kagithane Ofis Park, Tekfen Bomonti Apartments and Tekfen HEP Istanbul Project.

**Cost to realize opportunity**

180000

**Comment**

We certify our project with LEED. Average LEED certification is around 180,000 with pricing based on m2. We include these costs in project budgets.

---

**Identifier**

Opp3

**Where in the value chain does the opportunity occur?**

Direct operations

**Opportunity type**

Products and services

**Primary climate-related opportunity driver**

Ability to diversify business activities

**Type of financial impact driver**

Better competitive position to reflect shifting consumer preferences, resulting in increased revenues

**Company- specific description**

Infrastructure projects are expected to increase with climate change (water, wastewater, sewerage, public transport projects, etc.)

---

This topic can be used as an opportunity for our Contracting Group companies.

**Time horizon**

Medium-term

**Likelihood**

About as likely as not

**Magnitude of impact**

Medium

**Potential financial impact**

90000000

**Explanation of financial impact**

Contracting Group's 2017 turnover was USD 2 billion. Approximately 45% (USD 900 million), the turnover was from infrastructure projects. A conservative 1% increase in infrastructural projects will result in additional revenues of USD 90 million.

**Strategy to realize opportunity**

A new team has been established in Tekfen Construction for the tactics and proposals of infrastructure projects, strategic partnership have been made with other companies.

**Cost to realize opportunity**

220000

**Comment**

Additional personnel were hired in the Proposal Department specializing in infrastructure projects, increasing personnel costs annually.

**C2.5**

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

	Impact	Description
Products and services	Not yet impacted	We are expecting increased pressure from government and NGOs regarding N2O emissions. An ETS/ Carbon Tax is in the works and this may increase our costs. Considering a price of 1\$/tCO2e, our current N2O liability is around 0.7 million USD. We need to consider the impact of such a liability to our bottom end in our financial planning process. We expect the ETS in Turkey to start in the medium to long term (3-10 years). Climate related water crisis may impact Turkey badly. Fresh water is both important to our operations and for our products. We sell fertilizers and the water stress induced by climate change may affect our product performance.
Supply chain and/or value chain	Not yet impacted	Farmers use our fertilizer products and climate related water stress may affect our product sales. For these scenarios, we consider a generous 10% reduction in revenues. Our Agri-Industry revenue was around 600 million USD in 2017. A 10% reduction means approx. 60 million USD in lost revenue that we consider in our financial planning process in the medium to long term (3-10 years).
Adaptation and mitigation activities	Not yet impacted	We established a Catalyser Project Group and initiated feasibility projects for N2O reduction. We are also supported by NACAG's (Nitric Acid Climate Action Group) technical know-how for these activities. NACAG will also provide initial investment if this project goes ahead and this is included in our financial planning process. Our N2O related liability is around 0.7 million USD and initial investment cost for the Catalyser project is around 1.2 million Euros. The cost is being considered in our financial planning for the next year.
Investment in R&D	Impacted	Our Agri-Industry company Toros Tarım will establish a new R&D facility in Mersin. The facility will increase our ability to develop new and more efficient products and will be the first plant fertilizer R&D center in Turkey. This is a short term impact and the financial impact of around 60 million USD is already included in our financial planning process.
Operations	Impacted for some suppliers, facilities, or product lines	All impacts of risks and opportunities are considered in the short and medium term (0-3 years) for our operations. For example, we had to install CEMS in our fertilizer operations as mandated by the Turkish GHG MRV regulation. CEMS installations has cost us approximately 50,000 Euros per installation. There is a possibility of going over the temperature limits in sea water due to climate related impacts. We may need to invest in a new cooling system. There will be costs associated with the recycling and reusing of the phosphogypsum during the rehabilitation of phosphogypsum storage fields. We found a new operational unit for renewable energy in Tekfen Construction.
Other, please specify	Please select	

**C2.6**

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

	Relevance	Description
Revenues	Not yet impacted	We are considering liquid fertilizer production and started investigations in our R&D department. This new product may increase our sales in new market. Liquid fertilizers are used with innovative irrigation techniques such as drip irrigation and results in less water use.
Operating costs	Impacted	Climate related water impacts increase the cost of freshwater and impact our production costs. Water prices in Turkey are around 2,5- 3 USD/m3. Any increase in water prices are impacts our bottom line as such. Our CEMS we established in our fertilizer production facilities by government mandated MRV regulation has increased our operating costs by an average of 20,000 USD per year.
Capital expenditures / capital allocation	Impacted	Investment costs are increasing in carbon heavy production facilities. We are considering installing catalyser systems that have investment and operational costs. We have already invested in Continuous Emission Monitoring Systems for MRV regulation at USD 50,000 apiece. Our catalyser system investment will have an initial investment of about USD 1.2 million Increasing water stress is going to result in lower limits in effluent. This means investment in more efficient waste water treatment systems. We may have to renew or upgrade our waste water treatment facilities.
Acquisitions and divestments	Impacted	Tekfen Construction is actively looking to invest in renewable energy production. We already established a team that specialises on renewable energy. We established an R&D department and working on new types of more efficient fertilizers to divest from traditional fertilizers. Our main goal in this divestment opportunity is to provide our farmers with much more efficient fertilizers. We have already invested in an R&D center and production is expected to start in 2018. Investment so far has reached approximately USD 700,000.
Access to capital	Not yet impacted	7 major banks in Turkey has signed the Sustainable Financing Declaration meaning that they will look for environmental and social performance when deciding on loan allocation. In our major projects, financing institutions are actively looking out for Environmental, Health & Safety issues. Large construction projects are in scope of Equator Principles and the importance of environmental related issues in getting financing is increasing.
Assets	Impacted	Extreme weather events affected some of our assets. For example, flooding happened in Istanbul last year adversely affected Tekfen Real Estate Hep Istanbul Project. In addition, hail squall events happened in Istanbul adversely affected our vehicles and some of the buildings.
Liabilities	Not yet impacted	A carbon tax in Turkey is most likely to be implemented in ETS form, similar to the EU ETS. Our fertilizer operations are especially liable due to high N2O emissions. Our liabilities are both potential carbon fees and fines if necessary systems are not implemented and managed properly. We have invested in Continuous Emissions Monitoring Systems to accurately track our N2O emissions. We are also looking to invest in a catalyser system to reduce our N2O emissions to reduce our potential liability. Our catalyser system investment will have an initial investment of about USD 1.2 million. Our potential N2O liability is around USD 0.7 million/year in 2017 emission figures (considering a carbon price of 1\$/ton) in the medium term when considered from a carbon tax standpoint. It could be somewhat lower based on ETS limits.
Other	Please select	

**C3. Business Strategy**

**C3.1**

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

Yes

**C3.1a**

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

Yes, qualitative

C-AC3.1b/C-CE3.1b/C-CH3.1b/C-CO3.1b/C-EU3.1b/C-FB3.1b/C-MM3.1b/C-OG3.1b/C-PF3.1b/C-ST3.1b/C-TO3.1b/C-TS3.1b)

**(C-AC3.1b/C-CE3.1b/C-CH3.1b/C-CO3.1b/C-EU3.1b/C-FB3.1b/C-MM3.1b/C-OG3.1b/C-PF3.1b/C-ST3.1b/C-TO3.1b/C-TS3.1b)**

**Indicate whether your organization has developed a low-carbon transition plan to support the long-term business strategy.**

No, we do not have a low-carbon transition plan



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

In recent years, as Tekfen, we have started to officially integrate climate change into our strategy. As a company, we have been collecting information on climate change and reporting internally following the CDP criteria since 2010. In 2017, we have decided to formally report to CDP. Tekfen Construction's motto "Building the Future" has been changed to "Building a Sustainable Future". Below are some examples of how we monitored and acted against the impact of climate change before 2017.

New structures have been established in the Holding for dealing with issues such as sustainable growth, as environmental issues are becoming increasingly mainstream. This is one of the indicators that the Company is beginning to take strategic decisions into climate change and similar issues. As an example, The Management Review Meeting, attended by the Senior Management at Tekfen Construction, was held as "Carbon Neutral" to draw attention to climate change in 2016 across the Company. In Tekfen Holding level, due to the increasing risk climate change issues bring to the business environment, The Holding has started to closely monitor the environmental performance of individual companies.

A big step that is a result of considering the effects of climate change, Tekfen decided to start renewable energy contracting due to the expected contraction in oil & gas contracting activities as a result of climate change effects in the EPC sector. Part of our short term strategy transformation, a separate department specializing in contracting renewable energy projects was found in Tekfen Construction.

Minimizing the consumption of energy and natural resources and reducing waste by encouraging recycling/reuse is among Tekfen principles. Therefore we implement numerous projects in our production facilities for energy efficiency. As a result of this principle, Toros Tarım's Mersin Facility has won the "Energy Efficient Industrial Facility (EVET)" award given to facilities that has the highest "energy intensity reduction ratio" by the Renewable Energy General Directorate of the Ministry of Energy and Natural Resources. Our Mersin Facility was able to reduce its energy intensity by 33.3% in the 2013-2015 period against reference energy intensity (REY) in 2008-2012 and win the first place in the Chemicals and Production of Chemicals subsector.

We also formed a Sustainability Committee and climate change issues are now considered by the Board of Directors. The Sustainability Committee reports its findings to the Board of Directors.

Because agriculture and agri-industry sectors are especially vulnerable to potential impacts of climate change, Toros Tarım has formed a special Sustainability Department to assess and manage climate risks and opportunities closely.

For our contracting operations we make sure our contracting portfolio is diversified to stay ahead of our competition by developing new green business opportunities and adapting to the changing business and physical environment. An example for this is our decision to enter the renewable energy contracting field.

Starting with the management restructuring process in 2015, Tekfen has set major targets for renewable energy and energy production from waste for the medium term. In the long term, Tekfen is planning to become one of the major components of the eco-economy. Considering the risks associated with nuclear power, and Tekfen's value of protecting nature, Tekfen has also chosen not to pursue nuclear energy projects and instead is focusing on other types of renewable projects that have less environmental impact.

Buildings are a major source of energy consumption and emissions. Tekfen Real Estate's projects in Turkey own LEED certification following the actions that were agreed to be implemented in Turkey's National Climate Change Strategy (2010-2023). Tekfen Real Estate is also one of the founders of ÇEDBİK (Turkish Green Building Association), emphasizing the importance Tekfen Holding puts on environmentally friendly buildings and climate change. Tekfen is also one of the founders of TEMA Foundation and has integrated environmental issues into its core business. Considering the activities described above, the value that Tekfen gives to nature is

apparent.

In addition, Tekfen supports the "Earth Hour" event of WWF every year with Tekfen Tower Building.

Most of our GHG emissions (%89 of Scope 1 emissions) are because of N2O emissions of Toros Agri-Industry Mersin Plant. After the first officially submitted Climate Change Report last year, we have established a working group to minimize N2O related GHG emissions. The group are still working on this issue. They are in a contact with NACAG (Nitric Acid Climate Action Group) and the manufacturers of N2O catalyzers. CEO& President and Toros Agri-Industry General Manager are closely monitoring the developments related to this work.

### C3.1d

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

Climate-related scenarios	Details
Other, please specify (RCP 4.5)	We considered RCP4.5 as a realistic scenario for the impacts of climate change in Turkey. This is because we base our analyses on the "Climate Change Projections for Turkey" report published by the Turkey's General Directorate of Meteorology. The report includes 2 different climate changes scenarios, RCP4.5 and RCP8.5. 2013-2040, 2041-2070, 2071-2099 are considered as 3 defining time periods. According to the report, Turkey will face 2 to 3 degrees in Celsius increase in mean temperature during 2013-2040 and up to 4 degrees Celsius in later periods. Reductions in mean precipitation are also expected. We consider these impacts especially important in our Agri-Industry operations. While we are not expecting large impacts to our direct operations, our value chain will be directly impacted as farmers will need to use limited water resources more efficiently. This is why we are investing heavily on special fertilizer products that should be used with modern efficient irrigation methods.
Nationally determined contributions (NDCs)	We are also considering Turkey's NDC in our direct operations as well. This scenario is a 21% decrease from the business as usual scenario by 2030. As a developing economy, Turkey has plans to grow, and as part of a growing economy, Tekfen's aims are for large amounts of growth as well. We are looking to make our operations as efficient as possible and also enter the renewable energy sector while growing so we can play our part in an economy based on sustainable development.

## C4. Targets and performance

### C4.1

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

No target

### C4.1c

**(C4.1c) Explain why you do not have emissions target and forecast how your emissions will change over the next five years.**

	Primary reason	Five-year forecast	Please explain
Row 1	Important but not an immediate business priority	Decrease	As we are planning to grow our business, our emissions will be naturally increasing. However, we are considering investments in our fertilizer business that may reduce our N2O emissions, which make up almost 90% of our Scope 1 emissions, by 80%. This will be an emissions target independent decision.

## C4.2

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

**Target**

Other, please specify (Gas releases to the atmosphere)

**KPI – Metric numerator**

5

**KPI – Metric denominator (intensity targets only)****Base year**

2016

**Start year**

2016

**Target year**

2017

**KPI in baseline year**

5

**KPI in target year**

5

**% achieved in reporting year**

100

**Target Status**

Underway

**Please explain**

This is our target to limit the number of times gases released to the atmosphere (25-100 m3 – medium level) is kept to 5. This is a rolling target.

**Part of emissions target**

No

**Is this target part of an overarching initiative?**

No, it's not part of an overarching initiative

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**Target**

Other, please specify (Gas release to the atmosphere)

**KPI – Metric numerator**

0

**KPI – Metric denominator (intensity targets only)****Base year**

2016

**Start year**

2016

**Target year**

2017

**KPI in baseline year**

0

**KPI in target year**

0

**% achieved in reporting year**

100

---

**Target Status**

Underway

**Please explain**

This is our target to limit the number of times gases released to the atmosphere (100 – 1,000 m3) is kept to 0.

**Part of emissions target**

No

**Is this target part of an overarching initiative?**

No, it's not part of an overarching initiative

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

Yes

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

	Number of projects	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	1	670000
To be implemented*		
Implementation commenced*	1	787.39
Implemented*	3	332.95
Not to be implemented		

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

Energy efficiency: Building services

**Description of activity**

Lighting

**Estimated annual CO2e savings (metric tonnes CO2e)**

280.14

**Scope**

Scope 2 (location-based)

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in CC0.4)**

60000

**Investment required (unit currency – as specified in CC0.4)**

80000

**Payback period**

1-3 years

**Estimated lifetime of the initiative**

11-15 years

**Comment**

Tekfen Real Estate Hep İstanbul project is being developed a LEED certified Housing project. This project is projected to result in 20% savings electricity by designing lighting to maximize energy performance, selecting proper insulating glass windows, green roofing, and bicycle parking areas. All these savings mean that residents are able to avoid unnecessary emissions. In addition, the construction process is also sustainable and low carbon. All construction waste is recycled and defining structures are sourced locally with specific recycled input material ratios. These allow us to save 547,16mWh of electricity annually.

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**Activity type**

Energy efficiency: Building fabric

**Description of activity**

Insulation

**Estimated annual CO2e savings (metric tonnes CO2e)**

42.65

**Scope**

Scope 1

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in CC0.4)**

6000

**Investment required (unit currency – as specified in CC0.4)**

80000

**Payback period**

11-15 years

**Estimated lifetime of the initiative**

11-15 years

**Comment**

Tekfen Real Estate Hep İstanbul project is being developed a LEED certified Housing project. This project is projected to result in 25% savings in natural gas by designing HVAC systems to maximize energy performance, selecting proper insulating glass windows and green roofing. All these savings mean that residents are able to avoid unnecessary emissions. In addition, the construction process is also sustainable and low carbon. All construction waste is recycled and defining structures are sourced locally with specific recycled input material ratios. These allow us to save 22,000 m3 of natural gas annually.

---

**Activity type**

Energy efficiency: Processes

**Description of activity**

Process optimization

**Estimated annual CO2e savings (metric tonnes CO2e)**

10.17

**Scope**

Scope 2 (location-based)

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in CC0.4)**

2200

**Investment required (unit currency – as specified in CC0.4)**

79200

**Payback period**

>25 years

**Estimated lifetime of the initiative**

6-10 years

**Comment**

We have replaced the membrane to extend the regeneration process in one of our fertilizer facilities. This investment was mostly for water savings and the 4 pumps that would be used every 2 days are now being used every 4 days allowing us to save 19.8 MWh of electricity annually.

C4.3c

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

Method	Comment
Compliance with regulatory requirements/standards	DENOX and CEMS installations are regulatory mandated. As per Turkish GHG MRV Regulation, the third party companies verify our fertilizer plants' GHG emissions and report to Ministry of Environment and Urbanization.
Dedicated budget for other emissions reduction activities	We are considering investing in large N2O reduction systems due to the possibility of future ETS/Carbon Tax system in Turkey.
Partnering with governments on technology development	Nitric Acid Climate Action Group (NACAG), affiliated with the German Government, is supporting us in considering options for installing an N2O reduction system. We are receiving know-how support and will receive potential financial support from them. The Turkish Government is also supporting this initiative.

C4.5

**(C4.5) Do you classify any of your existing goods and/or services as low-carbon products or do they enable a third party to avoid GHG emissions?**

Yes

C4.5a

**(C4.5a) Provide details of your products and/or services that you classify as low-carbon products or that enable a third party to avoid GHG emissions.**

**Level of aggregation**

Product

**Description of product/Group of products**

Tekfen Real Estate LEED Certified Buildings

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

Low-carbon product and avoided emissions

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

Other, please specify (LEED)

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

1

**Comment**

Tekfen Real Estate Hep İstanbul project is a LEED certified housing project. This project is projected to result in 20% savings in water consumption, 50% savings in irrigation, 20% savings electricity and 25% savings in natural gas by designing lighting and HVAC systems to maximize energy performance, selecting proper insulating glass windows, green roofing, and bicycle parking areas. All these savings mean that residents are able to avoid unnecessary emissions. In addition, the construction process is also sustainable and low-carbon. All construction waste is recycled and defining structures are sourced locally with specific recycled input material ratios.

## C5. Emissions methodology

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### C5.1

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

#### Scope 1

**Base year start**

January 1 2016

**Base year end**

December 31 2016

**Base year emissions (metric tons CO2e)**

1052536.49

**Comment**

#### Scope 2 (location-based)

**Base year start**

January 1 2016

**Base year end**

December 31 2016

**Base year emissions (metric tons CO2e)**

45049.57

**Comment**

#### Scope 2 (market-based)

**Base year start**

January 1 2016

**Base year end**

December 31 2016

**Base year emissions (metric tons CO2e)**

0

**Comment**

We are not able to provide a market-based figure

### C5.2

---

**(C5.2) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions.**

The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

## C6. Emissions data

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### C6.1

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

**Row 1**

**Gross global Scope 1 emissions (metric tons CO2e)**

796410.25

**End-year of reporting period**

<Not Applicable>

**Comment**

**C6.2**

---

**(C6.2) Describe your organization's approach to reporting Scope 2 emissions.**

**Row 1**

**Scope 2, location-based**

We are reporting a Scope 2, location-based figure

**Scope 2, market-based**

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

**Comment**

**C6.3**

---

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

**Row 1**

**Scope 2, location-based**

39887.97

**Scope 2, market-based (if applicable)**

<Not Applicable>

**End-year of reporting period**

<Not Applicable>

**Comment**

**C6.4**

---

**(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure?**

No

**C6.5**

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



## **Purchased goods and services**

### **Evaluation status**

Not relevant, explanation provided

### **Metric tonnes CO2e**

0

### **Emissions calculation methodology**

Emissions from purchased goods and services were not found to be relevant to calculate.

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

0

### **Explanation**

## **Capital goods**

### **Evaluation status**

Not relevant, explanation provided

### **Metric tonnes CO2e**

0

### **Emissions calculation methodology**

Scope 3 emissions from purchased capital goods are not relevant in our operations.

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

0

### **Explanation**

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

### **Evaluation status**

Not relevant, explanation provided

### **Metric tonnes CO2e**

0

### **Emissions calculation methodology**

Scope 3 emissions from fuel and energy related activities are not relevant in our operations.

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

0

### **Explanation**

## **Upstream transportation and distribution**

### **Evaluation status**

Not relevant, explanation provided

### **Metric tonnes CO2e**

0

### **Emissions calculation methodology**

Scope 3 emissions from upstream transportation and distribution are not relevant in our operations.

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

0

### **Explanation**

## Waste generated in operations

### Evaluation status

Relevant, calculated

### Metric tonnes CO2e

5069.5

### Emissions calculation methodology

Waste data in tonnes are tracked in our operations. We apply DEFRA's up to date waste emission factors for Scope 3 calculations.

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

2

### Explanation

## Business travel

### Evaluation status

Relevant, calculated

### Metric tonnes CO2e

1831.83

### Emissions calculation methodology

We obtain flight information from our travel agency. We then use ICAO distance data and apply DEFRA's up to date business travel air emission factors.

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

100

### Explanation

Flight data belongs to Tekfen employees.

## Employee commuting

### Evaluation status

Relevant, calculated

### Metric tonnes CO2e

758.76

### Emissions calculation methodology

We obtain employee commuting distance information from our service providers. We then apply DEFRA's up to date road travel emission factors.

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

100

### Explanation

## Upstream leased assets

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO2e

0

### Emissions calculation methodology

Scope 3 emissions from upstream leased assets are not relevant to our operations.

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

0

### Explanation

## Downstream transportation and distribution

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO<sub>2</sub>e

0

### Emissions calculation methodology

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

0

### Explanation

Our operations do not include downstream transportation and distribution activities.

## Processing of sold products

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO<sub>2</sub>e

0

### Emissions calculation methodology

We do not sell products that are later processed.

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

0

### Explanation

## Use of sold products

### Evaluation status

Relevant, calculated

### Metric tonnes CO<sub>2</sub>e

45896.86

### Emissions calculation methodology

We obtain a database of our sold products from our petrol stations and organized industrial zone. We apply IPCC and DEFRA emission factors for calculating Scope 3 emissions.

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

100

### Explanation

## End of life treatment of sold products

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO<sub>2</sub>e

0

### Emissions calculation methodology

End of life treatment of our sold products are not relevant to our operations.

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

0

### Explanation

## Downstream leased assets

### Evaluation status

Relevant, calculated

### Metric tonnes CO2e

95127.97

### Emissions calculation methodology

We obtain electricity consumption information from our leases and apply Turkey average grid emission factor.

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

95

### Explanation

## Franchises

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO2e

0

### Emissions calculation methodology

Our operations do not involve franchises.

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

0

### Explanation

## Investments

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO2e

0

### Emissions calculation methodology

Emissions from investments are not relevant.

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

0

### Explanation

## Other (upstream)

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO2e

0

### Emissions calculation methodology

There are no additional sources of Scope 3 emissions from our operations.

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

0

### Explanation

**Other (downstream)**

**Evaluation status**

Not relevant, explanation provided

**Metric tonnes CO2e**

0

**Emissions calculation methodology**

There are no additional sources of Scope 3 emissions from our operations

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

0

**Explanation**

C6.7

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

No

C6.10

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

**Intensity figure**

0.0004213

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

836298.22

**Metric denominator**

unit total revenue

**Metric denominator: Unit total**

1984976537

**Scope 2 figure used**

Location-based

**% change from previous year**

48.33

**Direction of change**

Decreased

**Reason for change**

Most of the decrease comes from the fact that close to 1300 tonnes of N2O were emitted in our nitric acid facility unnecessarily the previous year due to maintenance and monitoring issues in production at the time. The issue was resolved by routine maintenance of the platinum net and the emission values were normalized as a result. Toros Tarım has improved its preventive and predictive maintenance system in line with the lean management production system to proactively monitor and manage system failures and achieve and maintain targeted levels.

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**Intensity figure**

45.71

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

836298.22

**Metric denominator**

full time equivalent (FTE) employee

**Metric denominator: Unit total**

18296

**Scope 2 figure used**

Location-based

**% change from previous year**

40.47

**Direction of change**

Decreased

**Reason for change**

Most of the decrease comes from the fact that close to 1,300 tonnes of N2O were emitted in our nitric acid facility unnecessarily the previous year due to maintenance and monitoring issues in production at the time. The issue was resolved by routine maintenance of the platinum net and the emission values were normalized accordingly. Toros Tarım has its improved preventive and predictive maintenance system in line with the lean management production system to proactively monitor and manage system failures and achieve and maintain targeted levels.

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## C7. Emissions breakdowns

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### C7.1

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

Yes

**C7.1a**

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

Greenhouse gas	Scope 1 emissions (metric tons of CO2e)	GWP Reference
CO2	89446.97	IPCC Fifth Assessment Report (AR5 – 100 year)
N2O	706963.28	IPCC Fifth Assessment Report (AR5 – 100 year)

**C7.2**

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

Country/Region	Scope 1 emissions (metric tons CO2e)
Turkey	796410.25

**C7.3**

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

By business division

**C7.3a**

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

Business division	Scope 1 emissions (metric ton CO2e)
Contracting	43894.27
Agri-Industry	752071.39
Real Estate Development	294.14
Other Activities	150.45

C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4

**(C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4) Break down your organization's total gross global Scope 1 emissions by sector production activity in metric tons CO2e.**

	Gross Scope 1 emissions, metric tons CO2e	Net Scope 1 emissions , metric tons CO2e	Comment
Cement production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Chemicals production activities	737962.8	<Not Applicable>	Scope 1 emissions from our 3 fertilizer production plants in Samsun, Mersin and Ceyhan.
Coal production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Electric utility generation activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Metals and mining production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (upstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (downstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Steel production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport OEM activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport services activities	<Not Applicable>	<Not Applicable>	<Not Applicable>

**C7.5**

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

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low-carbon electricity, heat, steam or cooling accounted in market-based approach (MWh)
Turkey	39887.97	0	0	0

**C7.6**

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

By business division

**C7.6a**

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

Business division	Scope 2, location-based emissions (metric tons CO2e)	Scope 2, market-based emissions (metric tons CO2e)
Contracting	10094.16	0
Agri-Industry	28045.28	0
Real Estate Development	1195.96	0
Other Activities	552.58	0

**C-CE7.7/C-CH7.7/C-CO7.7/C-MM7.7/C-OG7.7/C-ST7.7/C-TO7.7/C-TS7.7**



**(C-CE7.7/C-CH7.7/C-CO7.7/C-MM7.7/C-OG7.7/C-ST7.7/C-TO7.7/C-TS7.7) Break down your organization's total gross global Scope 2 emissions by sector production activity in metric tons CO2e.**

	Scope 2, location-based, metric tons CO2e	Scope 2, market-based (if applicable), metric tons CO2e	Comment
Cement production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Chemicals production activities	23850.61	0	Purchased electricity related CO2 emissions from our 3 fertilizer production facilities in Samsun, Mersin and Ceyhan.
Coal production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Metals and mining production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (upstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (downstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Steel production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport OEM activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport services activities	<Not Applicable>	<Not Applicable>	<Not Applicable>

**C-CH7.8**

**(C-CH7.8) Disclose the percentage of your organization's Scope 3, Category 1 emissions by purchased chemical feedstock.**

Purchased feedstock	Percentage of Scope 3, Category 1 tCO2e from purchased feedstock	Explain calculation methodology
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**C-CH7.8a**

**(C-CH7.8a) Disclose sales of products that are greenhouse gases.**

	Sales, metric tons	Comment
Carbon dioxide (CO2)	0	We do not sell products that are greenhouse gases.
Methane (CH4)	0	We do not sell products that are greenhouse gases.
Nitrous oxide (N2O)	0	We do not sell products that are greenhouse gases.
Hydrofluorocarbons (HFC)	0	We do not sell products that are greenhouse gases.
Perfluorocarbons (PFC)	0	We do not sell products that are greenhouse gases.
Sulphur hexafluoride (SF6)	0	We do not sell products that are greenhouse gases.
Nitrogen trifluoride (NF3)	0	We do not sell products that are greenhouse gases.

**C7.9**

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

Decreased

**C7.9a**

**(C7.9a) Identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined) and for each of them specify how your emissions compare to the previous year.**

	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption		<Not Applicable>		
Other emissions reduction activities	332.95	Decreased	0.03	Our 2016 Scope1+Scope 2 emissions were 1097586.06 tCO2e. In 2017, We have saved 332.95 tCO2e directly from emission reduction activities. $(-332.95/1097586.06)*100=-0.03\%$
Divestment		<Not Applicable>		
Acquisitions		<Not Applicable>		
Mergers		<Not Applicable>		
Change in output		<Not Applicable>		
Change in methodology		<Not Applicable>		
Change in boundary		<Not Applicable>		
Change in physical operating conditions	261287.84	Decreased	23.81	Our 2016 Scope 1+Scope 2 emissions were 1097586.06 tCO2e. In 2017, S1+S2 emissions decreased to 836298.22. $(836298.22-1097586.06)/1097586.06 = -23.81\%$ . Most of this decrease was attributable to N2O emissions from our nitric acid facility. In 2016, we have emitted close to 1300 tonnes of extra N2O due to maintenance and monitoring issues in production at the time. The issue was resolved by routine maintenance of the platinum net and the emission values were normalized accordingly. Toros Tarım has improved its preventive and predictive maintenance system in line with the lean management production system to proactively monitor and manage system failures and achieve and maintain targeted levels.
Unidentified		<Not Applicable>		
Other		<Not Applicable>		

## C7.9b

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

Location-based

## C8. Energy

### C8.1

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

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

### C8.2

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

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

**C8.2a**

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

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total MWh
Consumption of fuel (excluding feedstock)	LHV (lower heating value)	0	288935.03	288935.03
Consumption of purchased or acquired electricity	<Not Applicable>	0	77909.09	77909.09
Consumption of purchased or acquired heat	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired steam	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	129275.54	<Not Applicable>	129275.54
Total energy consumption	<Not Applicable>	129275.54	366844.12	496119.66

**C-CH8.2a**

**(C-CH8.2a) Report your organization’s energy consumption totals (excluding feedstocks) for chemical production activities in MWh.**

	Heating value	Total MWh
Consumption of fuel (excluding feedstock)	LHV (lower heating value)	72155.7
Consumption of purchased or acquired electricity	<Not Applicable>	46584.96
Consumption of purchased or acquired heat	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired steam	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	129275.54
Total energy consumption	<Not Applicable>	248016.2

**C8.2b**

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

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

**C8.2c**

---

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

**Fuels (excluding feedstocks)**

Natural Gas

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

70503.3

**MWh fuel consumed for the self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

70503.3

**MWh fuel consumed for self-generation of steam**

<Not Applicable>

**MWh fuel consumed for self-generation of cooling**

<Not Applicable>

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

<Not Applicable>

---

**Fuels (excluding feedstocks)**

Coal

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

10168.48

**MWh fuel consumed for the self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

10168.48

**MWh fuel consumed for self-generation of steam**

<Not Applicable>

**MWh fuel consumed for self-generation of cooling**

<Not Applicable>

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

<Not Applicable>

---

**Fuels (excluding feedstocks)**

Fuel Oil Number 1

**Heating value**

---

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

0.26

**MWh fuel consumed for the self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

0.26

**MWh fuel consumed for self-generation of steam**

<Not Applicable>

**MWh fuel consumed for self-generation of cooling**

<Not Applicable>

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

<Not Applicable>

---

**Fuels (excluding feedstocks)**

Liquefied Petroleum Gas (LPG)

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

41027.21

**MWh fuel consumed for the self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

41027.21

**MWh fuel consumed for self-generation of steam**

<Not Applicable>

**MWh fuel consumed for self-generation of cooling**

<Not Applicable>

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

<Not Applicable>

---

**Fuels (excluding feedstocks)**

Diesel

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

162738.2

**MWh fuel consumed for the self-generation of electricity**

15481.19

**MWh fuel consumed for self-generation of heat**

0

**MWh fuel consumed for self-generation of steam**

<Not Applicable>

**MWh fuel consumed for self-generation of cooling**

<Not Applicable>

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

<Not Applicable>

---

**Fuels (excluding feedstocks)**

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Motor Gasoline

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

4497.58

**MWh fuel consumed for the self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

0

**MWh fuel consumed for self-generation of steam**

<Not Applicable>

**MWh fuel consumed for self-generation of cooling**

<Not Applicable>

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

<Not Applicable>

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## C8.2d

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

**Coal**

**Emission factor**

1.27422

**Unit**

metric tons CO2e per metric ton

**Emission factor source**

IPCC Chapter 2 Stationary Combustion (Table 2.2)

**Comment**

**Diesel**

**Emission factor**

0.00265

**Unit**

metric tons CO2e per liter

**Emission factor source**

IPCC Chapter 3 Mobile Combustion (Table 3.2.1 &3.2.2) IPCC Chapter 2 Stationary Combustion (Table 2.2)

**Comment**

Average of Mobile and Stationary diesel emissions

**Fuel Oil Number 1**

**Emission factor**

0.00317

**Unit**

metric tons CO2e per liter

**Emission factor source**

DEFRA 2017 - FUELS Fuel Oil

**Comment**

---

### Liquefied Petroleum Gas (LPG)

**Emission factor**

2.8814

**Unit**

metric tons CO2e per metric ton

**Emission factor source**

IPCC Chapter 2 Stationary Combustion (Table 2.2)

**Comment**

### Motor Gasoline

**Emission factor**

0.00227

**Unit**

metric tons CO2e per liter

**Emission factor source**

IPCC Chapter 3 Mobile Combustion (Table 3.2.1 &3.2.2)

**Comment**

### Natural Gas

**Emission factor**

0.00193

**Unit**

metric tons CO2e per m3

**Emission factor source**

IPCC Chapter 2 Stationary Combustion (Table 2.2)

**Comment**

## C8.2e

---

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

	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)
Electricity	198531.39	144756.73	183050.2	129275.54
Heat	121699.25	121699.25	0	0
Steam	0	0	0	0
Cooling	0	0	0	0

## C-CH8.2e

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**(C-CH8.2e) Provide details on electricity, heat, steam, and cooling your organization has generated and consumed for chemical production activities.**

	Total gross generation (MWh) inside chemicals sector boundary	Generation that is consumed (MWh) inside chemicals sector boundary
Electricity	183050.2	129275.54
Heat	64257.05	64257.05
Steam		
Cooling		

## C8.2f

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

**Basis for applying a low-carbon emission factor**

Off-grid energy consumption from an on-site installation or through a direct line to an off-site generator owned by another company

**Low-carbon technology type**

Other low-carbon technology, please specify (Waste Heat Recovery)

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

129275.54

**Emission factor (in units of metric tons CO<sub>2</sub>e per MWh)**

0

**Comment**

We have a waste heat recovery system that produces electricity from recovered waste heat. If natural gas was used in the generation of the same amount of electricity we produce from our waste heat, it would result in 26,000 tCO<sub>2</sub>e GHG emissions.

## C-CH8.3

**(C-CH8.3) Disclose details on your organization's consumption of feedstocks for chemical production activities.**

### C-CH8.3a

**(C-CH8.3a) State the percentage, by mass, of primary resource from which your chemical feedstocks derive.**

	Percentage of total chemical feedstock (%)
Oil	
Natural Gas	
Coal	
Biomass	
Waste	
Fossil fuel (where coal, gas, oil cannot be distinguished)	
Unknown source or unable to disaggregate	

## C9. Additional metrics



## C9.1

---

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

**Description**

Energy use

**Metric value**

496119.66

**Metric numerator**

496,119.66 MWh - Total energy consumption

**Metric denominator (intensity metric only)**

**% change from previous year**

6.69

**Direction of change**

Decreased

**Please explain**

Total energy consumption was 531,709.74 MWh in 2016. We had a scheduled stop/ cold stop in Samsun Plant. The reason for this difference is because of that cold stop.

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## C-CH9.3a

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**(C-CH9.3a) Provide details on your organization's chemical products.**

## C-CH9.6

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**(C-CH9.6) Disclose your organization's low-carbon investments for chemical production activities.**

## C10. Verification

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### C10.1

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

	Verification/assurance status
Scope 1	Third-party verification or assurance process in place
Scope 2 (location-based or market-based)	No third-party verification or assurance
Scope 3	No third-party verification or assurance

### C10.1a

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

**Scope**

Scope 1

---

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Complete

**Type of verification or assurance**

Reasonable assurance

**Attach the statement**

Mersin Plant\_Emission Assurance Report\_2017.pdf

Mersin Plant\_Verifier Company Letter.pdf

**Page/ section reference**

Please refer to the attached verifier company's letter. You can also refer to whole Mersin Plant's Emission Assurance Report which was submitted to the Ministry of Environment and Urbanization.

**Relevant standard**

European Union Emissions Trading System (EU ETS)

**Proportion of reported emissions verified (%)**

89

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**Scope**

Scope 1

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Complete

**Type of verification or assurance**

Reasonable assurance

**Attach the statement**

Ceyhan Plant\_Verifier Company Letter.pdf

Ceyhan Plant\_Emission Assurance Report\_2017.pdf

**Page/ section reference**

Please refer to the attached verifier company's letter. You can also refer to whole Ceyhan Plant's Emission Assurance Report which was submitted to the Ministry of Environment and Urbanization.

**Relevant standard**

European Union Emissions Trading System (EU ETS)

**Proportion of reported emissions verified (%)**

1

---

**Scope**

Scope 1

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Complete

**Type of verification or assurance**

Reasonable assurance

**Attach the statement**

Samsun Plant\_Emission Assurance Report\_2017.pdf

Samsun Plant\_Verifier Company Letter.pdf

**Page/ section reference**

Please refer to the attached verifier company's letter. You can also refer to whole Samsun Plant's Emission Assurance Report which was submitted to the Ministry of Environment and Urbanization.

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**Relevant standard**

European Union Emissions Trading System (EU ETS)

**Proportion of reported emissions verified (%)**

2

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C10.2

---

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

No, but we are actively considering verifying within the next two years

C11. Carbon pricing

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C11.1

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

No, but we anticipate being regulated in the next three years

C11.1d

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

Our fertilizer production operations are in the scope of Turkish GHG MRV regulation, which is the basis for a future ETS that is in line with the EU ETS. We are already investing heavily in reducing our CO2 and N2O emissions and keeping our other emissions much below legal limits. We are currently looking at an investment option that will reduce our N2O emissions from fertilizer operations greatly. Our fertilizer operations are the only possible operations in scope and reduction possibilities are around 80% .

C11.2

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**(C11.2) Has your organization originated or purchased any project-based carbon credits within the reporting period?**

No

C11.3

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

Yes

C11.3a

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

**Objective for implementing an internal carbon price**

- Navigate GHG regulations
- Change internal behavior
- Drive energy efficiency
- Drive low-carbon investment
- Identify and seize low-carbon opportunities

**GHG Scope**

Scope 1

**Application**

Agri-Industry: Toros Tarım (N2O producing fertilizer business)

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

1

**Variance of price(s) used**

No variance in prices considered. Turkey's ETS is in its infancy and projections will be unreliable.

**Type of internal carbon price**

Internal fee

**Impact & implication**

Our N2O related liability is approximately 700,000 USD / year because of our yearly N2O emissions from fertilizer operations. Using a 1 USD/tCO2e we presented to the executive committee along with the Chairman of the Board and the implications of a possible carbon fee based on an internal carbon price. Investment options to reduce this liability is ongoing as a result of these studies.

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**C12. Engagement**

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**C12.1**

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

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

**C12.1a**

---

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

**Type of engagement**

Information collection (understanding supplier behavior)

**Details of engagement**

Collect climate change and carbon information at least annually from suppliers

**% of suppliers by number**

68.3

**% total procurement spend (direct and indirect)**

25

**% Scope 3 emissions as reported in C6.5**

0

**Rationale for the coverage of your engagement**

Tekfen Construction works with many suppliers (such as steel producers) whose production processes have high climate change impacts.

**Impact of engagement, including measures of success**

We have recently started this engagement and the idea is to collect environmental related information from them. By doing so we believe that we will be able to show our sensitivity towards the issue and create awareness in our suppliers as well.

**Comment**

Under the scope of Environmental Management System in parallel to ISO 14001 Standard, we have started to examine Life Cycle Assessment of the raw materials used. We have started to use "cradle to cradle" approach instead of "cradle to grave" for the raw materials and relevant wastes.

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**C12.1b**

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**(C12.1b) Give details of your climate-related engagement strategy with your customers.**

**Type of engagement**

Education/information sharing

**Details of engagement**

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

**Size of engagement**

7.3

**% Scope 3 emissions as reported in C6.5**

0

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

All kinds of training related to agriculture, provides a contribution to economic and quality produce in agricultural production. The increase in quantity and quality of produce yielded from a unit field helps also climate change. Toros Tarım, with this awareness, has been organizing nationwide “Farmer Training Meetings” continuously since the 1980’s, when the company started its operations, to increase quality and hence contribute to farmer’s wealth and protect the environment. In the fertilizer sector, farmer-training seminars, first and only applied by Toros Tarım, are organized throughout Turkey, in countless cities and districts, and open to everyone. In addition to the seminars, thanks to meetings at village cafes and TV programs, Toros Tarım has reached over hundred thousands of farmers until today. Toros Tarım is in close cooperation with regional agricultural organizations in relation to this matter. We also have our TOROSÇİFTÇİ APP that shared educational information and recommendations about fertilizers with our registered farmers and distributors. We believe that by increasing the efficiency of our farmers using our fertilizers, we can reduce energy and water consumption. We also educate them on the climate change impacts on farming and how they should change/vary their methods based on changing climate trends, readying them for climate impacts.

**Impact of engagement, including measures of success**

We have reached 7.3% of all wheat fields in the country through our TOROSÇİFTÇİ APP that shares educational information with 7000 farmers, 7500 farms and 800 distributors. All farms that are registered in the system are monitored constantly and recommendations are shared by farmers. A 14% efficiency increase was achieved per m2 crop area. (14% more wheat in kg from same area).

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**Type of engagement**

Education/information sharing

**Details of engagement**

Share information about your products and relevant certification schemes (i.e. Energy STAR)

**Size of engagement**

4.7

**% Scope 3 emissions as reported in C6.5**

0

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

Our HEP Istanbul housing project is LEED certified. We have conducted numerous target and strategy identification meetings with all project stakeholders during the projects.

**Impact of engagement, including measures of success**

We have achieved more than 20% efficiency in water use in our project. We also achieved about 50% reduction in irrigation with selection of local and less water absorbent plants. Energy efficient mechano-electrical systems and efficient glass panels resulted in 20% reduction in energy consumption.

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**C12.1c**

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

Tekfen follows NGOs' activities closely. In addition we are both founding member and member of some of them. Therefore we consider NGOs as important partners in the value chain.

We are a member of the Turkish Sustainable Development Business Council (SKD) and a founding member of Turkish Industry and Business Association (TÜSİAD) which are in the forefront when it comes raising awareness and working with lawmakers on climate change related issues in Turkey. We are also the founding member of Turkish Foundation for Combating Soil Erosion, for Reforestation and the Protection of Natural Habitats (TEMA) and Environmentally Friendly Green Building Association (ÇEDBİK). It is very important for us to engage with NGOs when it comes to climate change and water with these institutions. As an example our relevant personnel have participated in several workshops, events and trainings organized by SKD and TÜSİAD in 2017.

**C12.3**

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

- Direct engagement with policy makers
- Trade associations
- Other

**C12.3a**

**(C12.3a) On what issues have you been engaging directly with policy makers?**

Focus of legislation	Corporate position	Details of engagement	Proposed legislative solution
Energy efficiency	Support	As a member of İNTES (Turkish Employers Association of Construction Industries), we engage with policymakers in issues that relate to the construction sector. İNTES collects opinions from all member contractors. In addition, anytime there is a request from policymakers for ideas, we provide our position on the matter.	Turkish Regulation on Energy Efficiency
Cap and trade	Support	We have attended the ETS Sectors Advisory Meeting in the scope of EU ETS Regulation Impact Analysis Workshop part of Technical Support Project for Solution Based Strategy and Action Plan for Low Carbon Development.	Turkish Regulation on GHG Monitoring

**C12.3b**

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

Yes

**C12.3c**

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

**Trade association**

Business Council for Sustainable Development Turkey

**Is your position on climate change consistent with theirs?**

Consistent

**Please explain the trade association's position**

Business Council for Sustainable Development Turkey is the Turkish partner of the World Business Council for Sustainable Development. The Association works toward increasing the awareness and impact of the business world towards 4 focal points in line with the SDGs: Transition to Low Carbon Economy and Efficiency Sustainable Agriculture and Access to Food Sustainable Industry and Circular Economy Social Inclusion

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

We regularly attend meetings, events and trainings organized by the Association. We actively participated in the 'Sustainable Development Goals and Turkey' event which was organized by TSKB and Ministry of Development. We also provide room support for SKD's conferences and activities.

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**C12.3e**

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

Tekfen is a founding member of TEMA (The Turkish Foundation for Combating Soil Erosion for Reforestation and the Protection of Natural Habitats) and ÇEDBİK (Turkish Green Building Association), two important NGOs in regards to environment and sustainability in Turkey and is actively involved in creating awareness regarding environment and green buildings. For example, due to awareness raising activities by mentioned NGOs and more, Turkey has put in place a regulation covering energy efficiency in buildings. We also attend TÜSİAD's panels and activities regarding climate change and be involved in more awareness raising especially in the business world regarding climate change. TÜSİAD (Turkish Industry and Business Association) works closely with the Turkish business world to work towards sustainable development and what the results of the Paris Agreement means for Turkish businesses.

**C12.3f**

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**(C12.3f) What processes do you have in place to ensure that all of your direct and indirect activities that influence policy are consistent with your overall climate change strategy?**

Activities regarding these issues are coordinated by the Health, Safety, Environment & Quality (HSE&Q) department. An HSE&Q Coordination Group was established with representatives from all group companies. The representatives of all group companies meet periodically and the meeting is chaired by the HSE&Q Coordinator. Strategy and activities regarding climate change is shared with the group company representatives. The implementation of the activities are monitored by Holding HSE&Q Coordinator and the results are reported to Tekfen Group of Companies' President&CEO.

**C12.4**

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**(C12.4) Have you published information about your organization's response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s).**

**Publication**

In mainstream reports

**Status**

Underway – previous year attached

**Attach the document**

Tekfen Annual Report\_2017.pdf

**Content elements**

Emissions figures

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**C14. Signoff**

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**C-FI**

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

**C14.1**

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

	Job title	Corresponding job category
Row 1	President and CEO, Tekfen Group of Companies	Chief Executive Officer (CEO)

**Submit your response**

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**In which language are you submitting your response?**

English

**Please confirm how your response should be handled by CDP**

	Public or Non-Public Submission	I am submitting to
I am submitting my response	Public	Investors

**Please confirm below**

I have read and accept the applicable Terms