Climate Change 2017 - TÜRK TELEKOMÜNİKASYON A.Ş.

Module: Introduction

Page: Introduction

CC0.1

Introduction

Please give a general description and introduction to your organization.

Türk Telekom, with 176 years of history, is the first integrated telecommunications operator in Turkey. In 2015, Türk Telekomünikasyon A.Ş. adopted a "customer-oriented" and integrated structure in order to respond to the rapidly changing communication and technology needs of customers in the most powerful and accurate way, while maintaining the legal entities of Avea İletişim Hizmetleri A.Ş. and TTNET A.Ş. intact and adhering to the rules and regulations to which they are subject. Having a wide service network and product range in the fields of individual and corporate services, Türk Telekom unified its mobile, internet, phone and TV products and services under the single "Türk Telekom" brand as of January 2016.

"Turkey's Multiplay Provider" Türk Telekom has 13.2 million fixed access lines, 8.9 million broadband and 18.7 million mobile subscribers as of March 31, 2017. Türk Telekom Group Companies provide services in all 81 cities of Turkey with 34,147 employees with the vision of introducing new technologies to Turkey and accelerating Turkey's transformation into an information society.

Türk Telekomünikasyon A.Ş., providing PSTN and wholesale broadband services, owns 100% of mobile operator Avea İletişim Hizmetleri A.Ş., retail internet services, IPTV, satellite TV, Web TV, Mobile TV, Smart TV services provider TTNET A.Ş.,TV Broadcasting and VOD services provider Net Ekran Companies, convergence technologies company Argela Yazılım ve Bilişim Teknolojileri A.Ş., IT solution provider Innova Bilişim Çözümleri A.Ş., online education software company Sebit Eğitim ve Bilgi Teknolojileri A.Ş., call center company AssisTT Rehberlik ve Müşteri Hizmetleri A.Ş., wholesale data and capacity service provider Türk Telekom International and its subsidiaries.

CC0.2

Reporting Year

Please state the start and end date of the year for which you are reporting data.

The current reporting year is the latest/most recent 12-month period for which data is reported. Enter the dates of this year first.

We request data for more than one reporting period for some emission accounting questions. Please provide data for the three years prior to the current reporting year if you have not provided this information before, or if this is the first time you have answered a CDP information request. (This does not apply if you have been offered and selected the option of answering the shorter questionnaire). If you are going to provide additional years of data, please give the dates of those reporting periods here. Work backwards from the most recent reporting year.

Please enter dates in following format: day(DD)/month(MM)/year(YYYY) (i.e. 31/01/2001).

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

CC0.3

Country list configuration

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

Select country
Turkey

CC0.4

Currency selection

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

TRY

CC0.6

Modules

As part of the request for information on behalf of investors, companies in the electric utility sector, companies in the automobile and auto component manufacturing sector, companies in the oil and gas sector, companies in the information and communications technology sector (ICT) and companies in the food, beverage and tobacco sector (FBT) should complete supplementary questions in addition to the core questionnaire.

If you are in these sector groupings, the corresponding sector modules will not appear among the options of question CC0.6 but will automatically appear in the ORS navigation bar when you save this page. If you want to query your classification, please email respond@cdp.net.

If you have not been presented with a sector module that you consider would be appropriate for your company to answer, please select the module below in CC0.6.

Further Information

ICT sector module

Module: Management

Page: CC1. Governance

CC1.1

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

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

CC1.1a

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

Climate change falls within the responsibility of the Sustainability Committee, comprising all relevant and cross-cutting departments within Turk Telekom.

Sustainability Committee comprises of:

- Chief Executive Officer,
- Human Resources, Regulation and Support Assistant General Manager,
- Facility Management Directorate,
- Investor Relations Directorate,
- Corporate Communications Directorate,
- Occupational Health and Safety Directorate,
- Corporate Social Responsibility and NGO Relations Directorate.

CC1.2

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

Yes

CC1.2a

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

Who is entitled to benefit from these incentives?	The type of incentives	Incentivized performance indicator	Comment
Risk managers	Monetary reward	Energy reduction project Efficiency project Other: Avoiding the energy related climate change risks	Energy related risks are considered within the Enterprise Risk Management System and hence risk managers are incentivized through climate related issues.
EHS manager	Monetary reward	Energy reduction project Efficiency project	EHS Manager is the responsible for the implementation of overall climate change efforts.
Other: EHS Expert		Energy reduction project Efficiency project	EHS experts are the responsible staff for ensuring the proper data gathering and responding to CDP ORS.
Facility managers	Monetary reward	Energy reduction project Efficiency project	All facility managers are responsible for minimizing the GHG emissions due to their operations.
Other: Corporate Communications Manager	Monetary reward	Other: Dissemination of information regarding CDP and climate change related efforts	Corporate Communications Department is the responsible for dissemination of information regarding combating climate change as well as the corporate partnerships regarding climate change related issues.

Who is entitled to benefit from these incentives?	The type of incentives	Incentivized performance indicator	Comment
Energy managers	Monetary reward	Energy reduction project Efficiency project	In addition to the energy managers who are responsible for the overall energy issues within the company there are also different individuals responsible with the energy use due to their operations. Each position has different energy reduction projects implemented as well as planned.

Further Information

Page: CC2. Strategy

CC2.1

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

Integrated into multi-disciplinary company wide risk management processes

CC2.1a

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

Frequency of monitoring	To whom are results reported?	Geographical areas considered	How far into the future are risks considered?	Comment
Annually	Board or individual/sub-set of the Board or committee appointed by the Board	It is covered as the whole regions of operation.	Up to 1 year	Please see CC2.1b

CC2.1b

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

Türk Telekom Enterprise Risk management Directorate conducts risk management activities in accordance with international standards in order to identify and evaluate risks that the company faces. Risk management processes comprise of four parts: establishing the context; Risk Assessment (includes “Risk Identification”, “Analysis” and “Evaluation”); Risk Treatment (includes “Risk Response Decision” and “Risk Treatment Action”); Documentation and Communication (includes “Communication and Consultation” and “Monitoring, Review and Reporting”). Climate change and sustainability issues are covered under other risk topics to the extent they relate to company strategies, finances, operations and compliance.

CC2.1c

How do you prioritize the risks and opportunities identified?

Risks identified throughout the Enterprise Risk Management Process are evaluated at different management levels of the company and finalized at Top Management level. Impact(s) of the risks identified are measured qualitatively and if possible, quantitatively, those risks are ranked and prioritized for efficient time and resource management, decisions on whether risks should be treated or not are made by risk owners in line with Türk Telekom Group Enterprise Risk Management Directorate’s guidance.

CC2.2

Is climate change integrated into your business strategy?

Yes

CC2.2a

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

As a leading ICT company, Türk Telekom provides products and services which support the low-carbon economy, by spending efforts on decreasing its GHG emissions, as well as supporting different sectors

with low-carbon product and service solutions. GHG management and combating climate change is one of the major issues for the company and those are already embedded into the company's overall strategy. The governance model enables to manage the issue in the top level (senior manager and sustainability committee directly reporting to the board) which also reveals the understanding the importance of the issue. There are a lot of recognition and incentives towards reduction of emissions as well as innovative ideas for different sectors to decrease their emissions.
The company has a Climate Change Policy statement which frames the governance and the overall management of the issue. According to that, climate change related issues are considered in the relevant departments and units and are reported to the sustainability committee which directly reports to the Board. The Policy Statement is referring to the Paris Agreement as well as the Goal 13, Climate Action of famous Sustainable Development Goals of United Nations. By this manner, Türk Telekom stands for combating climate change by following and embodying the recent intergovernmental developments.
ICT is a fast developing sector by facilitating many low carbon solutions. We are working to identify the needs of our customers and offer cutting-edge services that enable carbon reductions throughout the value chain (e.g. telepresence, cloud computing, increased access to broadband and improving network capabilities). We have numerous customer-facing low carbon solutions such as e-billing and low energy phones.

CC2.2c

Does your company use an internal price on carbon?

No, but we anticipate doing so in the next 2 years

CC2.3

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

Other

CC2.3e

Please provide details of the other engagement activities that you undertake

We have been a member of Global e-Sustainability Initiative (GeSI) for years. By this engagement we have a chance to follow the recent developments regarding the low carbon economy and we position the company aligned with these developments. This give us a chance to lobby the policy-makers with a strong background in enabling effect of ICT. In fact, Türk Telekom is the first Turkish company at GeSI.
We are also taking part at Energy Efficiency Working Group operating under GeSI. Türk Telekom is also the first telecom operator to be elected to the Board of Directors of the Eurogia+ Cluster operating under the European Union’s EUREKA R&D Program. Through this membership, Türk Telekom aims to have a voice in the formulation and development of European energy efficiency and low carbon technologies.
We have also been a member of Sürdürülebilir Kalkınma Derneği (SKD - WBCSD Turkey Branch), and actively participating the the working groups such as Women Employment and Equal Opportunities, Sustainable Agriculture and Access to Food, Energy, Decent Works, Sustainable Consumption and Sustainable Finance and Innovation. This also gives us the opportunity to see the bigger picture related to sustainable society and hence we can understand the interconnections among these issues through the lens of climate change and low carbon society. Our presence in Energy Working Group is particularly important for combating climate change and creating new solutions towards a low-carbon economy.

CC2.3f

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

By actively taking place in Energy Working Group at SKD, we take part at influencing the policy-makers regarding climate change. SKD is actively working with the governmental bodies regarding climate change and influencing them through reports, events, and position papers. Therefore, we indirectly influence the policy makers on climate change, energy, GHG emissions and low carbon economy.

Further Information

Page: CC3. Targets and Initiatives

CC3.1

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

No

CC3.1f

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

Türk Telekom consists of three country-wide companies, namely, Türk Telekom, Avea and TTNet. Through this engagement, Türk Telekom provides various products and services and also the structural organizations is still being formed. This sometimes results in data gaps and lack of maturity in data. Therefore, setting medium and long term targets would be arbitrary at this point, and yet we still plan to set targets for 5-10 years ahead, in next year.
The global emissions are expected to increase, even though there is a lot of effective carbon reduction projects, since the growth rate of company is still steeping. However, carbon intensity will be decreased as the turnover is also growing rapidly. As it can be seen in CC12.2, there is a 16% decrease in the intensity figure compared to last year.

CC3.2

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

Yes

CC3.2a

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

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

Level of aggregation	Description of product/Group of products	Are you reporting low carbon product/s or avoided emissions?	Taxonomy, project or methodology used to classify product/s as low carbon or to calculate avoided emissions	% revenue from low carbon product/s in the reporting year	% R&D in low carbon product/s in the reporting year	Comment
Company-wide	Cloud Computing	Low carbon product	Evaluating the carbon reducing impacts of ICT			Since September 2010, Türk Telekom provides a Cloud Computing service to its customers in addition to standard data centre services such as hosting and hiring servers. Cloud computing not only helps organizations reduce their energy related CO2 emissions by eliminating the need of inhouse data centres, thus reducing the power consumption by both IT and non IT infrastructure, but different applications of the technology for different customers also provide indirect environmental benefits. As an example, the Turkey wide “Central Hospital Rendezvous System” uses cloud computing, thereby saving people who wish to see a doctor time and unnecessary travel.

Level of aggregation	Description of product/Group of products	Are you reporting low carbon product/s or avoided emissions?	Taxonomy, project or methodology used to classify product/s as low carbon or to calculate avoided emissions	% revenue from low carbon product/s in the reporting year	% R&D in low carbon product/s in the reporting year	Comment
Company-wide	Videoconference	Avoided emissions	Evaluating the carbon reducing impacts of ICT			Videoconference allows for communication between people in two or more locations through simultaneous two way video and audio transmissions. Via this service, several users in different locations are able to communicate without the need to travel and meet face to face. There are nearly 450 devices which enabled 14,708 intercity calls and avoided more than 30 thousands mid-range flights in only 2016.
Product	Cloud-eye	Avoided emissions	Evaluating the carbon reducing impacts of ICT			Cloud-eye is a product designed for security authorities, which is basically a remote camera system. It enables official security authorities to reach more areas virtually, which results in less patrolling. By providing optimization and efficiency, this technology avoids unnecessary emissions from patrolling.

Level of aggregation	Description of product/Group of products	Are you reporting low carbon product/s or avoided emissions?	Taxonomy, project or methodology used to classify product/s as low carbon or to calculate avoided emissions	% revenue from low carbon product/s in the reporting year	% R&D in low carbon product/s in the reporting year	Comment
Group of products	ICT infrastructure for governmental bodies	Avoided emissions	Evaluating the carbon reducing impacts of ICT			Türk Telekom provides ICT solutions for almost all (app. 95%) of the governmental and state bodies operating in the country. This is a huge and complex ecosystem where the calculation of avoided emissions cannot be calculated properly, however, all of the mentioned official bodies are reducing their travel-related emissions through the services we provide. Also, citizens are traveling/commuting less for their legal/health/official issues thanks to the infrastructure services we provide.

CC3.3

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

Yes

CC3.3a

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

Stage of development	Number of projects	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation		
To be implemented*		
Implementation commenced*	5	8215.10
Implemented*	2	1129.68

Stage of development	Number of projects	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Not to be implemented		

CC3.3b

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

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/ Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estima lifetim the initiat
Energy efficiency: Processes	NGN Transformation project: The migration to IP based soft switch network infrastructure has been reducing the number of exchanges and operational expenses. The telephone network covering all of Turkey, has been migrated into an IP based network. With this migration of the existing PSTN into IP infrastructure, every citizen in Turkey enjoy a large number of value added services wherever they are. As a result of the reduction of exchange areas, this project enables a reduction in cooling needs, which further reduces GHG emissions.	5447	Scope 2 (location-based)	Voluntary	3304114	9662864	1-3 years	6-10 ye

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/ Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estima lifetim the initiat
Energy efficiency: Processes	ATM-IP Transformation project: Transference of ATM DSLAM based subscribers to IPDSLAM ports. This occasion enabled an uplink increase and provided our subscribers higher bandwith. During this process, new generation devices consumes less energy and provides savings.	847.94	Scope 2 (location-based)	Voluntary	514323	5200000	1-3 years	6-10 ye
Energy efficiency: Processes	DC transformation and optimization project: Within this project, DC energy systems has been replaced with new generation energy efficient systems. As a result of this transformation, energy reduction has been achieved.	382.28	Scope 2 (location-based)	Voluntary	231875	2000000	1-3 years	6-10 ye

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/ Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estima lifetim the initiat
Energy efficiency: Building services	DX Air Conditioning Transformation project: Air conditioning systems has been replaced with new generation energy efficient conditioning systems. As a result of this transformation, operation costs and energy consumption levels have decreased.	1107.50	Scope 2 (location-based)	Voluntary	671761	4700000	1-3 years	16-20 years
Energy efficiency: Processes	TTNET BNG Transformation: A transformation project is completed in high traffic and subscriber intense areas for LAC and LNS BNG devices by replacing the existing ones with high capacity new generation devices.	386.81	Scope 2 (location-based)	Voluntary	234624	8400000		

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/ Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estima lifetim the initiat
Energy efficiency: Processes	SDH Transformation: Discontinued SDH systems has been replaced with new generation Class A energy consumption SDH systems which are easier to operate and manage.	747.40	Scope 2 (location-based)	Voluntary	453341	1000000		6-10 ye
Energy efficiency: Building services	Air Conditioning optimization projects: Air conditioning systems are optimized company wide by Back-up applications, fan optimization solutions, Wall-Type Air Conditioner Optimization Projects, Operation of Air Conditioning Indoor Fans by Driver, DC Energy Halls Set Value Increase which resulted energy savings.	425.85	Scope 2 (location-based)	Voluntary	258300			

CC3.3c

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

Method	Comment
Dedicated budget for energy efficiency	Energy is the main reason for GHG emissions at Türk Telekom. Therefore, there is a dedicated annual budget for different energy efficiency projects to reduce GHG emissions in the company-wide.
Dedicated budget for other emissions reduction activities	As efficiency is the most basic reduction activity, however, there are further reduction activities such as technology or equipment change.
Employee engagement	Apart from the technological and efficiency improvements, reductions would be enabled by changing behavior of employees. We carry our internal communication projects to raise awareness among our employees so that everybody can take their part in combating climate change.

Further Information

The mentioned seven projects are all ongoing projects. Many of them have been started some years ago and there are also cumulative savings in terms of energy and financial savings. For instance, these projects have been enabled approximately 320,000 MWh. Response to CDP 2017 covers reductions occurred only in 2016.

Page: CC4. Communication

CC4.1

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

Publication	Status	Page/Section reference	Attach the document	Comment
In voluntary communications	Complete			No file has been attached as the regarding information our website, under the sustainability part. URL: https://www.turktelekom.com.tr/hakkimizda/Sayfalar/su

Further Information

Module: Risks and Opportunities

Page: CC5. Climate Change Risks

CC5.1

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

Risks driven by changes in regulation

Risks driven by changes in physical climate parameters

CC5.1a

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

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	M

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	M
International agreements	The global agenda of combating climate change had several milestones in recent years. Paris Agreement and Sustainable Development Goals will be steering the developments regarding climate change for the upcoming years. Governments will have responsibilities in order to meet the targets and contributing to the Goals, however, this very fact will also give responsibilities to private sector. With regards to these new developments, Türk Telekom would face new low-carbon regulations. These can increase the possible operational costs if no precautions would be taken.	Increased operational cost	3 to 6 years	Indirect (Supply chain)	More likely than not	Low-medium	As there is not much certainty in the country context, financial implications could not be calculated properly.	M c p r r c c t b d n

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	M
Fuel/energy taxes and regulations	Potential increase in prices of fossil fuels due to the current decarbonization trend which could affect the costs of production of services, especially electricity. As Türk Telekom we are basically relying on electricity consumption to operate, where we are subjected to changes in the electricity prices. Potential fossil fuel taxes will directly affect electricity prices, as electricity is produced mostly through fossil fuel, especially coal and natural gas.	Increased operational cost	3 to 6 years	Direct	More likely than not	Low-medium	There would be an increase in electricity prices due to the changed regulation and can result in operational costs.	I n r e e b b g e e a p u l e f

CC5.1b

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

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implication

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implication
Change in mean (average) temperature	Higher temperatures result in higher cooling costs and problems in DC feeding equipment/systems. Also, higher temperatures i.e. during summer, increase the unit price of electricity as the load on the grid is very high, thereby affecting our energy bills remarkably. During extremely warm days, the number of blackout hours also increases, thus imposing risk for our operations.	Increased operational cost	1 to 3 years	Direct	Likely	Medium	There is not much certain in terms of th electricity prices, and s extreme warı days are significantly increasing ou electricity expenditures
Change in temperature extremes	Unpredictability of weather conditions and sudden fluctuations in temperatures result in an increase of our energy demand, as it requires immediate adjustments in the system compared to a stable system or incremental operations.	Increased operational cost	1 to 3 years	Direct	Likely	Medium	There is not much certain in terms of th electricity prices, and s these fluctuations and unpredictabil are significantly increasing ou electricity expenditures

CC5.1f

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

Further Information

Page: CC6. Climate Change Opportunities

CC6.1

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

Opportunities driven by changes in regulation

CC6.1a

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

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Est fin impl
International agreements	As the recent developments in the international climate change agenda may constitute possible risks yet these risks could be considered as opportunities too. Recent developments will also impose risks to different sectors and companies where our low-carbon products and services would be key for GHG emission reduction as the demand for these services and products will be expected to increase. As an ICT company, with the help of this kind of low-carbon solutions, we will be contributing to the low carbon economy.	Increased demand for existing products/services		Indirect (Client)	More likely than not	Low-medium	Ther accu calcu has done rega this impa inter agre cann estin prop

CC6.1e

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

Changing in physical parameters are not considered as potential opportunities as they are generally considered as risks for our operations.

CC6.1f

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

Most of the opportunities can be classified under the regulatory opportunities and hence we did not consider those under another part.

Further Information

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

Page: CC7. Emissions Methodology

CC7.1

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

Scope	Base year	Base year emissions (metric tonnes CO2e)
Scope 1	Thu 01 Jan 2015 - Thu 31 Dec 2015	117770.5
Scope 2 (location-based)	Thu 01 Jan 2015 - Thu 31 Dec 2015	643011.2
Scope 2 (market-based)		

CC7.2

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

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

CC7.2a

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

CC7.3

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

Gas	Reference
CH4	IPCC Fifth Assessment Report (AR5 - 100 year)
N2O	IPCC Fifth Assessment Report (AR5 - 100 year)
CO2	IPCC Fifth Assessment Report (AR5 - 100 year)

CC7.4

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

Fuel/Material/Energy	Emission Factor	Unit	Reference
Natural gas	1.9422	Other: kg CO2e per m3	IPCC - Table 2.4 Default Emission Factors For Stationary Combustion in the Commercial/Institutional Category
Distillate fuel oil No 4	3.1265	Other: kg CO2e per kg	IPCC - Table 2.4 Default Emission Factors For Stationary Combustion in the Commercial/Institutional Category
Motor gasoline	3.1811	Other: kg CO2e per kg	IPCC - Table 2.4 Default Emission Factors For Stationary Combustion in the Commercial/Institutional Category

Fuel/Material/Energy	Emission Factor	Unit	Reference
Bituminous coal	1.4890	Other: kg CO2e per kg	IPCC - Table 2.4 Default Emission Factors For Stationary Combustion in the Commercial/Institutional Category
Other: Diesel for fleet vehicles	2.6652	kg CO2e per liter	IPCC - Table 3.2.1 Road Transport Default CO2 Emission Factors and Table 3.2.2 Road Transport Default N2O and CH4 and GWP values
Other: Gasoline for fleet vehicles	2.3093	kg CO2e per liter	IPCC - Table 3.2.1 Road Transport Default CO2 Emission Factors and Table 3.2.2 Road Transport Default N2O and CH4 and GWP values
Other: Diesel for generators	2.6403	kg CO2e per liter	IPCC - Table 2.4 Default Emission Factors For Stationary Combustion in the Commercial/Institutional Category
Other: Gasoline for generators	2.2304	kg CO2e per liter	IPCC - Table 2.4 Default Emission Factors For Stationary Combustion in the Commercial/Institutional Category
Other: R22 (leakage/year)	1760	Other: kg CO2e per kg	IPCC AR5
Other: R134A (leakage/year)	1430	Other: kg CO2e per kg	IPCC AR5
Other: R404A (leakage/year)	3942.80	Other: kg CO2e per kg	IPCC AR5
Other: R407C (leakage/year)	1624.21	Other: kg CO2e per kg	IPCC AR5
Other: R410A	1923.50	Other: kg CO2e per kg	IPCC AR5
Other: HFC 227ea	3350	Other: kg CO2e per kg	IPCC AR5
Other: HFC 236 fa	8060	Other: kg CO2e per kg	IPCC AR5
Electricity	551953.96	Other: kg CO2e per GWh	2015 - Turkish Electricity Transmission Company

Fuel/Material/Energy	Emission Factor	Unit	Reference
Electricity	491343.65	Other: kg CO2e per GWh	2016 - Turkish Electricity Transmission Company

Further Information

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

CC8.1

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

Operational control

CC8.2

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

123251.0

CC8.3

Please describe your approach to reporting Scope 2 emissions

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

CC8.3a

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

Scope 2, location-based	Scope 2, market-based (if applicable)	Comment
587250.0		

CC8.4

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

No

CC8.5

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

Scope	Uncertainty range	Main sources of uncertainty	Please expand on the uncertainty in your data
Scope 1	More than 5% but less than or equal to 10%	Data Gaps Assumptions Metering/ Measurement Constraints	
Scope 2 (location-based)	More than 5% but less than or equal to 10%	Data Gaps Metering/ Measurement Constraints	
Scope 2 (market-based)			

CC8.6

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

No third party verification or assurance

CC8.7

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

No third party verification or assurance

CC8.8

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

Additional data points verified	Comment

CC8.9

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

No

Further Information

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

CC9.1

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

No

CC9.2

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

By GHG type

CC9.2c

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

GHG type	Scope 1 emissions (metric tonnes CO2e)
CO2	122519.8
CH4	154.8
N2O	576.4

Further Information

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

CC10.1

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

No

CC10.2

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

By activity

CC10.2c

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

Activity	Scope 2, location-based (metric tonnes CO2e)	Scope 2, market-based (metric tonnes CO2e)
Buildings	23630.6	
Data Centers	27968.8	
Transmission Systems	341569.9	
Base Stations	194080.7	

Further Information

Page: CC11. Energy

CC11.1

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

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

CC11.2

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

Energy type	MWh
Heat	0
Steam	0
Cooling	0

CC11.3

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

255065

CC11.3a

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

Fuels	MWh
Diesel/Gas oil	120233
Motor gasoline	5471
Natural gas	79620
Distillate fuel oil No 4	5211
Bituminous coal	5471
Liquefied petroleum gas (LPG)	0
Diesel/Gas oil	699
Other: Diesel for generators	21596
Other: Gasoline for generators	16763

CC11.4

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

Basis for applying a low carbon emission factor	MWh consumed associated with low carbon electricity, heat, steam or cooling	Emissions factor (in units of metric tonnes CO2e per MWh)	Comment
Off-grid energy consumption from an on-site installation or through a direct line to an off-site generator owned by another company	2100		Solar panels owned by Türk Telekom

CC11.5

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

Total electricity consumed (MWh)	Consumed electricity that is purchased (MWh)	Total electricity produced (MWh)	Total renewable electricity produced (MWh)	Consumed renewable electricity that is produced by company (MWh)	Comment
1197292	1195192	2100	2100	2100	

Further Information

Page: CC12. Emissions Performance

CC12.1

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

Decreased

CC12.1a

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

Reason	Emissions value (percentage)	Direction of change	Please explain and include calculation
Emissions reduction activities			
Divestment			
Acquisitions			
Mergers	4	Increase	Due to the mergers continue to happen, there is a slight increase in the global emissions.
Change in output			
Change in methodology	11	Decrease	National electricity emission factor has decreased.
Change in boundary			
Change in physical operating conditions			
Unidentified			
Other			

CC12.1b

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

Location-based

CC12.2

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

Intensity figure =	Metric numerator (Gross global combined Scope 1 and 2 emissions)	Metric denominator: Unit total revenue	Scope 2 figure used	% change from previous year	Direction of change from previous year	Reason for change
0.00004436	metric tonnes CO2e	16109000000	Location-based	15.6	Decrease	Emissions decreased due to the change in emission factor for electricity however, it is still in the decreasing trend as the total revenue increase is also in place.

CC12.3

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

Intensity figure =	Metric numerator (Gross global combined Scope 1 and 2 emissions)	Metric denominator	Metric denominator: Unit total	Scope 2 figure used	% change from previous year	Direction of change from previous year	Reason for change

Intensity figure =	Metric numerator (Gross global combined Scope 1 and 2 emissions)	Metric denominator	Metric denominator: Unit total	Scope 2 figure used	% change from previous year	Direction of change from previous year	Reason for change
21.508	metric tonnes CO2e	full time equivalent (FTE) employee	33224	Location-based	3.8	Decrease	Even though the number of employees have slightly decreased still the percentage of reduction in emissions is greater. Therefore there is such decrease in the intensity figure.

Further Information

Page: CC13. Emissions Trading

CC13.1

Do you participate in any emissions trading schemes?

No, and we do not currently anticipate doing so in the next 2 years

CC13.2

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

No

Further Information

Page: CC14. Scope 3 Emissions

CC14.1

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

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
Purchased goods and services	Not evaluated				

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
Capital goods	Not evaluated				
Fuel-and-energy-related activities (not included in Scope 1 or 2)	Not evaluated				
Upstream transportation and distribution	Not evaluated				
Waste generated in operations	Not evaluated				
Business travel	Relevant, calculated	4077.5	DEFRA 2016 Emissions calculation. Default and average values have been taken.	100.00%	Raw data for destinations are formed by the supplier. This data has been evaluated within the company database where we can calculate the distances. 0-500 km. are considered as domestic; 500-1600 km are considered as short-haul and longer-haul is taken as longer distances than 1600 km.
Employee commuting	Relevant, not yet calculated				Due to the immaturity of data, we did not calculate this year's employee commuting-related emissions.
Upstream leased assets	Not evaluated				
Downstream transportation and distribution	Not evaluated				
Processing of sold products	Not evaluated				
Use of sold products	Not evaluated				
End of life treatment of sold products	Not evaluated				

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
Downstream leased assets	Not evaluated				
Franchises	Not evaluated				
Investments	Not evaluated				
Other (upstream)	Not evaluated				
Other (downstream)	Not evaluated				

CC14.2

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

No emissions data provided

CC14.3

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

Yes

CC14.3a

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

Sources of Scope 3 emissions	Reason for change	Emissions value (percentage)	Direction of change	Comment
Business travel	Emissions reduction activities	6.4	Decrease	Thanks to the use of video conference and tele-presence systems, we reduced our emissions due to the business travel.

CC14.4

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

Yes, our customers

CC14.4a

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

Türk Telekom communicate low carbon initiatives with its customers through various medians. We have ben using e-billing rather than paper ones, which helps to reduce Scope 3 emissions related to purchased goods and associated transport for more than 10 million customers.
We have als established an online educational tool that is freely available to millions of students. E-learning provides a flexible education method that reduces value chain emissions associated with transport and production of materials, in addition to the social and economic benefits for the users.

Further Information

Module: Sign Off

Page: CC15. Sign Off

CC15.1

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

Name	Job title	Corresponding job category
Gökhan Güzel	Environmental Health and Safety Manager	EHS manager

Further Information

Module: ICT

Page: ICT1. Data center activities

ICT0.1a

Please identify whether "data centers" comprise a significant component of your business within your reporting boundary

Yes

ICT1.1

Please provide a description of the parts of your business that fall under “data centers”

At the end of 2016, Türk Telekom was providing data and broadband services to 8.9 million customers. It operates two data centers located in Gayrettepe, Istanbul and Umitkoy, Ankara. The Umitkoy center has been operating since 1996, whereas the Gayrettepe center is a new green data center that started operations in September 2010. Through these facilities, Türk Telekom provides a range of data services described below:

Server and Storage Service

i. The Storage Replication Service stores critical data in centers located at a geographically different location from the clients’ premises, offering safe and uninterrupted data access during any natural disaster. This service mitigates the risks of losing critical data.

ii. The Server Collocation Service enables customers to economise on expensive infrastructure investments, costs of maintenance, repair and personnel, thus resulting in increased efficiency by just focusing on applications.

iii. The Storage Service satisfies the data area requirements of the customers from 1 Gigabyte level up to Terabyte levels in accordance with the requested RAID structure, where customers can store their data and access immediately.

iv. The Back Up Service provides backingup of the client’s data in daily, weekly and monthly intervals.

v. The Server Leasing Service, i.e the leasing, hosting of the leased server and maintenance support services for customers at a monthly fee.

vi. The SME Server Leasing Service targets smallto medium sized corporate customers, and is established by adding a limited amount of servers with depreciation to Turk Telekom’s server leasing service.

vii. The Load Balancing Service divides a task among two or more computers, processors, hard disks or other resources, and is used to circulate the traffic coming from various services (http, ftp, https, rtp etc.) to servers.

viii. The Bulutt Virtualization Service enables clients to benefit from virtual servers, which are formed by dividing a physical server into independent isolated sections, each with its own processor, hard disk, ram and IP.

Hosting Services

i. The Web Domain Hosting Service hosts web domains on internet or on the domain provided.

ii. The FTP Hosting Service creates space that can be reached by ftp, especially when sending large size files.

iii. The Email Hosting Service provides the possibility of using the email addresses that appertain to the name of the domain purchased by the customer. Clients using this service do not need to set up and run email servers on their side.

iv. The ETRN Service consists of servers that are defined as a secondary address for the subscriber’s incoming emails in order to avoid Mailer Daemon messages or the loss of emails due to emailing system failure.

Client support services

i. The Customer Management Office is offered to customers who are getting server hosting or rental services, and covers the allocation of office space in the data center area.

ii. The Professional Support Package provides customers remote support, such as the setting up of

operating systems and database support services.
iii. The Standard Support Package is provided through a dedicated phone line to customers who buy one or more of Türk Telekom Data Center's products and services.
Security Services
i. The Virtual Firewall allows or denies traffic from the Internet to customers' servers on Türk Telekom systems, depending on the policies defined by the customer.
ii. IPS / IDS, where all traffic from the internet towards customer's servers are transferred through Türk Telekom's active defence system to be examined against a digital signature database for traffic anomalies and attacks. If any of these are detected in this examination, the traffic is interrupted and prevented from accessing the customer's network.
iii. DDoS Mitigation is a service which does a traffic cleanup to minimize the damage that customer suffers in case of a DDoS (Distributed Denial of Service) attack, and which subsequently routes the cleaned traffic back to the customer location.
iv. The Unified Threat Management (UTM) Service is an integrated security product that includes several network security services, such as antivirus, content filtering, threat detection system, spam filtering and web filtering.
v. Türk Telekom Corporate Security Services, such as antivirus, manageable firewall, manageable content filter, client to site VPN and active defence systems, are offered to internet users in order to secure their networks against possible threats.

ICT1.2

Please provide your absolute Scope 1 and 2 emissions and electricity consumption for the data centers component of your business

Business activity	Scope 1 emissions (metric tonnes CO2e)	Scope 2 emissions (metric tonnes CO2e)	Annual electricity consumption (MWh)	Electricity data collection method	Comment
Data centers	1350	27969	56900	Meter or submeter reading	

ICT1.3

What percentage of your ICT population sits in data centers where Power Usage Effectiveness (PUE) is measured on a regular basis?

Percentage	Comment
100%	

ICT1.4

Please provide a Power Usage Effectiveness (PUE) value for your data center(s). You can provide this information as (a) an average, (b) a range or (c) by individual data center - please tick the data you wish to provide (tick all that apply)

Average
Individual data center

ICT1.4a

Please provide your average PUE across your data centers

Number of data centers	Average PUE	% change from previous year	Direction of change	Comment
2	1.75	5.7	Increase	

ICT1.4c

Please provide your PUE values of all your data centers

Data center reference	PUE value	% change from previous year	Direction of change	Comment
Ümitköy, Ankara	1.7	5.9	Increase	
Gayrettepe, İstanbul	1.8	5.6	Increase	

ICT1.5

Please provide details of how you have calculated your PUE value

Green Grid, or Total Facility Power divided by IT Equipment Power

ICT1.6

Do you use any alternative intensity metrics to assess the energy or emissions performance of your data center(s)?

No

ICT1.7

Please identify the measures you are planning or have undertaken in the reporting year to increase the energy efficiency of your data center(s)

Status in reporting year	Energy efficiency measure	Comment
Implemented	Cooling Efficiencies	
Implemented	Power Management Efficiencies	

ICT1.8

Do you participate in any other data center efficiency schemes or have buildings that are sustainably certified or rated?

Yes

ICT1.8a

Please provide details on the data center efficiency schemes you participate in or the buildings that are sustainably certified or rated

Scheme name	Level/certification (or equivalent) achieved in the reporting year	Percentage of your overall facilities to which the scheme applies
The Green Grid	The DCMM of the Green Grid (Data Center Maturity Model) has been used as a reference model in the both data centers. On this basis, a road map has been developed, and improvements implemented.	100%

ICT1.9

Do you measure the utilization rate of your data center(s)?

Yes

ICT1.9a

What methodology do you use to calculate the utilization rate of your data center(s)?

Utilization rate of our data centers is calculated considering both customer area and Turk Telekom internal. Purchased, reserved and empty capacities are taken into consideration while calculating utilization rate of our data centers in Ankara and Istanbul.

ICT1.10

Do you provide carbon emissions data to your clients regarding the data center services they procure?

No

ICT1.11

Please describe any efforts you have made to incorporate renewable energy into the electricity supply to your data center(s) or to re-use waste heat

For data centers, we generate some part of our electricity use by renewable energy, specifically solar panels.

Further Information

Page: ICT2. Provision of network/connectivity services

ICT0.1b

Please identify whether "provision of network/connectivity services" comprises a significant component of your business within your reporting boundary

Yes

ICT2.1

Please provide a description of the parts of your business that fall under "provision of network/connectivity services"

Türk Telekom’s main business is the provision of network and connectivity services. As Turkey’s leading communication and convergence technology company, it offers a wide range of services to residential and commercial customers in fixed lines and broadband Internet. Türk Telekom had 13.2 million Fixed Access Lines, 7 million Asymmetric Digital Subscriber Line (ADSL) connections (bulk), and 18.7 million mobile customers, as of 31st December, 2016

ICT2.2

Please provide your absolute Scope 1 and 2 emissions and electricity consumption for the provision of network/connectivity services component of your business

Business activity	Scope 1 emissions (metric tonnes CO2e)	Scope 2 emissions (metric tonnes CO2e)	Annual electricity consumption (MWh)	Electricity data collection method	Comment
Provision of network/connectivity services	42025	341570	1090175.3	Meter or submeter reading	This sum include the energy used in connectivity services as well as in the base stations. After merging with Avea (the mobile operator) this amount has increased due to the base stations and increased amount of data transferred.

ICT2.3

Please describe your gross combined Scope 1 and 2 emissions or electricity use for the provision of network/connectivity services component of your business as an intensity metric

Intensity figure	Metric numerator	Metric denominator	% change from previous year	Direction of change from previous year	Reason for change	Comment
0.0293	metric tonnes CO2e	Subscriber	15.7	Decrease	Improved usage of networks by additional subscribers and energy efficiency measures.	

ICT2.4

Please explain how you calculated the intensity figures given in response to Question ICT2.3

ICT2.5

Do you provide carbon emissions data to your clients regarding the network/connectivity services they procure?

No

Further Information

Page: ICT3. Manufacture or assembly of hardware/components

ICT0.1c

Please identify whether "manufacture or assembly of hardware/components" comprises a significant part of your business within your reporting boundary

No

Further Information

Page: ICT4. Manufacture of software

ICT0.1d

Please identify whether "manufacture of software" comprises a significant component of your business within your reporting boundary

No

Further Information

Page: ICT5. Business services (office based activities)

ICT0.1e

Please identify whether "business services (office based activities)" comprise a significant component of your business within your reporting boundary

No

Further Information

Page: ICT6. Other activities

ICT0.1f

Please identify whether "other activities" comprise a significant component of your business within your reporting boundary

No

Further Information

CDP: [X][-,-][P2]