

**Module: Introduction****Page: Introduction**

---

**CC0.1****Introduction**

Please give a general description and introduction to your organization.

Turkcell is an integrated communication and technology services player in Turkey. Turkcell Group has approximately 68,8 million mobile, fixed and IPTV subscribers in nine countries as of December 31, 2015. Turkcell was one of the first among the global operators to have implemented HSPA+. It has announced two new HSPA+ Technologies on its 3G network to meet rising data usage. Having successfully integrated 3C-HSDPA and DC-HSUPA Technologies, it became the first mobile operator in the world to enable peak speed of 63.3 Mbps downlink while also enabled an 11.5 Mbps uplink on a 3G network. Turkcell is the first telecom operator to offer households fiber broadband connection at speeds of up to 1,000 Mbps in Turkey. As of December 2015, Turkcell's population coverage was at 99.85% in 2G and 95.3% in 3G. Turkcell Group reported a TRY12.8 billion (US\$4.7 billion) revenue with total assets of TRY26.2 billion (US\$9.0 billion) as of December 31, 2015. It has been listed on the NYSE and the BIST since July 2000, and is the only NYSE-listed company in Turkey. Read more at [www.turkcell.com.tr](http://www.turkcell.com.tr)

---

**CC0.2****Reporting Year**

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

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

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

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

**Enter Periods that will be disclosed**

Thu 01 Jan 2015 - Thu 31 Dec 2015

---

**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, electric utilities, companies with electric utility activities or assets, companies in the automobile or auto component manufacture sub-industries, companies in the oil and gas sub-industries, companies in the information technology and telecommunications sectors and companies in the food, beverage and tobacco industry group should complete supplementary questions in addition to the main questionnaire. If you are in these sector groupings (according to the Global Industry Classification Standard (GICS)), the corresponding sector modules will not appear below but will automatically appear in the navigation bar when you save this page. If you want to query your classification, please email [respond@cdp.net](mailto: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. If you wish to view the questions first, please see <https://www.cdp.net/en-US/Programmes/Pages/More-questionnaires.aspx>.

---

## Further Information

### Module: Management

### Page: CC1. Governance

---

#### CC1.1

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

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

---

#### CC1.1a

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

The final execution power for climate related decisions in Turkcell is on the CEO, Kaan Terzioğlu. Turkcell executive management acknowledge the reality of climate change and takes mitigative&adaptive precautions by approaching to the issue from two aspects:

1) GHG emission calculation, reduction and energy efficiency issues: Climate and GHG emissions related technical issues are evaluated for mitigation and adaptation process by the Energy and Site Products Manager. All proposals from the technical staff for improvement are considered, energy efficiency or renewable energy projects are designed. The final review for these actions is done by Technology Group/Infrastructure Management Manager and presented to the CEO for approval.

2)Climate centred stakeholder, corporate engagement and sustainability issues: All climate change related corporate engagement such as raising public awareness is run by the Corporate Communication Director. All relevant action is designed and activities are planned with respect to Turkcell climate strategy outline and presented to the CEO for approval.

Turkcell has established an Energy Management Committee in 2014 which is coordinated by Technology Group/Infrastructure Management Manager. The Committee evaluates energy and GHG emissions related issues and discuss proposals for solution. Technology Group/Infrastructure Management Manager gives information to Corporate Communication Director regarding the resolutions reached by the Committee and targets for reducing Energy consumption.

**CC1.2**

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

Yes

**CC1.2a**

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

Who is entitled to benefit from these incentives?	The type of incentives	Incentivized performance indicator	Comment
All employees	Recognition (non-monetary)	Emissions reduction project Emissions reduction target Energy reduction project Energy reduction target Efficiency project Efficiency target	There are a range of rewarding schemes at Turkcell. "Now This Deserves An Award" projects that honor those who make a difference; TIP awards for innovative ideas through the Turkcell Innovation Platform.
All employees	Monetary reward	Emissions reduction project Emissions reduction target	4.6 million TRY was distributed among 1,250 of Turkcell Group employees under various projects.

Who is entitled to benefit from these incentives?	The type of incentives	Incentivized performance indicator	Comment
		Energy reduction project Energy reduction target Efficiency project Efficiency target	
Energy managers	Other non-monetary reward	Emissions reduction project Emissions reduction target Energy reduction project Energy reduction target Efficiency project Efficiency target	CEO and CXO awards, where the Chief Executive Officer and Deputy Executive Officers show their appreciation of employees creating a difference; patent awards, which Turkcell presents to their Research and Development Engineers.
Other: Energy Committee	Monetary reward	Emissions reduction project Emissions reduction target Energy reduction project Energy reduction target Efficiency project Efficiency target	Defining energy efficiency targets, achievements and saving are scored in KPIs of committee members and relevant teams.

**Further Information**

---

**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	Whole operational areas of Turkcell Turkey.	3 to 6 years	Risk are carried out by Audit Committee, Corporate Governance Committee, Compensation Committee and Early Detection of Risks Committee. Annually prepared risk plans are followed in operational audit activities. The Assessment for Risk and Opportunities considers all factors of regulation, physical change, and the changing demand for company services. Studies are conducted to identify climate change related risks and opportunities and integrated into strategic plans. Related variables are quantified and modelled within integrated risk management process.

---

**CC2.1b**

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

Turkcell Climate Strategy Brief is based on four main aspects; Mitigation, Adaptation, New Business Models, Climate Centered Corporate Communication and Stakeholder Participation.

The Climate strategy Brief contains major steps for how carbon-related risks are managed at company and assets level. The non-commercial sensitivities and results of the various elements of our risk and opportunity management process are presented to all relevant stakeholders through our sustainability communications, including our web site and annual Sustainability Report.

Risk determination has been made by Corporate Risk Management (CRM) Representatives of each departments. Representatives identify, analyze and assess any risks arising from the processes and activities of their departments. They ensure that any necessary actions are planned, and communicate these plans to the CRM Unit. CRM provides the required support, coordinates the relevant groups and conducts risk identification and risk analysis efforts. The findings of the Unit is reported to Early Risk Detection Unit.

Climate change related opportunities and risks arise from GHG management and energy efficiency. Most recent energy saving technologies are being followed in global scale. In company level, power saving algorithms have been set up for base stations to track energy consumption at different times of the day. Turkcell's rapidly developing machine to machine technologies satisfy the need of decreasing energy losses.

Asset level risks and opportunities arise from increased risks of climate change related disasters. Terminal Server project has been adopted to maintain operational sustainability in cases such as multi-fiber or equipment failure. The main aim of the project is to enable Turkcell NDC, Main and Midi POP points to access relative equipment through console interface or current NMS systems through alternative channels (ADSL, 3G) that do not use Turkcell network sources.

---

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

The main driver for prioritization of these factors is time and the related financial impact. Impact to occur sooner and with stronger financial impact is prioritised. Yet, the cost to occur further in time but that can be abated through measures which can only be implemented sooner is also prioritised. Another criteria that Turkcell considers is the potential impact on reputation. Turkcell is acknowledge that any failure occurs in their operational activities entail reputational risks. For this reason, reputation is also considered when actions are prioritized.

---

**CC2.1d**

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

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

---

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

Yes

---

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

ITCs are energy dependent and energy intensive companies and they have geographically scattered stations. Turkcell faces a group of interrelated challenges in transitioning itself to the low carbon economy while managing risks and opportunities. The strategy for the transition could be based on four main aspects:

**1. Mitigation:**

The first and the most vital phase of low carbon economy is still the action for mitigation of global GHG emissions through efficiency, new technology and switching to renewable energy resources. Mitigation of GHG emissions by Turkcell includes these major steps:

**1. Improving Data Center Infrastructure Efficiency (DCIE)**

- Reclaiming energy by avoiding cooling inefficiencies, upgrading the cooling system, allowing variable cooling and making greater use of outside air,
- Consolidation and virtualization of server utilization,
- Calibrating aisle temperatures and matching server capacity to load in real time,
- Correlating facility emergency procedures to minimize the impact of outages,
- Determining the actual power consumption to maximize server capacity,
- Switching from transfer switch to AC/DC distribution for better use of renewable energy resources such as solar power cells,
- High level of cooperation between facility and IT managers for consistency,
- Cost accounting to monetize the data centers to motivate financial rewards.

**2. Decreasing the data center or facility based energy consumption**

- Investing in new renewable energy technology for data centers and stations such as solar power cells and wind,
- Improving the building conditions of management, stores and call centers,
- Minimizing commute and travel through video conferences and online communication platforms,
- Switching to energy efficient or electric company cars.
- Designing new Office buildings and data centers as per "green building" standards

**2. Adaptation**



Turkcell Business Continuity Management identifies potential threats, their impact and provides a framework for building resilience with the ability to create an effective response that safeguards the interests of key stakeholders and value-creating activities. Turkcell has established the Business Continuity Management System (“BCMS”) to implement, operate, monitor, review, maintain and improve the business continuity.

Turkcell BCMS is assisted by the coordinators and business continuity virtual team. Regular BCM training and awareness programs are carried out throughout the organization. The effectiveness of BCMS is monitored every year through internal/external audits, and integrated exercises, the results of which are reviewed in management review meetings. We exercise and test our business continuity plans, communication and warning procedures to ensure that they are consistent with the business continuity objectives.

Turkcell’s BCM will be able to cover the majority of Turkcell’s operations through potential environmental events and natural disasters. They are regularly exercised to guarantee the operation of time-sensitive business activities in case of business disruptions.

The adaptation of Turkcell to the new physical conditions of climate change may have these major steps:

- Assessing the geographic conditions of data centers and stations to forecast physical impact such as high temperature increase, flooding and storms,
- Building an infrastructure reinforcement plan based on the assessment above,
- Investing in the new insulation and impermeability technologies,
- Planning for emergency data center allocation in terms of non-repairable impact of instant physical change such as floods.

### 3. New Business Models

Climate change and the resulting conditions will eventually force the governments to formulate new regulations to force the businesses to mitigate the GHG emissions and adapt the new climate conditions. On the other hand the consumers and other stakeholders will demand new products and service tools that will meet these new requirements. Or else, consumers will favor certain products and services only because they are more climate-friendly. As much as these new business conditions may seem a source of risk for the corporates, they may be a source of new business opportunities. A paradigm shift with the picture of the new business structure under climate change means more business with innovative service and products. Such innovation within Turkcell can be realized by;

- Identifying the potential regulations such as emission caps and formulating strategies to meet the cap and become an emission reduction allowance seller in the market,
- Providing a futuristic approach to new products such as disaster alert, agricultural yield forecasts and disaster relief management,
- Creating new climate friendly products and services that will reinforce the identity of “corporate social responsibility”,
- Facilitating the use of ICT technologies in the concept of smart cities.
- Cloud based solutions such as cloud computing, cloud storage

### 4. Climate Centered Corporate Engagement and Stakeholder Participation

As the society becomes more climate conscious and the public understanding of “personal benefit” evolves into “climate responsibility” under low carbon economy, it will become more important for companies to center their corporate engagement towards climate and related environmental issues. On the other hand, involving stakeholders and attending to their influence on climate related corporate strategy would become more sensitive. In that sense, Turkcell could;

- Contribute in raising public awareness for combat against climate change,
- Delivering the message to the governmental bodies and lobbying for the interest of the society,
- Cooperating for NGOs and other stakeholders and business groups to formulate climate change management strategies,

- Maintaining communication with the consumers, attending to their needs for new tools and services with respect to new low carbon economy,
- Building interest in innovation of new technology by cooperating with academia and research centers,
- Creating new B2B and B2C financial mechanisms to support research for new efficient technology and better use of renewable resources.

It is obvious that, in near future, a vital part of corporate risk management and strategy will depend on maintaining business under new climate conditions, regulations and the ability to transition to low carbon economy. The definition of business success and best practice will be redefined with respect to capability of developing business and maintaining market share, revenue and also reputation while the conditions change rapidly and drastically in the next two decades. Such capability is called “corporate climate resilience” and Turkcell aims at developing resilience by applying certain measures defined within four main areas as defined above.

---

#### CC2.2b

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

---

#### CC2.2c

**Does your company use an internal price of carbon?**

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

---

#### CC2.2d

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

---

#### CC2.3

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

Direct engagement with policy makers  
 Trade associations  
 Funding research organizations  
 Other

**CC2.3a**

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

Focus of legislation	Corporate Position	Details of engagement	Proposed legislative solution
Clean energy generation	Support	Turkcell develops renewable energy projects for the zones that fall far from the grid. Those activities also target improvement of sustainability. Turkcell works closely with the Ministry of Energy and Natural Resources for incentives to expand these projects to new areas.	Incentives for micro scale renewable projects to expand the renewable energy generation at different sites.
Adaptation resiliency	Support	Turkcell is a member to Turkish Industry and Business Association (TUSIAD). TUSIAD is part of the Coordination Board on Climate Change and Air Management which is the most executive governmental decision making body in Turkey. TUSIAD represents large scale industry in the committee and Turkcell contributes TUSIAD efforts to influence the major climate related decisions by the government.	IDKK (Climate Change Coordination Committee) of Turkey issues directives every six months and communicates various policies with different governmental policy makers. TUSIAD proposes GHG mitigation and adaptation policies at the Committee.
Other: Dissemination of M2M solutions	Support	In order to remove barriers for dissemination of M2M services, through Mobilsiad, Mobisad, Tütad, Teder and TBV, Turkcell is in contact with The Ministry of Transport, Maritime Affairs and Communication to remove the fee for wireless license.	In order to decrease import of smart devices and encourage local smart device and sim cards and disseminate broadband internet network, fee for KA band devices should be cancelled. This will increase the number of users, efficiency and avoid foreign trade loss.
Other: Emergency Disaster Management	Support	Turkcell set up a team to disseminate disaster emergency information to affected community and local institutions. Natural disasters are tracked by information systems. Turkcell provide coordinations in disaster areas. Locations of vulnerable peoples are shared with AFAD (Disaster&Emergency Management Authority).	Comprehensive Disaster and Disaster Recovery Management Policies.
Adaptation resiliency	Support	Turkcell provides technology support to the project (TARBİL) which is conducted by Ministry of Food, Agriculture and Livestock. The project aims to improve agricultural efficiency through tracking water and pesticide control.	Innovative development solutions for agriculture sector

---

**CC2.3b**

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

Yes

---

**CC2.3c**

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

<b>Trade association</b>	<b>Is your position on climate change consistent with theirs?</b>	<b>Please explain the trade association's position</b>	<b>How have you, or are you attempting to, influence the position?</b>
Informatics Industry Association	Consistent	TUBISAD has more than 200 members governing a volume of 40 billion USD. TUBISAD is supporting environment-friendly Technologies and working for developing regulations and policies for a healthy, competitive and sustainable ICT market in Turkey	Turkcell is a board member in TUBISAD and able to influence the decisions and actions taken by TUBISAD.
GSMA	Consistent	The GSMA is collaborating with the European Commission and the International Telecommunication Union (ITU) on standardisation, including methodologies to assess environmental impact. The Mobile Energy Efficiency GSMA acknowledges role of ICT in managing GHG emissions and collaborates with its members, international agencies (EU, IFC, WB, international telecommunication unit etc) to develop methodology and tools for emission reduction via ICT applications.	Turkcell is supporting GSMA efforts and providing communication on progress in line with GSMA's objectives for reducing emissions and providing solutions . Turkcell has prepared a video for GSMA to disclose the efforts for Energy efficiency and emission reduction. video is available at <a href="https://www.youtube.com/watch?v=9dA4IN-FeIU">https://www.youtube.com/watch?v=9dA4IN-FeIU</a>

---

**CC2.3d**

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

Yes

---

**CC2.3e**

**Please provide details of the other engagement activities that you undertake**

Turkcell supports or involved in many NGOs, networks or stakeholders. Turkcell is developing projects, sponsoring events or publishing reports in collaboration with those stakeholders. Full list is available at <http://www.turkcell.com.tr/tr/hakimizda/sosyal-sorumluluk/stk-iliskileri/uyeliklerimiz>

Turkcell has a separate Turkcell Media address that enables to communicate directly with public and investors. <http://www.turkcell.com.tr/en/aboutus/investor-relations/press-release>

Turkcell also actively participates in the events (conferences, seminars etc) and shares the experience in Turkcell for Energy saving and emission reduction activities which may serve as an example for the sector.

Turkcell has also initiatives in smart cities and works with city municipalities. Turkcell and Gaziantep municipality worked collaboratively to develop technological solutions to use natural resources effectively and improve the citizens' quality of life. The project anticipates 30 million TL cost avoidance from the Municipalities' budget in a year.

---

**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?**

Turkcell has a corporate Climate Strategy Outline to define its overall climate change strategy and how it is integrated to its corporate risk management. Both Corporate Communication Director and Energy and Technology Group/Infrastructure Management Manager are responsible with maintaining the consistency of all Turkcell activities with the climate strategy outline paper. Both directors review the climate strategy together with Turkcell activities and projects before assuring the consistency.

Turkcell has accelerated their actions on smart and innovative technologies to contribute to low carbon transition. In 2015, Turkcell established a report called Future of Cities: Current Foresigt.

---

**CC2.3g**

Please explain why you do not engage with policy makers

#### Further Information

Future of Cities: Current Foresigt (Turkish)

#### Attachments

[https://www.cdp.net/sites/2016/45/21145/Climate Change 2016/Shared Documents/Attachments/ClimateChange2016/CC2.Strategy/Ileri-Gorus-Sehirlerin-Gelecegi.pdf](https://www.cdp.net/sites/2016/45/21145/Climate%20Change%202016/Shared%20Documents/Attachments/ClimateChange2016/CC2.Strategy/Ileri-Gorus-Sehirlerin-Gelecegi.pdf)

### Page: CC3. Targets and Initiatives

#### CC3.1

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

Absolute target

#### CC3.1a

Please provide details of your absolute target

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

ID	Scope	% of emissions in scope	% reduction from base year	Base year	Base year emissions covered by target (metric tonnes CO2e)	Target year	Is this a science-based target?	Comment
Abs1	Scope 2 (market-based)	5%	3.3%	2013	13862	2015	No, but we anticipate setting one in the next 2 years	Using power saving algorithms in data centers, free cooling, inverter replacements, modifications of air conditioning systems, PV installations and using high efficiency rectifiers.
Abs2	Scope 3: Employee commuting	13%	22%	2014	10503	2015	No, and we do not anticipate setting one in the next 2 years	Route optimization.

### CC3.1b

Please provide details of your intensity target

ID	Scope	% of emissions in scope	% reduction from base year	Metric	Base year	Normalized base year emissions covered by target	Target year	Is this a science-based target?	Comment
----	-------	-------------------------	----------------------------	--------	-----------	--	-------------	---------------------------------	---------

### CC3.1c

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

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

**CC3.1d**

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

ID	Energy types covered by target	Base year	Base year energy for energy type covered (MWh)	% renewable energy in base year	Target year	% renewable energy in target year	Comment
----	--------------------------------	-----------	--	---------------------------------	-------------	-----------------------------------	---------

**CC3.1e**

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

ID	% complete (time)	% complete (emissions or renewable energy)	Comment
Abs1	100%	100%	Despite the network expansion, Turkcell increased its electricity consumption only 2% compare to previous year. Turkcell takes energy efficiency measures in their headquarters and data centers.



CC3.1f

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

CC3.2

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

Yes

CC3.2a

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

Level of aggregation	Description of product/Group of products	Are you reporting low carbon product/s or avoided emissions?	Taxonomy, project or methodology used to classify product/s as low carbon or to calculate avoided emissions	% revenue from low carbon product/s in the reporting year	% R&D in low carbon product/s in the reporting year	Comment
Group of products	Turkcell offers innovative solutions for its clients for increasing saving and efficiency of their processes. M2M (Machine to Machine) is a new technology designed to enable machines to be managed and monitored remotely and communicate to each other through a specified SIM	Avoided emissions	Other:	2.9%	Less than or equal to 10%	source: Turkcell has reached 1.9M M2M subscribers with 26.7% increase compared to

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
	card. M2M services offered by Turkcell include Smart Device, Mobile POS ,Team Mobile , Smart Energy , Smart House, Smart Industry. So far, under Turkcell's Corporate Win Program, Turkcell has provided \$ 13.6 million to their customers and have helped those brands with whom they collaborate to grow in turnover by \$ 164 million. First quarter of 2015 Turkcell has reached 2.7 million M2M customers. Cloud computing based services has reached 1.7 million users. Cloud technology reduces the server related costs and increases the capacity of the servers.					previous year.

**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	8	5000
To be implemented*		
Implementation commenced*		
Implemented*	12	5985
Not to be implemented		

### CC3.3b

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

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/ Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
Energy efficiency: Processes	Modernisation of air conditioning systems, use of inverter type air conditioners	1052	Scope 2 (location-based)	Voluntary	618399	2845810	1-3 years	6-10 years	Payback periods based on returns in 2015. Activities enabling CO2 saving Scope 2 also reduces Scope 3 Emissions however, those were not quantified in the table.
Energy efficiency: Processes	Installation of Free cooling systems in base stations	158	Scope 2 (location-based)	Voluntary	92852	1761200	4-10 years	11-15 years	Payback periods based on returns in 2015. Activities enabling CO2 saving

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/ Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
									Scope 2 also reduces Scope 3 Emissions however, those were not quantified in the table.
Energy efficiency: Processes	Removal of Excess (Unnecessary) Rectifier Units	649	Scope 2 (location-based)	Voluntary	381538	88819	<1 year	6-10 years	Payback periods based on returns in 2015. Activities enabling CO2 saving Scope 2 also reduces Scope 3 Emissions however, those were not quantified in the table.
Energy efficiency: Processes	Cabinet Swamp	306	Scope 2 (location-based)	Voluntary	180036	4967380	<1 year	6-10 years	Payback periods based on returns in 2015. Activities enabling CO2 saving Scope 2 also reduces Scope 3 Emissions however, those were not quantified in the table.
Energy efficiency: Processes	Changing Cabinet types	2657	Scope 2 (location-based)	Voluntary	1561187		<1 year	6-10 years	Payback periods based on returns in 2015. Activities enabling CO2 saving Scope 2 also reduces Scope 3 Emissions however, those were not quantified in the table.
Product design	Use of outdoor cabinets for saving air conditioning demand	61	Scope 2 (location-based)	Voluntary	35854	2419020	<1 year	11-15 years	Payback periods based on returns in 2015. Activities enabling CO2 saving Scope 2 also reduces Scope 3 Emissions however, those were not

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
									quantified in the table.
Energy efficiency: Building services	LED lighting in seven buildings, chiller replacement in Samsun Headquarters.	166	Scope 2 (location-based)	Voluntary			>25 years	6-10 years	Payback periods based on returns in 2015. Activities enabling CO2 saving Scope 2 also reduces Scope 3 Emissions however, those were not quantified in the table.
Energy efficiency: Processes	Power and chiller system savings by switching off unused servers	463	Scope 2 (location-based)	Voluntary	170085		<1 year	<1 year	Payback periods based on returns in 2015. Activities enabling CO2 saving Scope 2 also reduces Scope 3 Emissions however, those were not quantified in the table.
Energy efficiency: Processes	Power and chiller system savings by switching off unused servers in superonline points	473	Scope 2 (location-based)	Voluntary	104186		<1 year	<1 year	Payback periods based on returns in 2015. Activities enabling CO2 saving Scope 2 also reduces Scope 3 Emissions however, those were not quantified in the table.

CC3.3c

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

Method	Comment
Dedicated budget for energy efficiency	Turkcell has established Energy Committee in 2014. One of the responsibilities of the committee is reviewing the Energy consumption & efficiency plans. Within this scope, investment needs, returns and cost benefit analysis are made and submitted to management for approval. Dedicated budgets are reserved for approved investments. Turkcell energy efficiency initiatives throughout 2014 saved 15.9 million kWh (equivalent to the annual energy consumption of 5,900 households), demonstrating our respect for the environment. Furthermore, we have increased the number of base stations powered by renewable energy. Moreover, we have installed energy measurement systems to monitor our energy consumption. We have built a system to monitor our energy consumption; carry out energy efficiency studies and make improvements where necessary. The system has received ISO50001 (Energy Management System) certification, and Turkcell remains the industry leader in this regard.
Other	Turkcell set Cisco systems to utilize video conferances to reduce business related impacts on environment. In 2015, over 69000 meeting was realised over cisco systems.

CC3.3d

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

#### Further Information

**Page: CC4. Communication**

CC4.1

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

Publication	Status	Page/Section reference	Attach the document	Comment
In voluntary	Complete	pages 60- 61	<a href="https://www.cdp.net/sites/2016/45/21145/Climate Change 2016/Shared">https://www.cdp.net/sites/2016/45/21145/Climate Change 2016/Shared</a>	Annual

Publication	Status	Page/Section reference	Attach the document	Comment
communications			Documents/Attachments/CC4.1/Turkcell-AR-2015-ENG.pdf	Report

#### Further Information

### Module: Risks and Opportunities

#### Page: CC5. Climate Change Risks

#### CC5.1

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

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

#### CC5.1a

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

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
-------------	-------------	------------------	-----------	------------------	------------	---------------------	----------------------------------	-------------------	--------------------

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Cap and trade schemes	Turkey has signed the agreement for Partnership for Market Readiness (PMR) and the Project implementation has started. The Project Development Objective (PDO) of the Partnership for Market Readiness Project (PMR Project) Implementation Phase is to assist Turkey implement a greenhouse gas Monitoring, Reporting, and Verification (MRV) pilot in the electricity sector, based on Turkey's MRV regulation, and to provide analytical information for the establishment of a carbon market in Turkey.	Increased operational cost	3 to 6 years	Indirect (Supply chain)	Very likely	Low-medium	Electricity is major input and cost item for operation of base stations and data centers. Around 15% of operational costs are due to Energy consumption. Implementation of cap and trade schemes may increase cost of utility companies and thus cost of purchased electricity from suppliers.	Turkcell is implementing projects to reduce energy and emission intensity from all Operations. Those efforts include; - Improving cooling performance of equipment & natural cooling techniques -Using more Energy efficient equipment in base stations & data centers - Designing new Office&data centers as per green building (LEED etc.) standards - Installing solar & wind powered energy generation in base stations	Communication cost may increase by less than 1%.
Uncertainty surrounding new regulation	If Turkey joins the EU, it will implement the EU's Emission Trading	Increased capital cost	3 to 6 years	Direct	More likely than not	Low-medium	Uncertainty and delay in action may cost increase in demand for	Regulations which may affect Turkcell Operations	Increasing R&D expenses and energy investment .



Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>Scheme (EU-ETS) directive as a part of its acquis communautaire. According to the current schedule of the acquis, Turkey would need to transpose the EU ETS directive to Turkish law by 2019. Also, Turkey signed the Paris agreement which is a more ambitious agreement than Kyoto Protocol but provides more flexible market mechanisms to meet emission reduction target. However, since there is no regulation or a roadmap for Carbon pricing, taxation or renewable energy certificates &amp; pricing, investment strategy for energy efficiency &amp; use of renewables in operations is hampered.</p>						financing new investments and cost of compliance.	directly or indirectly are monitored. Strategies are developed for various scenarios.	Cost for current scenario is around \$100K for monitoring and compliance with regulations.

Risk driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Fuel/energy taxes and regulations	We are impacted by fuel prices and increasing energy taxes. We also demand energy to power the network and our operations. While we are making improvements in the efficiency of our operations and fleet, fuel/energy taxes and regulations could impact our company	Increased operational cost	1 to 3 years	Direct	Likely	Low-medium	Cost of energy supply may increase by 10%.	Investment in alternative energy resources.	Increasing R&D expenses by 10% and increasing energy investment by 20%.

**CC5.1b**

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

Risk driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Change in mean (average)	Turkcell has base stations in all around Turkey.	Increased capital cost	1 to 3 years	Direct	Very likely	Medium-high	Around 16% of energy consumption in	Investing in new technology for design of base stations, data	Equipment investments increase by

Risk driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
temperature	<p>Climate change scenarios show an increasing trend for mean temperature coupled with increased/reduced precipitation in different regions. Higher mean temperatures result in higher cooling demand and costs. Problems may occur in Data Center feeding equipment/systems. These might be potential damage to network equipment and increased power to cool network equipment and result in reduced performance or disruption of the service. As a conclusion, it may require replacement of equipment with higher cooling capacity systems.</p>						<p>base stations is due to cooling equipment. New higher capacity equipment investments will be needed to provide continuity of the services. This will increase both capital and operational costs.</p>	<p>centers considering future climate projections</p>	<p>10 to 20%.</p>

Risk driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Change in precipitation extremes and droughts	Potential damage to network equipment and property from flooding or landslide due to increased precipitation intensity. Flooding will also affect access to sites for maintenance & repair of the equipment.	Reduction/disruption in production capacity	1 to 3 years	Direct	Very likely	Medium-high	Increased cost due to flood prevention&resiliency measures in Critical infrastructure of the company.	Assessment of vulnerabilities of the Critical assets considering the climate related risks.	Related investments increase by 10 to 20%.
Change in temperature extremes	Fluctuations in temperatures make it difficult to predict energy needs for the year. Extreme temperatures and heat waves will create conditions beyond the design parameters of the system. As a result, this will cause performance loss or failure in quality of the services provided.	Reduced demand for goods/services	3 to 6 years	Direct	Likely	Medium-high	Cost of improving resiliency will increase due to increased investment and operational costs.	Investing in new technology&infrastructure for monitoring the system performance, analyzing hazard risks and early warning.	Related investments increase by 10 to 20%.

CC5.1c

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

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Reputation	ICT is one of the fastest growing sectors and Carbon footprint of ICT services and products are increasing in parallel. Consumer awareness about environmental impact of services and products used is increasing and demand is shifting to greener and low Carbon services and products. If Turkcell can not respond the demand from its individual and corporate customers for greener, low carbon and energy efficient services, it can cause reputation loss and decrease demand for Turkcell services.	Reduced demand for goods/services	1 to 3 years	Direct	Likely	Low-medium	Changing consumer demand for Turkcell services and decreasing revenues.	Increasing climate centered public communication and disclosing information on Turkcell's performance on GHG reduction. Developing innovative services (M2M or remote reading etc) to respond demand and avoid emissions.	Increasing corporate communication costs by 2%

CC5.1d

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

---

CC5.1e

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

---

CC5.1f

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

---

**Further Information**

**Page: CC6. Climate Change Opportunities**

---

CC6.1

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

Opportunities driven by changes in regulation

Opportunities driven by changes in physical climate parameters

Opportunities driven by changes in other climate-related developments

CC6.1a

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

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
International agreements	Global GHG emissions are increasing however, ICT provides a significant potential for emission reduction. GeSI Smarter 2020 report demonstrates how the increased use of information and communication technology (ICT) such as video conferencing and smart building management could cut the projected 2020 global greenhouse	New products/business services	3 to 6 years	Direct	Virtually certain	Medium-high	Increase revenue, need of the product and product diversity due to new and value added services.	Dissemination of M2M services and developing new solutions for other sectors and cities.	Cost of R&D staff engaged in developing relevant solutions.

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>gas (GHG) emissions by 16.5%, amounting to \$1.9 trillion in gross energy and fuel savings and a reduction of 9.1 Gigatonnes carbon dioxide equivalent (GtCO<sub>2</sub>e) of greenhouse gases. Turkcell provides machine to machine(M2M) solutions in many sectors including smart meter remote reading, fleet monitoring solutions, remote temperature control systems for transport services, diesel generator monitoring systems which help save Energy and reduce emissions.</p>								



Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	Turkey signed Paris Climate Accord and the agreement encourages countries to scale up emission reduction activities. The Ministry of Environment and Urbanization of Turkey have started working on city level carbon inventories. Turkcell participated in Smart City Gaziantep Project and developed M2M systems to increase efficiency.								
Voluntary agreements	Turkcell is spending effort to reduce GHG emissions and thus Energy consumption. Reduced emissions in	Reduced operational costs	1 to 3 years	Direct	Very likely	Medium-high	Reduced operational costs due to improved efficiency of the equipment used and services	Better monitoring of Energy consumption for facilities , equipment and vehicles. Collaboration	Negligible additional cost.

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	many cases correspond to reduced energy consumption and dependency on energy sources. Voluntary reporting initiatives, commitments and targets help in increasing the efficiency and saving operational costs.						provided. Energy committee has been established within Turkcell to identify saving potentials, implement and monitor the results of the improvements.	with research institutions for ensuring environmental performance of equipment purchased.	
Fuel/energy taxes and regulations	The potential of smart mobile applications (M2M) is observed particularly in smart transportation and logistics with smart grids and meters. Turkcell is collaborating with all of the electricity distribution companies in	Premium price opportunities	Up to 1 year	Direct	Virtually certain	Medium-high	Increasing revenue and penetration to new sectors and implementation areas.	Dissemination of M2M services and developing new solutions for other sectors.	Negligible

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	Turkey and offering smart meter solutions. By 2015, Turkcell has around 182000 smart meters. M2M solutions contributed to the national economy more than 2.1 billion TL in 2015. Over 650000 vehicle was modified to smart vehicle and approximately 1,5 billion TL fuel saved.								

**CC6.1b**

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

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Change in	Changes in mean	Increased	3 to 6	Direct	Likely	Low	Increasing	Site	Process is

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
temperature extremes	temperature has in part prompted installation of new technology that itself allows Turkcell the opportunity to save money and emissions such as by using wind turbine power and network electricity alternately, and set up solar and wind power-operated communication units.	demand for existing products/services	years				capital investment, reduced operational costs	assessments are made considering the reliability of the electricity grid, wind potential and solar potentials. Cost of disruption in services is also considered as a loss.	managed by Energy team of Turkcell. Investment costs and returns are assessed by financial team.
Change in precipitation extremes and droughts	In order to take advantage of this opportunity, under the Business Continuity Management System, solutions are actively developed for all of our customers to use in case of disasters or emergencies. Detailed information about some of these solutions, i.e. "Urgent SMS", "Disaster and Emergency Service" and "Earthquake	Increased demand for existing products/services	Up to 1 year	Direct	Very likely	Low-medium	Increasing revenue due to use of new services.	Increasing market penetration of the services and awareness about the services provided.	Negligible additional cost.

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	Service”								
Change in mean (average) temperature	Changes in mean temperature has in part prompted installation of new technology that itself allows Turkcell the opportunity to save money and emissions such as by introducing the newly-mounted free cooling equipment.	Reduced operational costs	Up to 1 year	Direct	Very likely		Increasing revenue	Site assessments are made considering the reliability of the electricity grid, weather conditions and performance of the equipments used in the facilities.	Process is managed by Energy team of Turkcell. Investment costs and returns are assessed by financial team.

CC6.1c

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

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Reputation	Public awareness related to climate change will increase, the environmental performance of companies will become more of an issue. Therefore, we aimed at	Increased demand for existing products/services	Up to 1 year	Direct	Very likely	Medium	Increasing revenue	Turkcell is reducing GHG emissions due to improvements in processes, equipments and facilities. In addition Turkcell is also providing solutions which avoids GHG	Negligible

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	increasing the awareness related to environment and climate change.							emissions. For communication with the clients and stakeholders, Turkcell will be disclosing more detailed information on the climate mitigation efforts in company reports and bulletins.	
Changing consumer behaviour	Level of environmental awareness is increased by Turkish customers. At the same time, competitors also more actively communicate their sustainability initiatives and products on the market. We highly expect this trend to continue and customers to ask about the company's ability to manage climate related issues such as energy and GHG emissions .	Increased demand for existing products/services	Up to 1 year	Direct	Very likely	Medium	Increasing revenue	Assessing the needs of the clients and developing new products for individual and institutional clients.	Negligible
Other drivers	Increase demand for 'smart' solutions including smart	Increased demand for existing	Up to 1 year	Direct	Virtually certain		Increasing revenue	Revenue management	Negligible

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	grid and smart logistics from Governments and commercial customers.	products/services							
Other drivers	Energy efficiency is a very critical topic at Government's energy agenda. Depending on Government's level of ambition to take energy reduction target, energy prices are very likely to fluctuate. For this reason taken energy optimization measures by Turkcell is expected to reduce energy consumption hence save the budget. In this way electricity price risk can be converted to an opportunity.	Reduced operational costs	>6 years	Direct	Very likely	High	Less expenses for per kwh energy consumption.	Optimization of physical network, free cooling, changes in HEPA filters,	
Other drivers	Investor of Turkcell are not only interested in financial performance but also nonfinancial measures, such as	Increased stock price (market valuation)	1 to 3 years	Direct	Very likely	High	Increasing revenue	Disclosing information to all investors through user-friendly, up-to-date website, Investor Relations Application (IR	Negligible

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>sustainability. The BIST Sustainability Index provides the opportunity for companies to develop their risk management skills regarding corporate transparency and sustainability with accountability. Turkcell has been on the 2014 and 2015 BIST Sustainability Index. This is directly linked with meeting demand for investors who seeks greener investments, hence increasing market value.</p>							App) and Twitter on a timely basis	

CC6.1d

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



---

CC6.1e

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

---

CC6.1f

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

---

**Further Information**

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

**Page: CC7. Emissions Methodology**

---

CC7.1

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

Scope	Base year	Base year emissions (metric tonnes CO2e)
Scope 1	Tue 01 Jan 2013 - Tue 31 Dec 2013	8391

Scope	Base year	Base year emissions (metric tonnes CO2e)
Scope 2 (location-based)	Tue 01 Jan 2013 - Tue 31 Dec 2013	243054
Scope 2 (market-based)	Tue 01 Jan 2013 - Tue 31 Dec 2013	0

## 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)
IPCC Guidelines for National Greenhouse Gas Inventories, 2006
ISO 14064-1
US EPA Climate Leaders: Direct HFC and PFC Emissions from Use of Refrigeration and Air Conditioning Equipment
Other

## 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

GHG Protocol- GHG Emissions from Transport or Mobile Sources Tool Version 2.6  
 2012 Guidelines to DEFRA for DECC's GHG Conversion Factors for Company Reporting- EFs were used for Calculation of Waste Emissions

---

**CC7.3**

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

Gas	Reference
CO2	IPCC Fifth Assessment Report (AR5 - 100 year)
CH4	IPCC Fifth Assessment Report (AR5 - 100 year)
N2O	IPCC Fifth Assessment Report (AR5 - 100 year)
HFCs	Other: EPA: GWPs and Ozone Depletion Potentials of Some Ozone-Depleting Substances and Alternatives Listed by the SNAP Program

---

**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
Diesel/Gas oil	0.0741	metric tonnes CO2 per GJ	IPCC 2006 Chapter 2 Table 2.4
Electricity	0.472	metric tonnes CO2e per MWh	IEA (2012). CO2 Emissions from Fuel Combustion, 2013 Edition, Highlights. International Energy Agency Emission Factor for Turkey
Motor gasoline	0.0693	metric tonnes CO2	IPCC 2006 Chapter 2 Table 2.4

Fuel/Material/Energy	Emission Factor	Unit	Reference
		per GJ	
Natural gas	0.0561	metric tonnes CO2 per GJ	IPCC 2006 Chapter 2 Table 2.4

---

#### Further Information

**Page: CC8. Emissions Data - (1 Jan 2015 - 31 Dec 2015)**

---

#### 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**

15155

---

#### CC8.3

**Does your company have any operations in markets providing product or supplier specific data in the form of contractual instruments?**

No

**CC8.3a**

Please provide your gross global Scope 2 emissions figures in metric tonnes CO<sub>2</sub>e

Scope 2, location-based	Scope 2, market-based (if applicable)	Comment
288560		

**CC8.4**

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

Yes

**CC8.4a**

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

Source	Relevance of Scope 1 emissions from this source	Relevance of location-based Scope 2 emissions from this source	Relevance of market-based Scope 2 emissions from this source (if applicable)	Explain why the source is excluded
--------	---	--	--	------------------------------------

Source	Relevance of Scope 1 emissions from this source	Relevance of location-based Scope 2 emissions from this source	Relevance of market-based Scope 2 emissions from this source (if applicable)	Explain why the source is excluded
TRT Base Stations	Emissions are relevant but not yet calculated	Emissions are relevant but not yet calculated	Emissions are relevant but not yet calculated	These sites are operated in cooperation with Turkish Radio and Television (approximately 0.3% of total sites), there are no electricity meters and site records that are available to Turkcell. Turkcell will strive to include diesel generator fuel consumption under Scope 1 and electricity consumption under Scope 2 for future reporting periods.

#### 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 2% but less than or equal to 5%	Data Gaps Assumptions Metering/ Measurement Constraints Data Management	Turkcell operates in several locations including remote places. Different types of invoicing procedures are applied in different locations. Even though more than 90% of Turkcell locations can be monitored online some data gaps and assumptions were faced during the calculations.
Scope 2 (location-based)	More than 2% but less than or equal to 5%	Data Gaps Assumptions Metering/ Measurement Constraints	Turkcell operates in several locations including remote places. Different types of invoicing procedures are applied in different locations. Even though more than 90% of Turkcell locations can be monitored online some data gaps and assumptions were faced during the calculations.

Scope	Uncertainty range	Main sources of uncertainty	Please expand on the uncertainty in your data
		Data Management	
Scope 2 (market-based)			n/a

#### CC8.6

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

Third party verification or assurance process in place

#### CC8.6a

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

Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/section reference	Relevant standard	Proportion of reported Scope 1 emissions verified (%)
Annual process	Complete	Reasonable assurance	<a href="https://www.cdp.net/sites/2016/45/21145/Climate Change 2016/Shared Documents/Attachments/CC8.6a/Turkcell_CDP statement_docx.pdf">https://www.cdp.net/sites/2016/45/21145/Climate Change 2016/Shared Documents/Attachments/CC8.6a/Turkcell_CDP statement_docx.pdf</a>	pp: 1,2	ISO14064-3	100

**CC8.6b**

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

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

**CC8.7**

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

Third party verification or assurance process in place

**CC8.7a**

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

Location-based or market-based figure?	Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/Section reference	Relevant standard	Proportion of reported Scope 2 emissions verified (%)
Location-	Annual	Complete	Reasonable	<a href="https://www.cdp.net/sites/2016/45/21145/Climate Change">https://www.cdp.net/sites/2016/45/21145/Climate Change</a>	pp:1,2	ISO14064-	100



Location-based or market-based figure?	Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/Section reference	Relevant standard	Proportion of reported Scope 2 emissions verified (%)
based	process		assurance	2016/Shared Documents/Attachments/CC8.7a/Turkcell_CDP statement_docx.pdf		3	

#### CC8.8

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

Additional data points verified	Comment
No additional data verified	

#### CC8.9

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

No

#### CC8.9a

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

---

**Further Information**

**Page: CC9. Scope 1 Emissions Breakdown - (1 Jan 2015 - 31 Dec 2015)**

---

**CC9.1**

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

No

---

**CC9.1a**

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

Country/Region	Scope 1 metric tonnes CO2e

---

**CC9.2**

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

- By business division
- By GHG type
- By activity

---

**CC9.2a**

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

Business division	Scope 1 emissions (metric tonnes CO2e)
Base Stations	4871
Headquarters' Buildings	10284

---

**CC9.2b**

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

Facility	Scope 1 emissions (metric tonnes CO2e)	Latitude	Longitude
----------	--	----------	-----------

---

**CC9.2c**

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

GHG type	Scope 1 emissions (metric tonnes CO2e)
CO2	12579

GHG type	Scope 1 emissions (metric tonnes CO2e)
CH4	33
N2O	279
HFCs	2264

---

#### CC9.2d

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

Activity	Scope 1 emissions (metric tonnes CO2e)
Natural Gas Combustion (Space Heating)	1366
Diesel Combustion (Stationary)	781
Diesel Combustion (Base Stations)	4871
Diesel Combustion (On-road vehicles)	5871
Fugitive Emissions	2264
Fire Extinguishers	2

---

#### Further Information

**Page: CC10. Scope 2 Emissions Breakdown - (1 Jan 2015 - 31 Dec 2015)**

---

#### CC10.1

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

No

---

**CC10.1a**

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

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

---

**CC10.2**

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

By business division  
By activity

---

**CC10.2a**

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

Business division	Scope 2 emissions, location based (metric tonnes CO2e)	Scope 2 emissions, market-based (metric tonnes CO2e)
-------------------	--	--

<b>Business division</b>	<b>Scope 2 emissions, location based (metric tonnes CO2e)</b>	<b>Scope 2 emissions, market-based (metric tonnes CO2e)</b>
Base Stations	221223	
Headquarters' Buildings	62181	
Superonline POP Stations	5156	

---

**CC10.2b**

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

<b>Facility</b>	<b>Scope 2 emissions, location based (metric tonnes CO2e)</b>	<b>Scope 2 emissions, market-based (metric tonnes CO2e)</b>

---

**CC10.2c**

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

<b>Activity</b>	<b>Scope 2 emissions, location based (metric tonnes CO2e)</b>	<b>Scope 2 emissions, market-based (metric tonnes CO2e)</b>
Electricity consumption in Base Stations	221223	
Electricity consumption in Data Centers	13399	
Electricity consumption in NDC Rooms	20560	
Electricity Consumption in offices	28223	
Superonline POP Stations	5156	

---

**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**

<b>Energy type</b>	<b>Energy purchased and consumed (MWh)</b>
Heat	9553
Steam	0
Cooling	26415

---

**CC11.3**

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

48774

---

**CC11.3a**

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

Fuels	MWh
Natural gas	6742
Diesel/Gas oil	42032

**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	Comment
Off-grid energy consumption from an onsite installation or through a direct line to an off-site generator	365	As of 2015, 26 sites in Turkcell's network operate with renewable energy or hybrid (grid+renewable) systems.

**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
----------------------------------	--	----------------------------------	--	--	---------



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
611717	611352	365	365	365	Electricity generated using auxiliary diesel generators are ignored.

#### Further Information

Page: **CC12. Emissions Performance**

#### CC12.1

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

Increased

#### CC12.1a

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

Reason	Emissions value (percentage)	Direction of change	Please explain and include calculation
Emissions reduction activities	2	Decrease	In 2015 Energy efficiency and emission reduction activities led energy savings of approximately 13 million kWh.
Divestment	0		
Acquisitions	2	Increase	Turkcell Superonline emissions were added to the inventory in 2015.
Mergers	0		

Reason	Emissions value (percentage)	Direction of change	Please explain and include calculation
Change in output	0		
Change in methodology	0.2	Decrease	Change in GWP values
Change in boundary	2.5	Increase	2 more headquarters were added to the boundaries of the inventory. Also expansion in Turkcell's network.
Change in physical operating conditions	0		
Unidentified	0		
Other	20	Increase	Longer power cuts caused more generator working hours.

---

#### 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
0.000024	metric tonnes CO2e	12769000000	Location-based	1.3	Decrease	Although coverage of emission resources expanded in 2015, Scope 1 and 2 emissions only increased approximately 5%. The total revenue increased 6% compared to previous year.

### 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
0.0085	metric tonnes CO2e	Other: Total Subscribers	35800000	Location-based	1.2	Increase	Total number of subscribers increased 34.6 million to 35.8 million people in 2015. Also, coverage of emission sources expanded and led to increase in 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

---

**CC13.1a**

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

Scheme name	Period for which data is supplied	Allowances allocated	Allowances purchased	Verified emissions in metric tonnes CO2e	Details of ownership

---

**CC13.1b**

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

---

**CC13.2**

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

No

---

**CC13.2a**

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

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

**Further Information**

**Page: CC14. Scope 3 Emissions**

**CC14.1**

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

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
Purchased goods and services	Relevant, not yet calculated				Turkcell subcontracts another company for maintenance of base stations. Due to data management protocols this information could not be acquired. However the company is encouraged and informed about next years' reporting.
Capital goods	Relevant, not yet calculated				Turkcell facilitates a number of technologies and hardware. Innovation is the core of the company therefore there is a continuous upgrade system for keeping up with advanced technologies. These emissions will be taken into account in the next reporting years.

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
Fuel-and-energy-related activities (not included in Scope 1 or 2)	Relevant, calculated	46109	IPCC Methodology for electricity losses and 2013 Government GHG Conversion Factors for Company Reporting: Methodology Paper for Emission Factors July 2013 , DEFRA	100.00%	Turkcell makes use of several types of fuels for heating and transportation. Upstream emissions from these fuels and electricity transmission losses are taken into account.
Upstream transportation and distribution	Relevant, calculated	1404	GHG Protocol: "GHG emissions from transport or mobile sources" Tool v2.6	100.00%	Turkcell subcontracts another company for upstream transportation of equipment and other goods. Fuel consumption data along with logistic routes are acquired from the company, data is incorporated into GHG tool and crosschecked against fuel consumptions before submission for verification.
Waste generated in operations	Relevant, calculated	35	2012 Guidelines to Defra / DECC's GHG Conversion Factors for Company Reporting	60.00%	Turkcell operations require regular upgrades and replacements of broken and out dated equipments. These equipment parts along with other types of wastes are categorized into twenty groups and emissions resulting from waste generation is calculated.
Business travel	Relevant, calculated	3150	ICAO	100.00%	Turkcell keeps track of all employee flights via an integrated online database. The flights in Turkcell's database was calculated. Emissions from road travels are included in scope 1 as Turkcell uses long term leased fleets.
Employee commuting	Relevant, calculated	8206	GHG Protocol: "GHG emissions from transport or mobile sources" Tool v2.6	100.00%	Daily commuting activities is carried out by a third party company commissioned by Turkcell. Fuel consumption data together with the daily checkpoints are acquired from the company and incorporated into the GHG Protocol transport tool. Fuel consumption data is also crosschecked during verification.
Upstream leased assets	Not relevant, explanation provided		N/A		Turkcell operates leased assets in several locations. These assets are considered under scope 1 emissions as the operational control belongs to

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
					Turkcell.
Downstream transportation and distribution	Not relevant, explanation provided		N/A		Turkcell smart devices are manufactured by a third party company on behalf of Turkcell. Transportation of these goods are accomplished via courier services. No specific data could be reached for these activities.
Processing of sold products	Not relevant, explanation provided		N/A		There is no intermediary product sold by Turkcell which is processed.
Use of sold products	Relevant, calculated	2998	IPCC Methodology for energy related activities	100.00%	Turkcell has sold approximately 2000000 units of smart devices (T-series) end of 2015. Emissions are calculated assuming the devices are re-charged once per day and they were all used 365days in the reporting year.
End of life treatment of sold products	Relevant, not yet calculated				Turkcell encourages campaigns and promotes collection of outdated devices and electronic wastes for reuse. Due to data quality these emissions are not calculated.
Downstream leased assets	Not relevant, explanation provided				There are no downstream leased assets for Turkcell.
Franchises	Not relevant, explanation provided				Turkcell vendors do not operate in the form of franchises. Each vendor is a separate company.
Investments	Not relevant, explanation provided				Turkcell İletişim A.Ş. operates in Turkey and reports within boundaries of Turkey. There are no domestic investments for Turkcell.
Other (upstream)					
Other (downstream)	Not relevant, explanation provided				There is no relevant downstream GHG emissions.

---

**CC14.2**

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

Third party verification or assurance process in place

---

**CC14.2a**

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

Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/Section reference	Relevant standard	Proportion of reported Scope 3 emissions verified (%)
Annual process	Complete	Reasonable assurance	<a href="https://www.cdp.net/sites/2016/45/21145/Climate%20Change%202016/Shared%20Documents/Attachments/CC14.2a/Turkcell_CDP_statement_docx.pdf">https://www.cdp.net/sites/2016/45/21145/Climate Change 2016/Shared Documents/Attachments/CC14.2a/Turkcell_CDP statement_docx.pdf</a>	pp: 1,2	ISO14064-3	95

---

**CC14.3**

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

Yes

---

**CC14.3a**

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



Sources of Scope 3 emissions	Reason for change	Emissions value (percentage)	Direction of change	Comment
Fuel- and energy-related activities (not included in Scopes 1 or 2)	Mergers	2	Increase	Increase in number of generator and duration of power cut due to the expansion of network
Employee commuting	Other: Route optimization	22	Decrease	Two of the headquarters of Turkcell were closed and moved to the one plaza which is located in the most convenient place for employees. Employee Service Routes were optimised.
Upstream transportation & distribution	Other: No Change	0	No change	There is no change experienced in upstream transportation and distribution activities.
Waste generated in operations	Change in output	12.5	Decrease	Approximately 60% of the waste related emissions were calculated. Compare to the previous years 60% of emissions lesser waste was generated.
Business travel	Change in methodology	50	Increase	Turkcell keeps track of all employee flights via an integrated online database. The flights in Turkcell's database was calculated in 2015 by using ICAO tool which is different from previous years methodology. However, previous years calculations were made according to the ICAO tool as well. Besides the methodology change, Turkcell emerged with the Superonline, hence number of flights increased and estimation range expanded.
Use of sold products	Change in boundary	262	Increase	Turkcell has sold approximately 2000000 units of smart devices (T-series) end of 2015. In 2014 only T50 series emissions were calculated. In 2015 all of the saled T-series emissions until end of the year 2015 were calculated.

#### 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

Yes, other partners in the value chain

---

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

Turkcell engages with the value chain in a number of different methods.

First of all, Turkcell attach importance to contribute the national economy and choose their suppliers from local companies. Indirectly Turkcell reduce its impact on the ecosystem. One of the strategy to prioritise the engagement is the established Ethic Procurement Rules to make the business relationships more transparent and standard. The rules are related in child labor, bribery, working hours, health, environment etc. Under the environmental rules green procurement principles were also determined. The suppliers are informed about the principles in written format, this enables suppliers to understand Turkcell's needs in energy efficient and environmentally friendly products. Turkcell also asks for the suppliers to commit to be compatible with the rules.

Secondly, Turkcell strives to develop more energy efficient technologies and products. In this way, Turkcell creates an energy awareness and attracts customers. Success is measured by the savings more peoples's engagement with energy efficient technologies. In 2015, Turkcell reached 1.9 Million M2M(MachineToMachine) subscribers who takes the advantages of remote managing and monitoring of their businesses. Turkcell offers to its customers thousands of vehicles which were transformed into "smart vehicles" and an annual fuel saving worth approximately 1,5 billion TL has been achieved in 2015.

---

**CC14.4b**

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

Number of suppliers	% of total spend (direct and indirect)	Comment
---------------------	--	---------

---

**CC14.4c**

If you have data on your suppliers' GHG emissions and climate change strategies, please explain how you make use of that data

How you make use of the data	Please give details
------------------------------	---------------------

---

**CC14.4d**

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

---

**Further Information**

**Module: Sign Off**

**Page: CC15. Sign Off**

---

**CC15.1**

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

Name	Job title	Corresponding job category
------	-----------	----------------------------

---

**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”**

DC are data centers that contain servers, storage backups and physical infrastructures of services that are managed by ICT (Information and Communication Technologies) department. There are also 9 ICT (Information and Communication Technologies) data centers in our network. They are located in Istanbul (Kartal and Maltepe), Ankara (Söğütözü) and İzmir (Bornova).

Base stations allow the signal to be transmitted between user’s mobile phone and operator’s MSC server. Base stations are established locally and can give service to a certain radius. Maximum service area a base station may give service is 20-30 kilometers. A base station consists of a cabinet that contains electronic circuit board allowing signal process, antenna, pole for building tops or tower for rural areas, energy infrastructure materials, air conditioner etc.

**ICT1.2**

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

<b>Business activity</b>	<b>Scope 1 emissions (metric tonnes CO2e)</b>	<b>Scope 2 emissions (metric tonnes CO2e)</b>	<b>Annual electricity consumption (MWh)</b>	<b>Electricity data collection method</b>	<b>Comment</b>
Data centers	2264	13399	28387	Meter or submeter reading	There are 9 data centers, located in Istanbul (Kartal and Maltepe), Ankara (Söğütözü) and İzmir (Bornova). Scope 1 emissions only reflect the fugitive refrigerant emissions.

**ICT1.3**

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

<b>Percentage</b>	<b>Comment</b>
100%	100% of ICT hardware sits in data centers where Power Usage Effectiveness (PUE) is measured on the regular basis.

**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

**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
9	1.65	3	Decrease	Energy efficiency projects

**ICT1.4b**

Please provide the range of PUE values across your data centers

Number of data centers	PUE Minimum Value	% change of PUE Minimum Value from previous year	PUE Maximum Value	% change of PUE Maximum Value from previous year	Direction of change	Comment
------------------------	-------------------	--	-------------------	--	---------------------	---------

**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
-----------------------	-----------	-----------------------------	---------------------	---------

**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)?**

Yes

---

**ICT1.6a**

**Please provide details on the alternative intensity metrics you use to assess the energy or the emissions performance of your data center(s)**

Data Center Infrastructure Efficiency (DCiE) is also used together with PUE. DCiE average for Turkcell is higher than 60%.

---

**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	Air conditioning systems in data centers have been replaced.
Implemented	Power Management Efficiencies	As part of ISO50001 activities, several monitoring and improvement points are implemented.
Planned	Power Management Efficiencies	Changing cabinet types, free cooling modifications, removing rectifier units.

---

**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
LEED	Turkcell Datacenter Gebze-Certification in progress	25%

---

**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)?

---

**ICT1.10**

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

No

---

**ICT1.10a**

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

---

**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**

Turkcell is designing its new data centers to be in compliance with green building standards. Within this scope, opportunities are investigated to supply part of electricity from renewables or from green electricity suppliers.

---

**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"**

NDC are network data centers. They consist of switching centers and databases like MSC, HLR, MGW etc. MSC (Mobile Switching Center) servers are swithing units used in mobile networks. This structural element is a telephone exchange that enables connection between mobile users in same or different networks. MSC also enables conection between mobile network and public switched telephone network. While enabling these connections MSC uses other servers and databases lika MGW (Media Gateway), HLR (Home Location Register) and VLR (Visitor Location Register). There are 24 network data centers at Turkcell network. These servers are located in Adana, Adapazarı, Ankara, Antalya, Balıkesir, Bursa, Denizli, Diyarbakır, Erzurum, Eskişehir, Gaziantep, Hatay, İstanbul, İzmir, Kayseri, Kocaeli, Konya, Malatya, Manisa, Mersin, Muğla, Samsun, Tekirdağ, Trabzon, Van, Zonguldak.

---

**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		20560	43558	Meter or submeter reading	7% of the total Scope 2 emissions are due to the NDCs

### 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
0.0012	MWh	Subscriber	14	Decrease	Use of energy efficient equipments.	

### ICT2.4

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

Electricity consumption of network data centers is divided into the total subscriber of Turkcell which is 35.8 million people in 2015.

### ICT2.5

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

No

### ICT2.5a

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

---

**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

---

**ICT3.1**

Please provide a description of the parts of your business that fall under "manufacture or assembly of hardware/components"

---

**ICT3.2**

Please provide your absolute Scope 1 and 2 emissions and electricity consumption for the manufacture or assembly of hardware/components part 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
-------------------	---	---	---	---------------------------------------	---------

---

**ICT3.3**

Please identify the percentage of your products meeting recognized energy efficiency standards/specifications by sales weighted volume (full product range)

Product type	Standard (sleep mode)	Percentage of products meeting the standard by sales volume (sleep mode)	Standard (standby mode)	Percentage of products meeting the standard by sales volume (standby mode)	Standard (in use mode)	Percentage of products meeting the standard by sales volume (in use mode)	Comment
--------------	-----------------------	--	-------------------------	--	------------------------	---	---------

---

**ICT3.4**

Of the new products released in the reporting year, please identify the percentage (as a percentage of all new products in that product type category) that meet recognized energy efficiency standards/specifications

Product type	Standard (sleep mode)	Percentage of new products meeting the standard (sleep mode)	Standard (standby mode)	Percentage of new products meeting the standard (standby mode)	Standard (in use mode)	Percentage of new products meeting the standard (in use mode)	Comment
--------------	-----------------------	--	-------------------------	--	------------------------	---	---------

---

**ICT3.5**

Please describe the efforts your organization has made to improve the energy efficiency of your products

---

**ICT3.6**

Please describe the GHG emissions abatement measures you have employed specifically in your ICT manufacturing operations

---

**ICT3.7**

Do you provide carbon emissions data to your clients regarding the hardware/component products they procure?

---

ICT3.7a

How do you provide carbon emissions data to your clients regarding the hardware/component products they procure?

---

**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

---

ICT4.1

Please provide a description of the parts of your business that fall under "manufacture of software"

---

ICT4.2

Please provide your absolute Scope 1 and 2 emissions and electricity consumption for the software manufacture 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
-------------------	---	---	---	---------------------------------------	---------

---

ICT4.3

Please describe your gross combined Scope 1 and 2 emissions for the software manufacture component of your business in metric tonnes CO2e per unit of production

Intensity figure	Metric numerator	Metric denominator	% change from previous year	Direction of change from previous year	Reason for change	Comment
------------------	------------------	--------------------	-----------------------------	--	-------------------	---------

---

**ICT4.4**

What percentage of your software sales (by volume) is in an electronic format?

---

**ICT4.5**

Do you provide carbon emissions data to your clients regarding the software products they procure?

---

**ICT4.5a**

How do you provide carbon emissions data to your clients regarding the software products they procure?

---

**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

Yes

---

**ICT5.1**

**Please provide a description of the parts of your business that fall under "business services (office based activities)"**

Turkcell facilitates several offices and buildings in order to manage project cycles. Telecom solutions for digital transformation, troubleshooting, customer tailored application and software development, business development, sales and site management units are office based activities.

---

**ICT5.2**

**Please provide your absolute Scope 1 and 2 emissions and electricity consumption for the business services (office based activities) 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
Business services (office based activities)	1366	28223	59792954	Meter or submeter reading	

---

**ICT5.3**

**Please describe your gross combined Scope 1 and 2 emissions for the business services (office based activities) component of your business in metric tonnes per square meter**

Intensity figure	Metric numerator	Metric denominator	% change from previous year	Direction of change from previous year	Reason for change	Comment
	metric tonnes CO2e	Square meter				

---

**ICT5.4**

**Please describe your electricity use for the provision of business services (office based activities) component of your business in MWh per square meter**

Intensity figure	Metric numerator	Metric denominator	% change from previous year	Direction of change from previous year	Reason for change	Comment
	MWh	Square meter				

**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

**ICT6.1**

Please provide a description of the parts of your business that fall under "other"

**ICT6.2**

Please provide your absolute Scope 1 and 2 emissions and electricity consumption for the identified other activity component of your business

Activity	Scope 1 emissions (metric tonnes CO2e)	Scope 2 emissions (metric tonnes CO2e)	Annual electricity consumption (MWh)	Electricity data collection method	Comment

**ICT6.3**

Please describe your gross combined Scope 1 and 2 emissions for your defined additional activity using an appropriate activity based intensity metric

Activity	Intensity figure	Metric numerator	Metric denominator	% change from previous year	Direction of change from previous year	Reason for change	Comment
----------	------------------	------------------	--------------------	-----------------------------	--	-------------------	---------

---

#### ICT6.4

If appropriate, please describe your electricity use for your defined additional activity using an appropriate activity based intensity metric

Activity	Intensity figure	Metric numerator	Metric denominator	% change from previous year	Direction of change from previous year	Reason for change	Comment
----------	------------------	------------------	--------------------	-----------------------------	--	-------------------	---------

---

#### Further Information

CDP